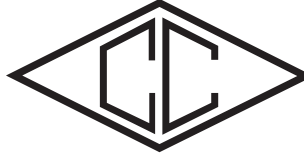


Canfield Connector Buyer's Guide

Electrical Connectors, Sensors,
Timers & Accessories



www.canfieldconnector.com
sales@canfieldconnector.com



canfield connector

Quality is our goal.

Canfield Connector is a manufacturer of interconnection devices, electronic timers, modules and specialty electronic devices targeted at the fluid power industry. Our Complete Quality Control Program (CQCP) protects our customers by assuring them of 100% test and inspection prior to shipment of all items produced at Canfield Connector. Most items are tested during the manufacturing process and again during final inspection, making our products double or triple tested for function prior to shipment. **It is our goal to attain complete customer satisfaction.** Our Quality Policy at Canfield Industries is to: Design, Fabricate, Market, Deliver and Service reliable, high-quality products on-time.

1 year warranty

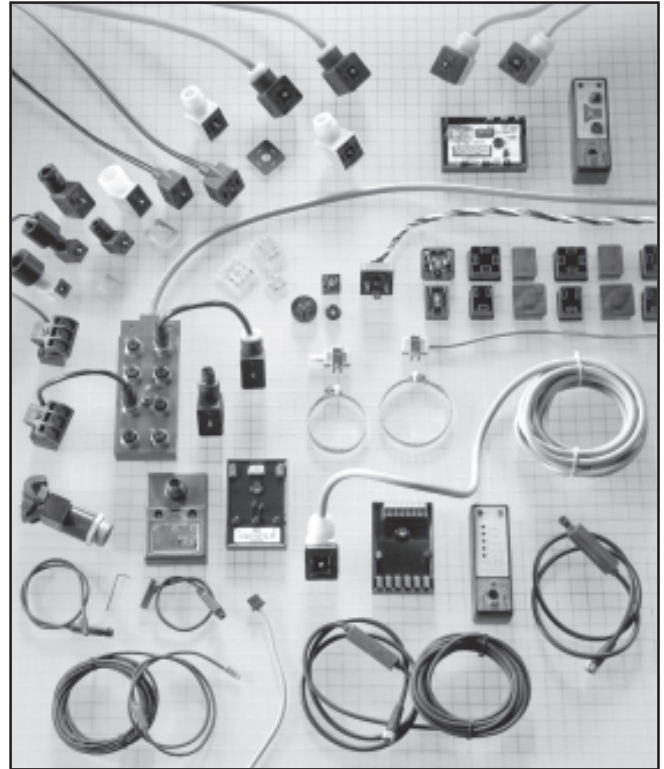
All products manufactured by Canfield Connector are warranted by Canfield Connector to be free of defects in material and workmanship for a period of one year from the purchase date. Canfield Connector's obligation under this warranty is limited to repair or replacement of the defective product or refund of the purchase price paid solely at the discretion of Canfield Connector and provided such defective product is returned to Canfield Connector freight prepaid and upon examination by Canfield Connector such product is found defective. This warranty shall be void in the event that the product has been subject to misuse, misapplication, improper maintenance, or tampering. This warranty is expressed in lieu of all other warranties, expressed or implied from Canfield Connector representatives or employees.

Technical Assistance

Our trained technical staff is available at 1-330-758-8299 to help you with your questions concerning Canfield products. All questions are welcome. We are constantly developing new product lines and custom products for different applications. Ask our sales representative for more details.

On-Line Ordering

Pre-approved customers can order on-line at Canfield Connector's web site (www.canfieldconnector.com). Apply now to streamline your ordering process.



Ordering made easy

Call us at 1-330-758-8299 to place your order or fax us at 1-330-758-8912. Our order desk is open 8:00 AM to 5:00 PM EST Monday through Friday.

Designs and Published Data

All designs and specifications are subject to change without notice. Such changes are not to be considered retroactive, and seller assumes no responsibility for revision of models already in the field. All data is sufficiently accurate for general use, but seller assumes no responsibility for errors or omissions. Certified prints are available on request, at a reasonable charge.



MADE IN USA



**DISCLAIMER: Product changes including specifications, features, designs, and availability are subject to change anytime without notice. For critical dimensions or specifications, contact factory.*



STANDARD TERMS OF SALE and RESTOCKING

1. PAYMENT:

- a) Checks are accepted subject to collection and the date of collection shall be deemed the date of payment. Any check received from Buyer may be applied by Seller against any obligation owing by Buyer to Seller, under this or any other contract, regardless of any statement appearing on or referring to such check, without discharging Buyer's liability for any additional amounts owing by Buyer to Seller; and the acceptance by Seller of such check shall not constitute a waiver of Seller's right to pursue the collection of any remaining balance.
- b) On any invoice not paid by maturity date (net thirty (30) days), Buyer shall pay interest from maturity to date of payment at the annual percentage rate of 18% (or such lower rate as may be the maximum allowable by law), together with Seller's costs of collection (including reasonable attorneys' fees).
- c) Buyer agrees to pay the entire net amount of each invoice rendered by Seller pursuant to the terms of each such invoice without offset or deduction.
- d) Prices for any undelivered Products may be increased by Seller in the event of any increase in Seller's cost of supplies, raw materials, labor or services, or any increase in Seller's cost resulting from government action or other cause beyond Seller's control.

2. CREDIT:

Seller may in its sole discretion at any time and from time to time change the terms of Buyer's credit, require payment in cash before shipment of any or all of the Products specified herein, and/or require anticipated payment of any or all amounts due or to become due under this contract. If Seller believes in good faith that Buyer's ability to make payments called for by this contract is or may be impaired, Seller may cancel this contract or any remaining balance thereof, Buyer remaining liable to pay for any Products already shipped.

3. DELIVERIES/TITLE:

- a) Subject to Seller's right of stoppage in transit, delivery of the Products to a carrier shall constitute delivery to Buyer, and risk of loss shall thereupon pass to Buyer; however, title shall remain in Seller until Buyer makes payment in full under contract. Products invoiced and held by Seller for any reason shall be at Buyer's risk and expense. Delivery route shall be the election of Seller unless specifically designated by Buyer.
- b) Delivery of any installment of Products within 30 days after the date specified therefor shall constitute a timely delivery. Thereafter, delivery shall be deemed timely unless prior to shipment Seller has received written notice of cancellation. Delivery of a quantity which does not vary by more than 10% from the quantity specified therefor shall constitute full performance of such delivery. Delay in delivery of one installment shall entitle Buyer to cancel that installment only.
- c) Should delivery of all or part of the Products specified herein (or any other obligation of Seller) be delayed by events beyond Seller's control, Seller's time for performance shall be extended by the period of delay, or Seller may, at its option, cancel this contract without liability, Buyer remaining liable for shipments already made.

4. ORDERS:

- a) Each order for Products is subject to acceptance in writing by Seller.
- b) Orders may not be cancelled or rescheduled after delivery by Seller to the carrier. In the event of allocation of Products, orders that are accepted by Seller will be accepted using a fair schedule method.
- c) Special Orders - Special orders for items not normally stocked are non-cancelable and non-returnable.

5. SELLER'S LIMITED WARRANTY AND LIMITATIONS OF LIABILITIES:

All goods sold hereunder are warranted to be free from defects in material and workmanship and to conform to applicable specifications, drawings, blueprints and/or samples. These express warranties are in lieu of and exclude all other warranties, express or implied. Seller's sole obligation under these warranties shall be to issue credit, repair, or replace any item or part thereof which is proved to be other than as warranted; no allowance shall be made for any labor charges of Buyer for replacement of parts, adjustment or repairs, or any other work, unless such charges are authorized in advance by Seller. If goods are claimed to be defective in material or workmanship or not to conform to specifications, drawings, blueprints and/or samples, Seller upon notice promptly given will either examine the goods at their site, or issue shipping instructions for return to Seller (transportation costs prepaid by Buyer). In the event any goods are proved to be other than as warranted, transportation costs to and from Seller's plant will be borne by Seller and reimbursement or credit will be made for amounts so expended by Buyer. **IN PARTICULAR, SELLER MAKES NO WARRANTY RESPECTING THE MERCHANTABILITY OF THE PRODUCTS OR THEIR SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE OR RESPECTING INFRINGEMENT.** These warranties shall not extend to any goods or parts thereof which have been subjected to misuse or neglect, damage by accident, rendered defective by reason of improper installation or by the performance of repairs or alterations outside of Seller's plant except when performed under Seller's specific authority. These warranties shall not apply to any goods or parts thereof furnished by Buyer or acquired from others at Buyer's request and/or to Buyer's specifications. **BUYER SHALL NOT IN ANY EVENT BE ENTITLED TO, AND SELLER SHALL NOT BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE INCLUDING, WITHOUT BEING LIMITED TO, LOSS OF PROFIT, LOSS OF DATA, LOSS OF USE, PROMOTIONAL OR MANUFACTURING EXPENSES, OVERHEAD, INJURY TO REPUTATION OR LOSS OF CUSTOMERS. BUYER'S RECOVERY FROM SELLER FOR ANY CLAIM SHALL NOT EXCEED BUYER'S PURCHASE PRICE FOR THE PRODUCTS IRRESPECTIVE OF THE NATURE OF THE CLAIM, WHETHER IN CONTRACT, TORT, WARRANTY, OR OTHERWISE.**

6. USE OF PRODUCTS IN LIFE SUPPORT APPLICATIONS:

Products sold by Seller are not designed for use in life support or nuclear applications. Seller's customers using or selling Products for use in life support or nuclear applications do so at their own risk, agree that Seller and the Manufacturer of Products are not liable, in whole or in part, for any claim or damage arising from such use, and agree to fully indemnify Seller and the Manufacturer from and against any and all damages, loss, cost, expense or liability arising out of or in connection with the use or performance of Products in life support or nuclear applications.

7. CLAIMS:

- a) Buyer is deemed to have accepted the Products unless notice of rejection is given within a reasonable time, which is agreed to be within seven (7) days after receipt. Buyer waives any right to revoke acceptance thereafter.
- b) Claims of late delivery are barred unless made prior to receipt of Products and the receipt of any Products shall constitute a waiver of any claim that they were delivered late.
- c) No return of Products will be accepted by Seller without a return materials authorization number (RMA#), which will be issued in Seller's sole discretion. Returned Products must be in original shipping cartons, and must be freight prepaid. Notice of defective Products must be made within seven (7) calendar days of receipt. A complete description regarding the nature of the defect must be included with all returned Products. All items not eligible for credit will be returned to Buyer, transportation collect.

8. TAXES/FREIGHT:

Unless otherwise agreed in writing, the amount of all transportation charges from Seller's location and all taxes or other charges now or hereafter imposed by any government authority upon sale, purchase, resale, delivery, manufacture, production or possession of the Products specified herein, which may be paid by Seller or for which Seller may be liable, shall be paid to Seller by Buyer in addition to the purchase price of the Products.

9. ADVICE:

If technical advice is offered or given in connection with the use of any Products it will be as an accommodation to Buyer and without charge and Seller shall have no responsibilities or liabilities whatsoever for the content or use of such advice.

10. INSTALLATION/TRAINING:

Buyer acknowledges that no installation, training or education is contracted for or purchased under terms of this contract unless specifically agreed in writing. In the event that Buyer receives any training from Seller with respect to the Products, then, in that event, such training is personal to the persons receiving such training, and Buyer acknowledges that any persons receiving such training may not be capable of operating the Products.

11. GENERAL:

- a) This contract contains the entire agreement between parties and supercedes any prior or contemporaneous oral or written agreements or communications between them relating to the subject matter hereof.
- b) This contract may not be assigned, modified or cancelled without Seller's prior written consent, and any attempt to assign, modify or cancel it without consent shall be absolutely void.
- c) No delay or omission to exercise any right, power or remedy accruing to Seller upon breach or default by Buyer under this contract shall impair any such right, power or remedy of Seller, or shall be construed as a waiver of any such breach or default. All waivers must be in writing.
- d) In the event of any of the provisions hereof shall, for any reason, be held void or unenforceable, the remaining provisions shall remain in full force and effect and shall control.
- e) Any provisions of this contract prohibited by law of any state shall as to said state, be ineffective to the extent of such prohibition without invalidating the remaining provisions of this contract.
- f) This contract shall be governed by and construed in accordance with the laws of the State of Ohio, excluding however, Ohio law pertaining to conflicts of law.

12. RESTOCKING POLICY:

Merchandise that is returned must be accompanied by pre-approved return materials authorization number (RMA#). Return authorizations will be approved by Canfield Connector. When materials are received, an inspection will be performed to determine if restocking charges are applicable. Material that does not have an authorization will be returned to the purchaser at their expense.

RESTOCKING CHARGES

- | | |
|-----|----------------------------------------------------------------------------------------------------|
| 20% | - Series 5000, 5K, R5000, P5600, 7000, 8000, 9000, M5, ILW, 9A1, 9B, D-Box and B-Type |
| 25% | - Series 5900 (Sandwich and Connector CRTs) |
| 50% | - Series C5200, D5400, 5500, 5800, 5950, EOS, EOS-2, ILA, ILC, Model MBT, MCC, DCP, L-5000 and FAC |

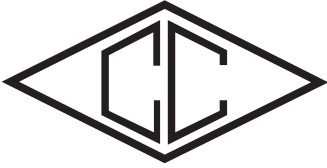
CUSTOM PARTS & "9-" NUMBERS ARE NON-RETURNABLE AND NON-REFUNDABLE (EXCEPT IN CASES OF WARRANTY)

This is only for reference. Charges may vary depending on the amount or specialty of the item being returned. Consult factory for exact restocking fees.



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www.canfieldconnector.com

CAN-PAK

PREPACKAGED CANFIELD CONNECTOR COMPONENTS FOR FAST DELIVERY.

General Description

The Can-Pak Quick-Ship Program enables customers to purchase select groups of prepackaged popular Canfield Connector products for fast delivery at lower costs. Depending on the product and specific requirements listed below, these prepackaged units can be ordered in quantities of 10, 25, 50 or 100 per Can-Pak.

The program includes ■ Series 5K Molded Connectors ■ Series 5000 - Solenoid Valve Connectors ■ Series P5600 - Micro Protective Connectors ■ Series 7000 and 8000 - Magnetic Cylinder Sensors ■ Series 9000 - Magnetic Dovetail Sensors ■ Series 9B-Electronic Magnetic Sensors for round keyway ■ 8mm and 12mm Round Connector Series and ■ 12mm Adapter Series. To order these fully warranted Can-Paks, use the Can-Pak order numbers below. To check the components specifications refer to the standard part number provided. For further Can-Pak data contact your Canfield Connector Representative.

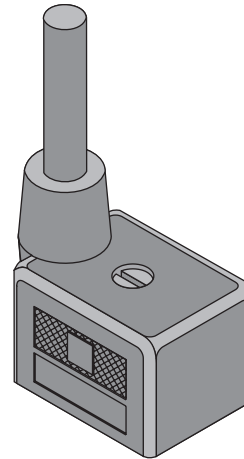


Look for the Can-Pak logo in this catalog for extra-value prepackaged parts, exclusively from Canfield Connector.

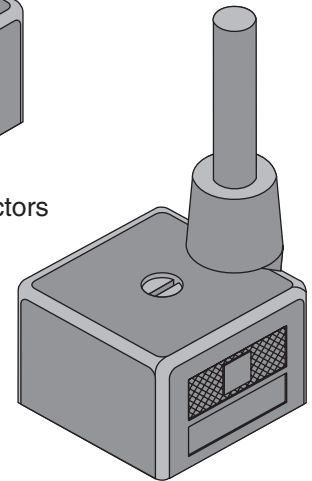


SERIES 5K - MOLDED MINI, ISO AND SUB-MICRO CONNECTORS

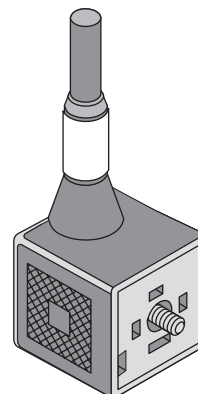
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Molded MINI Connectors

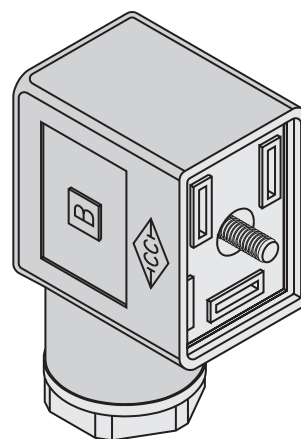


Molded ISO Connectors

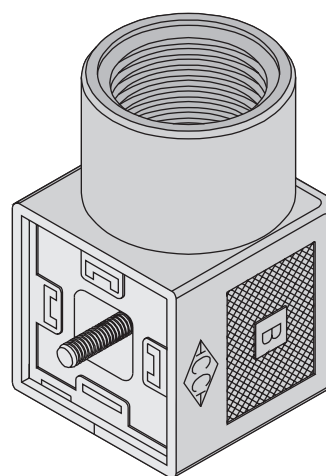


Molded Sub-Micro Connectors with Wire Markers

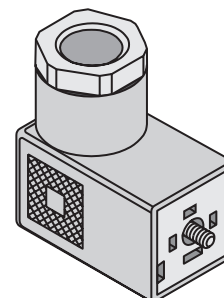
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CP-5107-1990000-100	100	5107-1990000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	



Standard MINI Connectors



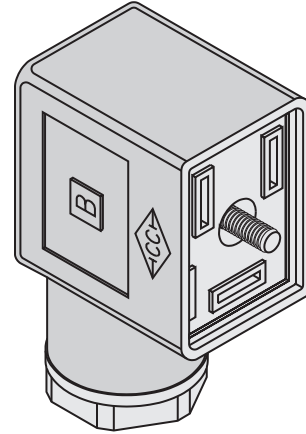
ISO Connectors



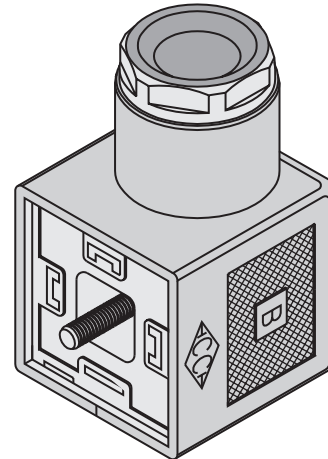
Sub-Micro Connectors



	Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired	Surge Suppress	Page
M I N I	CP-P5103-1311000-025	25	P5103-1311000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1311000-100	100	P5103-1311000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1351000-025	25	P5103-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1351000-100	100	P5103-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5107-1351000-025	25	P5107-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5107-1351000-100	100	P5107-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5163-1311000-010	10	P5163-1311000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5163-1311000-050	50	P5163-1311000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5163-1351000-010	10	P5163-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5163-1351000-050	50	P5163-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20
I S O	CP-P5103-1611000-025	25	P5103-1611000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1611000-100	100	P5103-1611000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1651000-025	25	P5103-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5103-1651000-100	100	P5103-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5107-1651000-025	25	P5107-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5107-1651000-100	100	P5107-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5167-1651000-010	10	P5167-1651000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20
	CP-P5167-1651000-050	50	P5167-1651000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20



Standard MINI Connectors
with Strain Relief



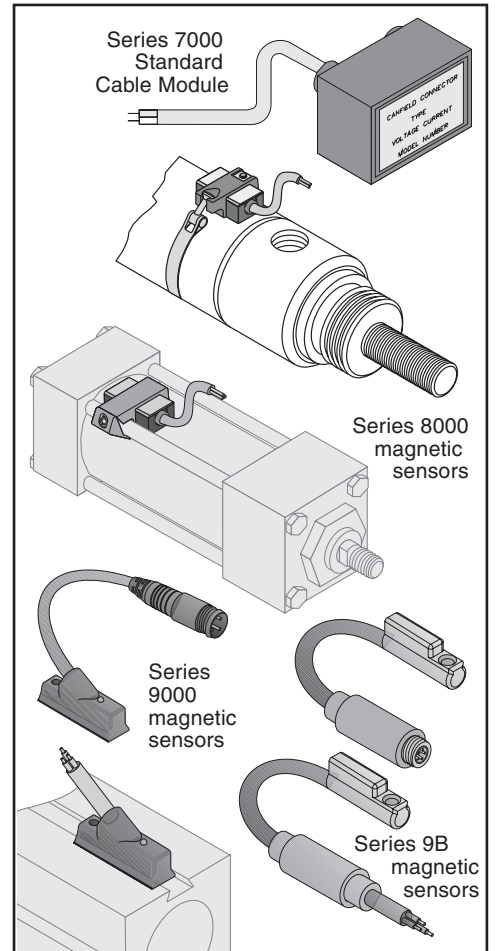
ISO Connectors
with Strain Relief



**Quick-Ship
Bulk Packs**

SERIES 7000 AND 8000 - REED SENSOR MAGNETIC CYLINDER SENSORS
SERIES 9000 - REED SENSOR MAGNETIC DOVETAIL SENSORS
SERIES 9B - ELECTRONIC MAGNETIC SENSOR FOR ROUND KEYWAY

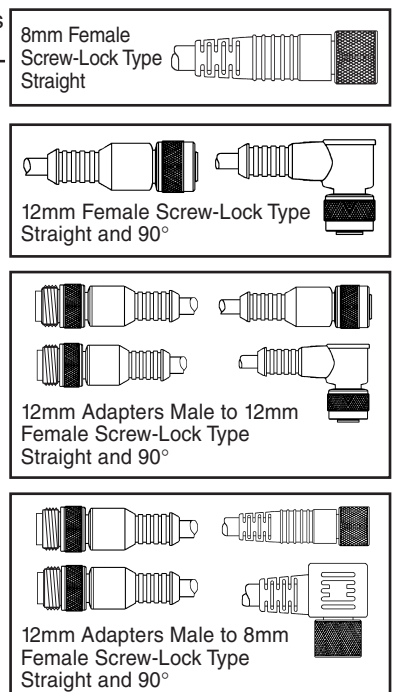
Can-Pak Part Number	Qty	Standard Part Number	Function Normally Open	Switch Type	LED	Page
SERIES 7000 STANDARD						
CP-710-000-004-010	10	710-000-004	SPST	Reed	<input checked="" type="checkbox"/>	52
CP-710-000-031-010	10	710-000-031	PNP	Electronic	<input checked="" type="checkbox"/>	52
CP-710-000-032-010	10	710-000-032	NPN	Electronic	<input checked="" type="checkbox"/>	52
SERIES 8000 STANDARD						
CP-810-000-002-010	10	810-000-002	SPST	Reed	<input checked="" type="checkbox"/>	55
CP-810-000-050-010	10	810-000-050	NPN or PNP	Electronic	<input checked="" type="checkbox"/>	55
CP-810-200-002-010	10	810-200-002	SPST	Reed	<input checked="" type="checkbox"/>	55
CP-810-200-050-010	10	810-200-050	NPN or PNP	Electronic	<input checked="" type="checkbox"/>	55
SERIES 8000 QUICK CONNECT						
CP-810-000-102-010	10	810-000-102	SPST	Reed	<input checked="" type="checkbox"/>	55
CP-810-000-150-010	10	810-000-150	NPN or PNP	Electronic	<input checked="" type="checkbox"/>	55
CP-810-200-102-010	10	810-200-102	SPST	Reed	<input checked="" type="checkbox"/>	55
CP-810-200-150-010	10	810-200-150	NPN or PNP	Electronic	<input checked="" type="checkbox"/>	55
SERIES 9000 STANDARD						
CP-910-000-002-010	10	910-000-002	SPST	Reed	<input checked="" type="checkbox"/>	61
CP-910-000-031-010	10	910-000-031	PNP	Electronic	<input checked="" type="checkbox"/>	61
CP-910-000-032-010	10	910-000-032	NPN	Electronic	<input checked="" type="checkbox"/>	61
SERIES 9000 QUICK CONNECT						
CP-910-000-302-010	10	910-00-302	SPST	Reed	<input checked="" type="checkbox"/>	61
CP-910-000-331-010	10	910-000-331	PNP	Electronic	<input checked="" type="checkbox"/>	61
CP-910-000-332-010	10	910-000-332	NPN	Electronic	<input checked="" type="checkbox"/>	61
SERIES 9B STANDARD						
CP-9B10-000-031-010	10	9B10-000-031	PNP	Electronic	<input checked="" type="checkbox"/>	58
CP-9B10-000-032-010	10	9B10-000-032	NPN	Electronic	<input checked="" type="checkbox"/>	58
SERIES 9B QUICK CONNECT						
CP-9B10-000-331-010	10	9B10-000-331	PNP	Electronic	<input checked="" type="checkbox"/>	58
CP-9B10-000-332-010	10	9B10-000-332	NPN	Electronic	<input checked="" type="checkbox"/>	58

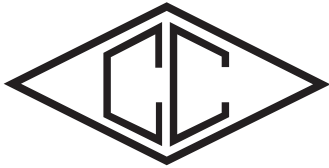


**Quick-Ship
Bulk Packs**

8MM AND 12MM ROUND CONNECTOR SERIES
12MM ADAPTER SERIES
(SEE- B-TYPE ROUND CONNECTORS CATALOG)

Can-Pak Part Number	Qty	Standard Part Number	Gender M F	Style S 90°	Length	Poles
8mm Round Connectors						
CP-RC08S-F0M030120-010	10	RC08S-F0M030120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	3
CP-RC08S-F0M030150-010	10	RC08S-F0M030150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	5m	3
CP-RC08S-F0M040120-010	10	RC08S-F0M040120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	4
CP-RC08S-F0M040150-010	10	RC08S-F0M040150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	5m	4
12mm Round Connectors						
CP-RC12S-F0M040120-010	10	RC12S-F0M040120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	4
CP-RC12S-F0M040150-010	10	RC12S-F0M040150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	5m	4
CP-RC12S-F0M050120-010	10	RC12S-F0M050120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	5
CP-RC12S-F0M050150-010	10	RC12S-F0M050150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	5m	5
CP-RC12S-F1M040120-010	10	RC12S-F1M040120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	2m	4
CP-RC12S-F1M040150-010	10	RC12S-F1M040150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	5m	4
CP-RC12S-F1M050120-010	10	RC12S-F1M050120	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	2m	5
CP-RC12S-F1M050150-010	10	RC12S-F1M050150	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	5m	5
12mm Adapters						
CP-RC-12SM0A-12SF042-010	10	RC-12SM0A-12SF042	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	4
CP-RC-12SM0A-12SF052-010	10	RC-12SM0A-12SF052	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	5
CP-RC-12SM1C-12SF042-010	10	RC-12SM1C-12SF042	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	2m	4
CP-RC-12SM1C-12SF052-010	10	RC-12SM1C-12SF052	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	2m	5
CP-RC-12SM0I-080F0C2-010	10	RC-12SM0I-080F0C2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	2m	4
CP-RC-12SM0J-080F1C2-010	10	RC-12SM0J-080F1C2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	2m	4





**SERIES 5000
 SOLENOID VALVE CONNECTORS**

**GENERAL
 PRODUCT
 OVERVIEW**

General Description

The ISO and 8mm Sub-Micro connectors are made according to DIN 43650 / ISO 4400. The MINI and 9mm Sub-Micro connectors are industry standards. All are used as protective enclosures for electrical connection in conjunction with hydraulic and pneumatic solenoid valves. These connectors offer distinct advantages over "hardwired" solenoid valves because of their modular design. Used where rapid installation and service are a must. Better than molded construction when special wire is needed or when using one long wire run.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED (COMPLETE DIMENSIONAL INFORMATION IS PROVIDED ON INDIVIDUAL PAGES)

<p>MINI PG9</p>	<p>MINI 3/8" Conduit</p>	<p>MINI 1/2" Conduit</p>

<p>ISO PG9 / ISO HT PG9</p>	<p>ISO PG11 / ISO HT PG11</p>	<p>ISO 1/2" Conduit</p>	<p>ISO HT 1/2" Conduit</p>

<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>		<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>	
<p>Sub-Micro 8mm Strain Relief</p>	<p>Sub-Micro 8mm 1/2" Conduit</p>	<p>Sub-Micro 9mm Strain Relief</p>	<p>Sub-Micro 9mm 1/2" Conduit</p>



Orientation
 1 - ground down
 2 - ground right *
 3 - ground up
 4 - ground left *

Wire Length
 0 - unwired
 3 - 3 ft
 6 - 6 ft
 9 - 9 ft
 C - 12 ft

Lighting Specification
 0 - unlighted
 3 - 6 - 48V AC/DC 50/60 Hz
 7 - 48 - 120 VDC
 100 - 240 VAC 50/60 Hz

Gasket
 1 - nitrile
 2 - silicone
 3 - nitrile profile**

Wire Type
 00 - unwired or standard for connector type 01, 08 & 11
 07 - standard for connector type 02, 03, 10 & 13
 09 - standard for connector type 09 & 12
 11 - standard for connector type 90 & 99
 25 - type 09 & 12 (3+ ground version)
 36 - standard for connector type 91 & 95
 47 - type 90 & 99 (3+ ground version)
 75 - type 08 & 11 (3+ ground version)
 76 - type 10 & 13 (3+ ground version)
 77 - type 91 & 95 (3+ ground version)
 For additional Wire Types refer to Appendix A

Housing Color
 0 - standard "B"
 1 - gray "A"

Contacts
 0 - 2+ Ground
 1 - 3+ Ground *

Connector Types
 01 - MINI Strain Relief PG9
 02 - MINI 3/8" Conduit
 03 - MINI 1/2" Conduit
 08 - ISO Strain Relief PG9
 09 - ISO Strain Relief PG11
 10 - ISO 1/2" Conduit
 11 - ISO HT Strain Relief PG9†
 12 - ISO HT Strain Relief PG11†
 13 - ISO HT 1/2" Conduit†
 90 - Sub-Micro PG7 DIN "C" Interface (8mm)
 91 - Sub-Micro 1/2" Conduit DIN "C" Interface (8mm)
 95 - Sub-Micro 1/2" Conduit (9mm)
 99 - Sub-Micro Strain Relief PG7 (9mm)

Ordering Example:

5137 - 1030007

Ground down, 3 ft wire length, lighted 48 - 120 VDC, 100 - 240 VAC 50/60 Hz, nitrile gasket, MINI 1/2" Conduit Connector, 2+ ground contacts

Each connector kit contains fastening hardware and gasket assembly.

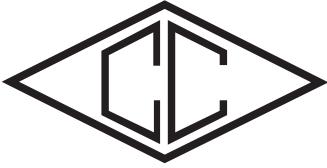
* NOT Available in MINI
 **NOT Available in Sub-Micro

Not all combinations are available. Consult factory for details.

† High Top Housing for easy wiring.



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.



canfield connector

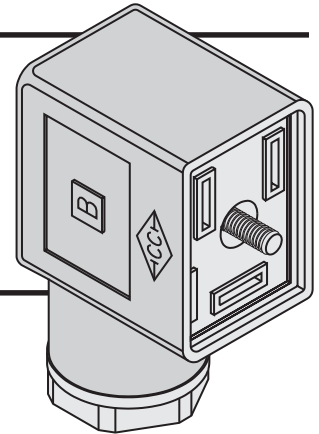
8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 5000 SOLENOID VALVE CONNECTOR

MINI CONNECTOR

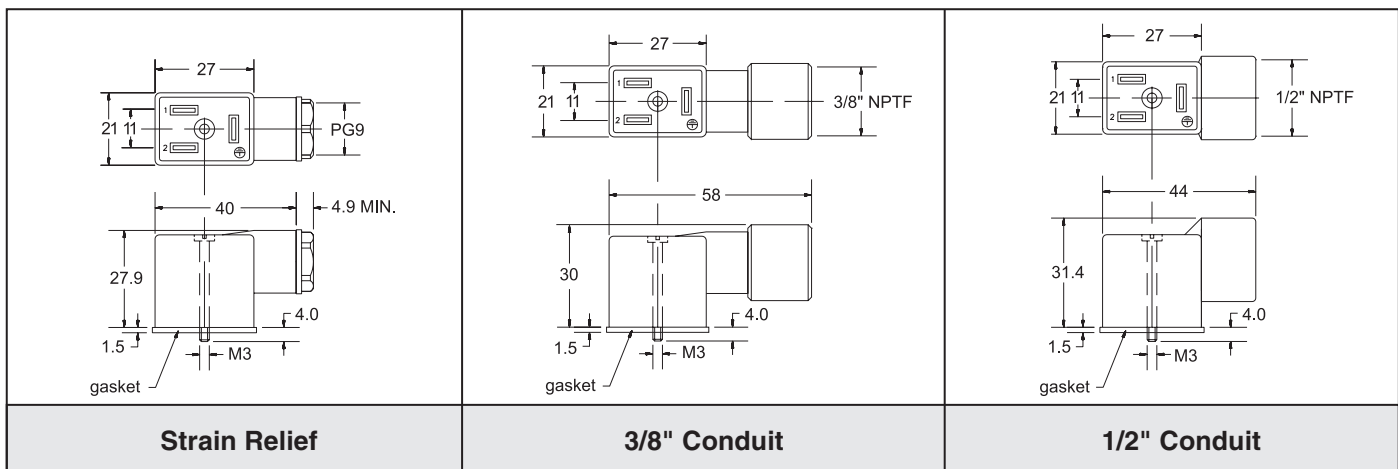
General Description

The Canfield Connector field wireable MINI solenoid valve connector is a high quality interconnection device for use with solenoid valves and pressure switches. The connector features a PG9 strain relief, 3/8" or 1/2" conduit wire pass through, all with screw terminals for wire connections. The MINI accommodates wire from .240" to .410" diameter as a standard with an AWG of 14 maximum. Environment resistance of NEMA 4 / IP 65 along with versions which are CSA approved ensure long trouble free service. Current maximum of 10 Amps and the temperature rating of -40° to +125° C encompasses most applications. The interface is an industry standard.



Dimensional Data

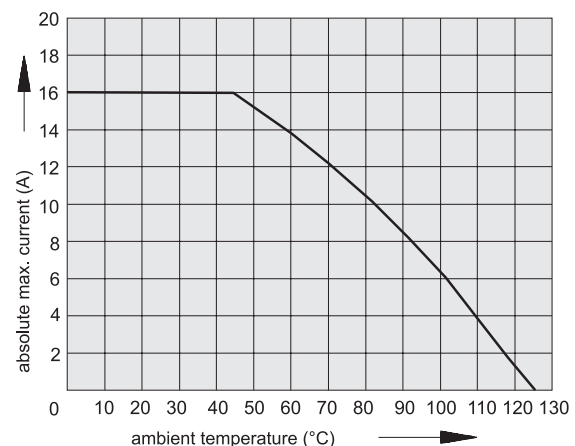
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Technical Data

- The cable outlet can be assembled in 180° increments
- Color: black, gray or translucent for lighted styles
- Cable diameter: Strain Relief - .240 to .310 inches max.
3/8" & 1/2" Conduit - .410 inches max.
- Cross section of the conductor wire max.: 14 AWG
- Rated voltage max.: 300 VDC / 250 VAC 50/60 Hz
- Maximum approved current: 10 Amps
- No. of contacts: 2+ ground
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Maximum rated temperatures for gaskets: Nitrile gasket -25° to +90° C
Silicone gasket -40° to +125° C

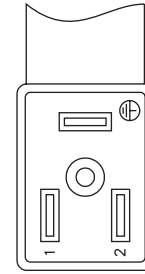
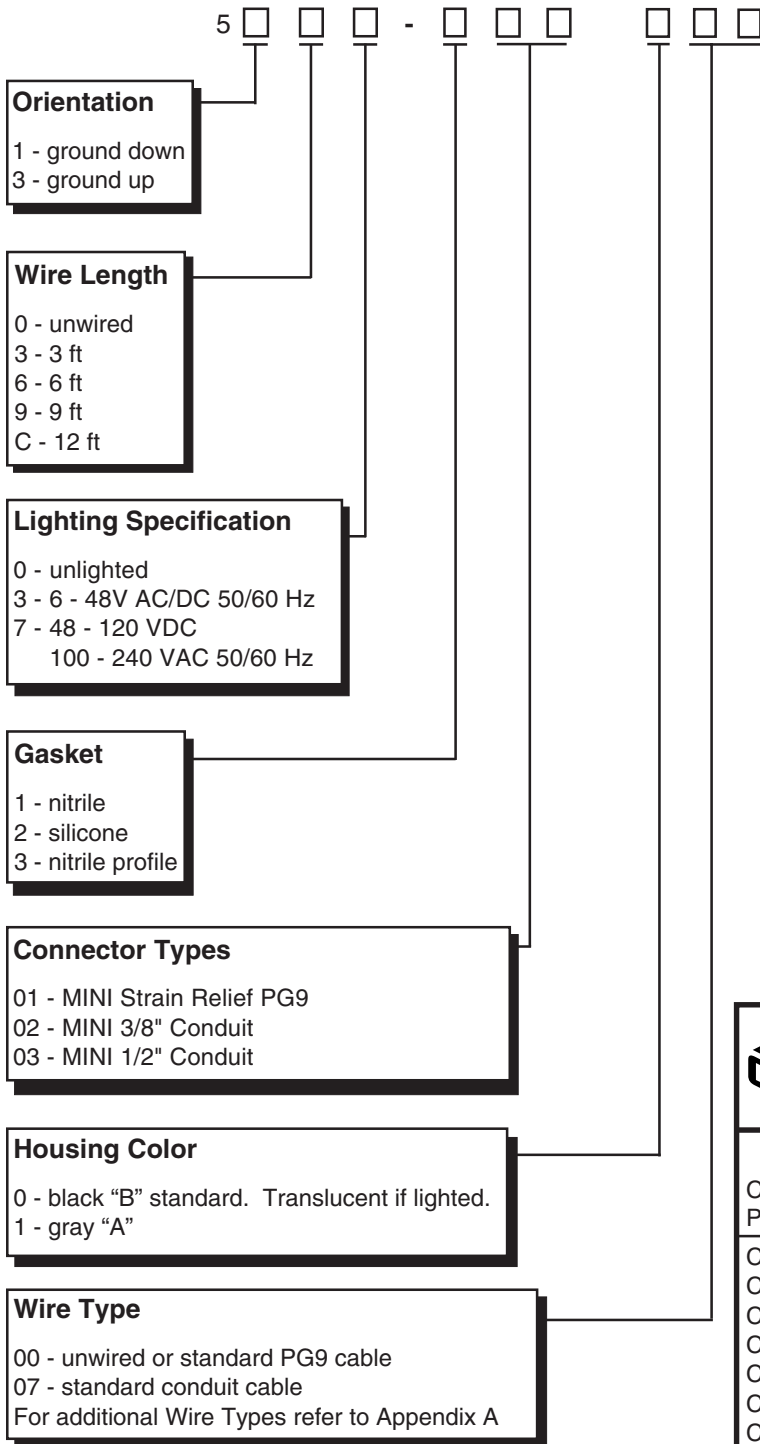
Derating Curve



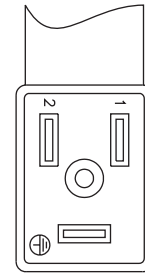
Ordering Information

Wiring Information

5000 MINI



Ground Up



Ground Down

Normal polarity: 1 = (+) Positive, High
 2 = (-) Negative, Neutral
 = Chassis Ground

Each connector kit contains fastening hardware and gasket assembly.

For additional wire length and wire type options refer to Appendix A.
 For wire installation refer to Appendix B.

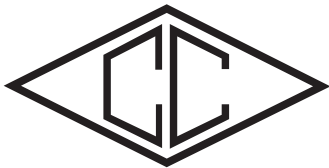
Ordering Example:

5100-2010000

MINI strain relief, ground down, silicone gasket.

CAN-PAK Quick-Ship Bulk Packs		SERIES 5000 - MINI SOLENOID VALVE CONNECTORS		
Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired
CP-5100-1010000-025	25	5100-1010000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1010000-100	100	5100-1010000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1030000-025	25	5100-1030000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1030000-100	100	5100-1030000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5103-1010000-025	25	5103-1010000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5103-1010000-100	100	5103-1010000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5107-1010000-025	25	5107-1010000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5107-1010000-100	100	5107-1010000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5163-1010000-010	10	5163-1010000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5163-1010000-050	50	5163-1010000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5167-1010000-010	10	5167-1010000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5167-1010000-050	50	5167-1010000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Consult factory for available versions listed by Canadian Standards Association for use with NRTL/C certified electrical equipment.



canfield connector

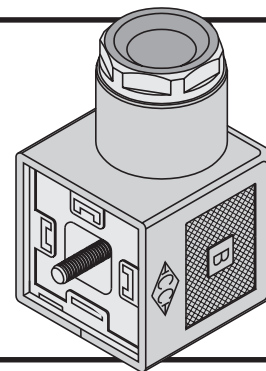
8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 5000 SOLENOID VALVE CONNECTOR

ISO CONNECTOR

General Description

Canfield Connector's Series 5000 ISO connector connects solenoid valves using the DIN 43650 Form "A"/ISO 4400 specification. This standard permits industry interchangeability and has been embraced by the solenoid valve industry worldwide. Features include the ability for the user to wire the connector into existing installations or the connector can be prewired at the factory. Wire connections are made inside the connector housing and the wire inlet is either PG9, PG11 or 1/2" conduit. Canfield has added to this line with the HT (High Top) housing. The HT accommodates the user with more room for larger wire diameters. The standard ISO connectors are still available for those applications with space constraints. Maximum current rating is 10 Amps with a maximum conductor size of 14 AWG with an outer jacket not to exceed .410 inches diameter. There are CSA/NRTL approved versions as well as versions with indicator lights depicting the "on" state. The connectors are NEMA 4 and IP 65 environment rated.



Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

PG9 / PG11	HT** PG9 / PG11	1/2" Conduit	HT 1/2" Conduit



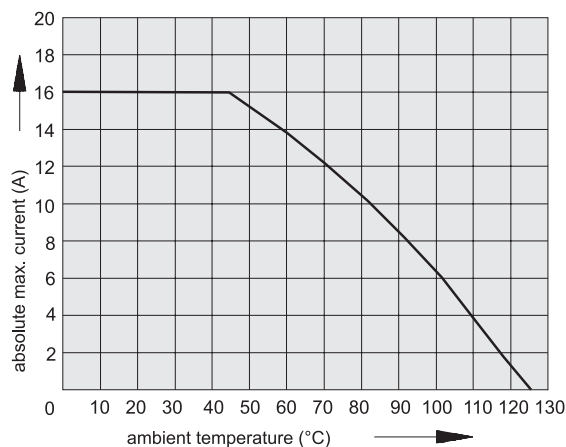
Consult factory for available versions listed by Canadian Standards Association for use with certified electric equipment.

**HT refers to High Top - Larger connector for larger wire gauge and easy installation.

Technical Data

- The cable outlet can be assembled in 90° increments
- Color: black, gray or translucent for lighted styles
- Cable diameter: PG9 - .240 to .310 inches max.
PG11 - .310 to .410 inches max.
1/2" Conduit - .410 inches max.
- Cross section of the conductor wire max.: 14 AWG
- Maximum approved current: 10 Amps
- Rated voltage max.: 300 VDC / 250 VAC 50/60 Hz
- No. of contacts: 2+ ground
3+ ground
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Maximum rated temperatures for gaskets: Nitrile gasket -25° to +90° C
Silicone gasket -40° to +125° C

Derating Curve





Orientation
 1 - ground down
 2 - ground right
 3 - ground up
 4 - ground left

Wire Length
 0 - unwired
 3 - 3 ft
 6 - 6 ft
 9 - 9 ft
 C - 12 ft

Lighting Specification
 0 - unlighted
 3 - 6 - 48V AC/DC 50/60 Hz
 7 - 48 - 120 VDC
 100 - 240 VAC 50/60 Hz

Gasket
 1 - nitrile
 2 - silicone
 3 - nitrile profile

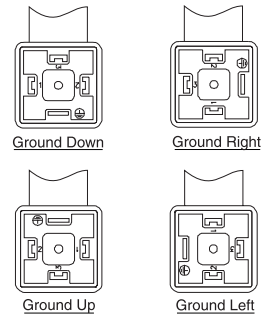
Connector Type
 08 - ISO Strain Relief PG9
 09 - ISO Strain Relief PG11
 10 - ISO 1/2" Conduit
 11 - ISO HT Strain Relief PG9**
 12 - ISO HT Strain Relief PG11**
 13 - ISO HT 1/2" Conduit

**HT refers to High Top - Larger connector for larger wire gauge and easy installation.

Contacts
 0 - 2 + ground
 1 - 3 + ground

Housing Color
 0 - black "B" standard. Translucent if lighted.
 1 - gray "A"

Wire Type
 00 - unwired or standard for connector type 08 & 11
 07 - standard for connector type 10 & 13
 09 - standard for connector type 09 & 12
 25 - type 09 & 12 (3+ ground version)
 75 - type 08 & 11 (3+ ground version)
 76 - type 10 & 13 (3+ ground version)
 For additional Wire Types refer to Appendix A
 For wire installation refer to Appendix B.



Normal polarity: 1 = (+) Positive, High
 2 = (-) Negative, Neutral
 ⊕ = Chassis Ground

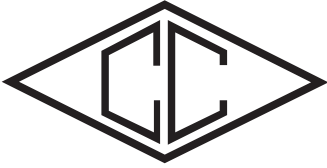
CAN-PAK Quick-Ship Bulk Packs		SERIES 5000 - ISO SOLENOID VALVE CONNECTORS		
Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired
CP-5100-1080000-025	25	5100-1080000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1080000-100	100	5100-1080000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1100000-025	25	5100-1100000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5100-1100000-100	100	5100-1100000	<input type="checkbox"/>	<input type="checkbox"/>
CP-5103-1080000-025	25	5103-1080000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5103-1080000-100	100	5103-1080000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5107-1080000-025	25	5107-1080000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5107-1080000-100	100	5107-1080000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CP-5160-1080000-010	10	5160-1080000	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5160-1080000-050	50	5160-1080000	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5163-1080000-010	10	5163-1080000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5163-1080000-050	50	5163-1080000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5167-1080000-010	10	5167-1080000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CP-5167-1080000-050	50	5167-1080000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Ordering Example:

5363-1090009

ISO PG11 6 - 48V AC/DC lighted connector, nitrile gasket, ground up, 6 ft wire length.

Each connector kit contains fastening hardware and gasket assembly.



canfield connector

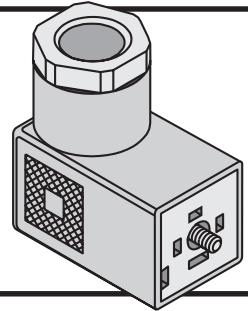
8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 5000 SOLENOID VALVE CONNECTOR

SUB-MICRO CONNECTOR

General Description

Canfield Connector's Series 5000 Sub-Micro connector is made to connect solenoid valves using the DIN 43650 Form "C" (8mm pin center) and the industry standard 9.4mm pin center. These standards permit industry interchangeability and have been embraced by the solenoid valve industry worldwide. Features include the ability for the user to wire the connector into existing installations or the connector can be prewired at the factory. Wire connections are made inside the connector housing. The wire inlet is either PG7 or 1/2" conduit. Maximum current rating is 6 amps with a maximum conductor size of 20 gauge with an outer jacket not to exceed .260 inches diameter. There are versions with indicator lights depicting the "on" state. The connectors are NEMA 4 and IP 65 environment rated.



Dimensional Data

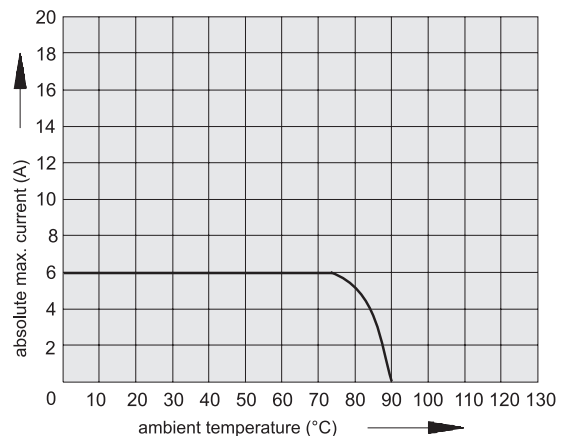
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

<p>*Ground spade offset by 0.2mm toward pin 1.</p>	<p>*Ground spade offset by 0.2mm toward pin 1.</p>	<p>*Ground spade offset by 0.2mm toward pin 1.</p>	<p>*Ground spade offset by 0.2mm toward pin 1.</p>
PG7, 8mm center	1/2" Conduit, 8mm center	PG7, 9.4mm center	1/2" Conduit, 9.4mm center

Technical Data

- The cable outlet can be assembled in 90° increments
- Color: black, gray or translucent for lighted styles
- Cable diameter: PG7 - .160 - .260 inch max.
1/2" Conduit 8mm & 9.4mm - .250 inch max.
- Cross section of the conductor wire max.: 20 AWG
- Rated voltage max.: 250 VAC 50/60 Hz or VDC
- Maximum approved current: 6 Amps
- No. of contacts: 2+ ground,
3+ ground (*NOT* available on lighted units)
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Maximum rated temperatures for gaskets: Nitrile gasket -25° to +90° C
Silicone gasket -40° to +125° C

Derating Curve





Orientation
 1 - ground down
 2 - ground right
 3 - ground up
 4 - ground left

Wiring Length
 0 - unwired
 3 - 3 ft
 6 - 6 ft
 9 - 9 ft
 C - 12 ft

Lighting Specification
 0 - unlighted
 3 - 6 - 48V AC/DC 50/60 Hz
 7 - 48 - 120 VDC
 100 - 240 VAC 50/60 Hz

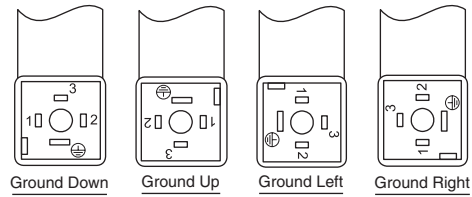
Gasket
 1 - nitrile
 2 - silicone

Connector Type
 90 - Sub-Micro Strain Relief PG7 DIN "C" Interface (8mm)
 91 - Sub-Micro 1/2" Conduit DIN "C" Interface (8mm)
 95 - Sub-Micro 1/2" Conduit (9mm)
 99 - Sub-Micro Strain Relief PG7 (9mm)

Contacts
 0 - 2 +ground
 1 - 3 +ground*

Housing Color
 0 - black "B" standard. Translucent if lighted.
 1 - gray "A"

Wire Type
 00 - unwired
 11 - standard PG7 cable
 36 - standard for connector type 91 & 95
 47 - type 90 & 99 (3+ ground version)
 77 - type 91 & 95 (3+ ground)
 For additional Wire Types refer to Appendix A



Normal polarity: 1 = (+) Positive, High
 2 = (-) Negative, Neutral
 ⊕ = Chassis Ground

CAN-PAK Quick-Ship Bulk Packs		SERIES 5000 - SUB-MICRO SOLENOID VALVE CONNECTORS			
Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired	
CP-5100-1900000-025	25	5100-1900000	<input type="checkbox"/>	<input type="checkbox"/>	
CP-5100-1900000-100	100	5100-1900000	<input type="checkbox"/>	<input type="checkbox"/>	
CP-5100-1990000-025	25	5100-1990000	<input type="checkbox"/>	<input type="checkbox"/>	
CP-5100-1990000-100	100	5100-1990000	<input type="checkbox"/>	<input type="checkbox"/>	
CP-5103-1900000-025	25	5103-1900000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5103-1900000-100	100	5103-1900000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5103-1990000-025	25	5103-1990000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5103-1990000-100	100	5103-1990000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5107-1900000-025	25	5107-1900000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5107-1900000-100	100	5107-1900000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5107-1990000-025	25	5107-1990000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5107-1990000-100	100	5107-1990000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	


Ordering Example:

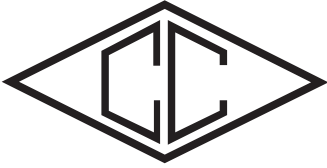
5133-1900011

Sub-Micro PG7 DIN "C", 2+ ground down, 3 ft wire length, 6 - 48V AC/DC lighted, nitrile gasket

*3+ ground NOT available in lighted version.
 Each connector kit contains screw, washer and gasket assembly.

For additional wire length and wire type options refer to Appendix A.
 For wire installation refer to Appendix B.

 Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.
 NRTL/C



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SERIES 5K

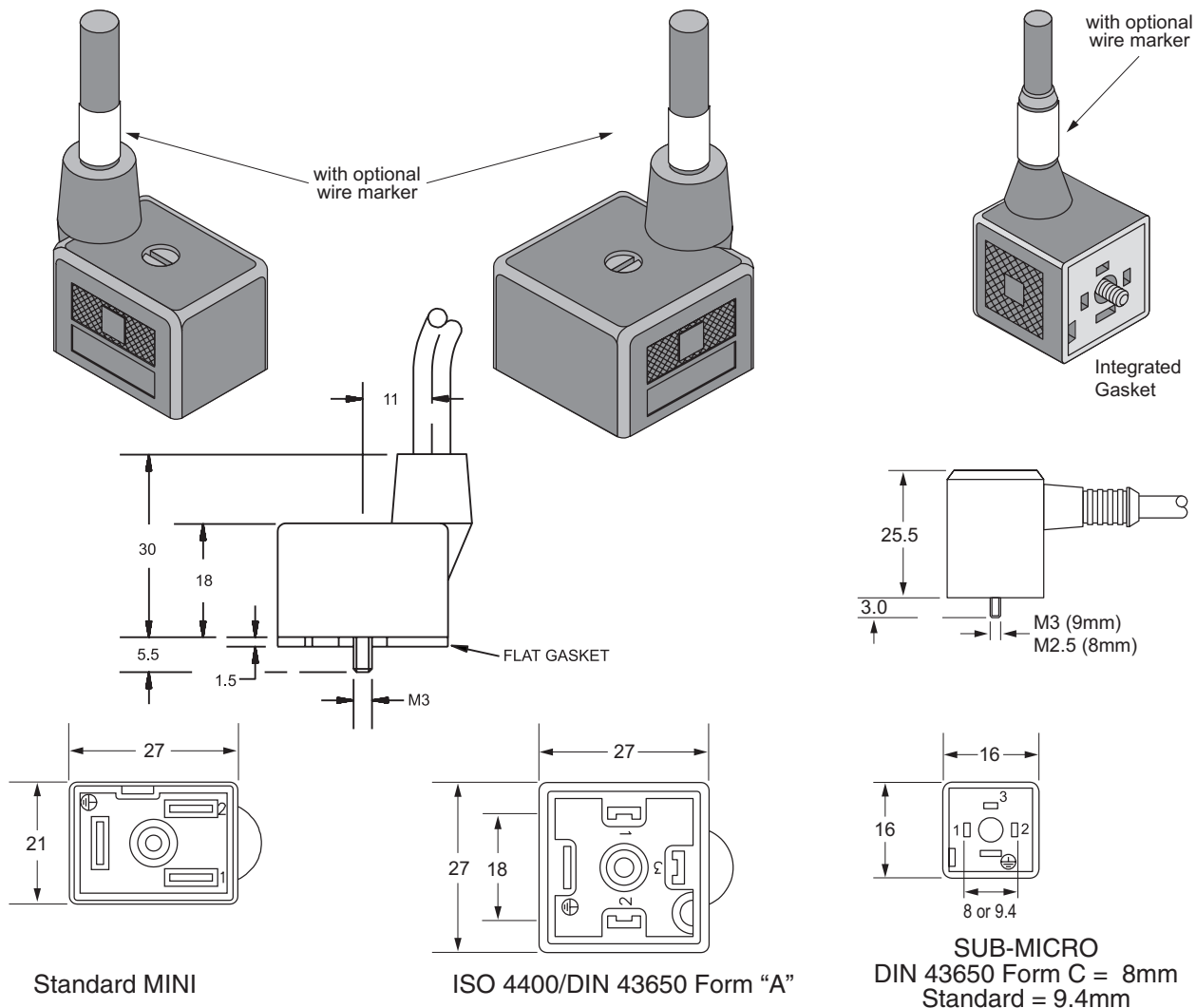
MOLDED MINI, ISO AND SUB-MICRO CONNECTORS

General Description

The Canfield Series 5K molded DIN solenoid valve connectors incorporate the same quality as our Series 5000 connectors but feature a completely molded design. The 5K's low profile permits fast and sure electrical connection to any solenoid valve with the standard MINI, ISO or Sub-Micro interface. The 5K also features indicator lights and internal surge suppression in different versions.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Technical Data

- Cable outlet molded-in
- Wire gauge: ISO/MINI 18 AWG
Sub-Micro 20 AWG
- Color: black standard, translucent if lighted
- Rated voltage max: 250 VAC 50/60 Hz / 300 VDC
- Enclosure Material: ISO/MINI – Nylon, Sub-Micro – Polyurethane
- Wire Material: ISO/MINI – PUR, Sub-Micro – PVC
- Rated current max.: ISO/MINI – 10 Amps, Sub-Micro – 6 Amps
- No. of contacts: 2+ ground
2+ dual ground
3+ ground (NOT available lighted)
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Ambient rated temperatures: -25° to +80° C

Ordering Information

5 K -

Wire Length
 3 - 3 ft
 6 - 6 ft
 9 - 9 ft

Suppression Type
 0 - no suppression
 1 - diode (DC only)**
 2 - metal oxide varistor (MOV)**

Gasket
 0 - incorporated polyurethane seal***
 1 - nitrile
 2 - silicone
 3 - nitrile profile†

Wire Marker
 1 - with Wire Marker
 2 - without Wire Marker

Connector Type
 3 - 8mm Sub-Micro
 4 - 9mm Sub-Micro
 5 - MINI
 6 - ISO

Contacts
 0 - 2+ ground
 1 - 3+ ground *
 2 - 2+ dual ground ***
 3 - 3+ ground down ***
 4 - 3+ ground up ***

Lighting Specifications
 0 - unlighted
 2 - 6-24V AC/DC 50/60 Hz **
 5 - 48-120V AC/DC 50/60 Hz **
 8 - 240 VAC 50/60 Hz **

Each connector kit contains fastening hardware and gasket assembly.

* NOT available in MINI.

** NOT available in 3+ ground.

*** Sub-Micro only.

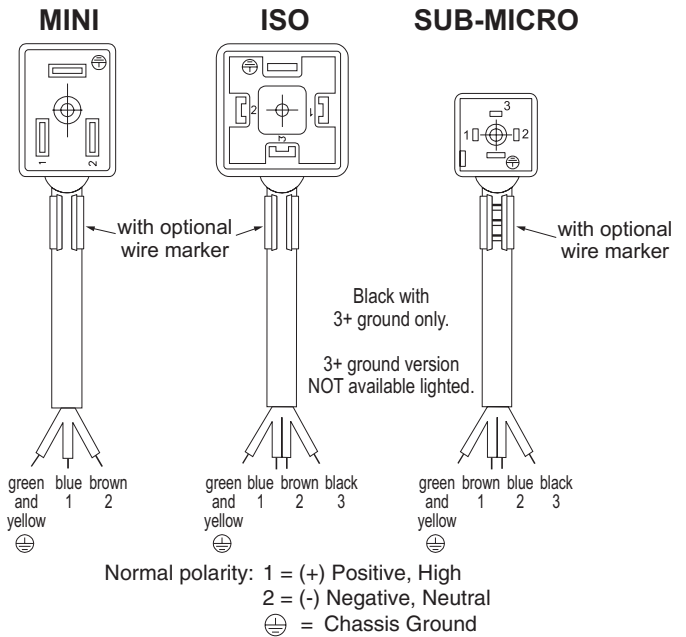
† NOT available in Sub-Micro.

Ordering Example:

5K30-12500

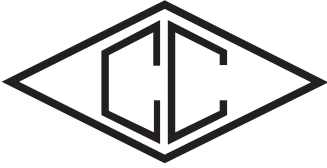
2+ ground, MINI molded connector, nitrile gasket, 3 ft wire length.

Wiring Information



5K

CAN-PAK Quick-Ship Bulk Packs		SERIES 5K - MOLDED MINI, ISO AND SUB-MICRO CONNECTORS				
Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired	Surge Suppress	
CP-5K60-11500-010	10	5K60-11500	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11500-050	50	5K60-11500	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11502-010	10	5K60-11502	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11502-050	50	5K60-11502	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11505-010	10	5K60-11505	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11505-050	50	5K60-11505	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K62-11502-010	10	5K62-11502	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11502-050	50	5K62-11502	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11505-010	10	5K62-11505	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11505-050	50	5K62-11505	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K60-11600-010	10	5K60-11600	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11600-050	50	5K60-11600	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11602-010	10	5K60-11602	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11602-050	50	5K60-11602	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11605-010	10	5K60-11605	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K60-11605-050	50	5K60-11605	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K62-11602-010	10	5K62-11602	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11602-050	50	5K62-11602	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11605-010	10	5K62-11605	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K62-11605-050	50	5K62-11605	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K90-01320-010	10	5K90-01320	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01320-050	50	5K90-01320	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01322-010	10	5K90-01322	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01322-050	50	5K90-01322	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01325-010	10	5K90-01325	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01325-050	50	5K90-01325	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01420-010	10	5K90-01420	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01420-050	50	5K90-01420	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01422-010	10	5K90-01422	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01422-050	50	5K90-01422	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01425-010	10	5K90-01425	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K90-01425-050	50	5K90-01425	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CP-5K92-01325-010	10	5K92-01325	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K92-01325-050	50	5K92-01325	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K92-01425-010	10	5K92-01425	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-5K92-01425-050	50	5K92-01425	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	



canfield connector
 8510 Foxwood Court
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www.canfieldconnector.com

P5600

**SERIES P5600 (MPC)
 MICRO PROTECTIVE CONNECTORS**

Surge Suppression

General Description

The Micro Protective Connectors are available in standard MINI, DIN 43650 / ISO 4400 Form "A" and Sub-Micro 8mm and 9mm. The Canfield Connector MPCs provide electrical controllers surge suppression against voltage spikes caused by the solenoids used on hydraulic and pneumatic solenoid valves.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED (COMPLETE DIMENSIONAL INFORMATION IS PROVIDED ON INDIVIDUAL PAGES)

<p>MINI PG9</p>	<p>MINI 3/8" Conduit</p>	<p>MINI 1/2" Conduit</p>

<p>ISO PG9 / ISO HT PG9</p>	<p>ISO PG11 / ISO HT PG11</p>	<p>ISO 1/2" Conduit</p>

<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>	<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>	<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>	<p>*Ground spade offset by 0.2mm toward pin 1. DIN 43650 Form "C"</p>
<p>Sub-Micro 8mm Strain Relief</p>	<p>Sub-Micro 8mm 1/2" Conduit</p>	<p>Sub-Micro 9mm Strain Relief</p>	<p>Sub-Micro 9mm 1/2" Conduit</p>

Technical Data

- Voltage max.: 240 VAC / 120 VDC
- Current max.:

ISO	10 Amps
MINI	10 Amps
Sub-Micro	6 Amps
- Wire gauge max.:

ISO	14 AWG
MINI	14 AWG
Sub-Micro	20 AWG
- Recommended cable diameter:

PG7	.120 to .240 inch
PG9	.240 to .310 O.D.
PG11	.310 to .410 O.D.
1/2" Conduit	.410 inch max. for MINI & ISO
1/2" Conduit	.250 inch max. for Sub-Micro
- Gaskets temperature max.:

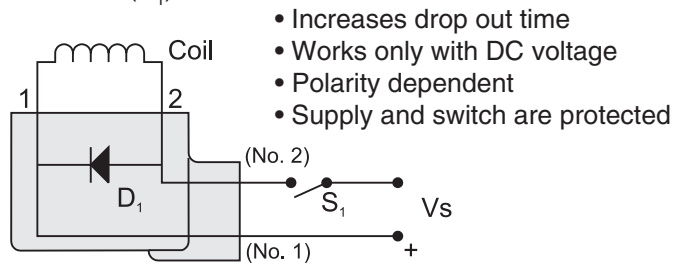
Nitrile	-25° to +90° C
Silicone	-40° to +125° C
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant

Advantages of Suppression

- Ideal for use with reed switch proximity sensor.
- Reduce contact burnoff, increasing switch life.
- High frequency interference pulses reduced, lowering electronic noise.
- Protect programmable controllers and other types of electronic devices from inductive spikes.
- Addition of extra modules or hardware is not required.
- Most suppression systems are available with standard connectors.

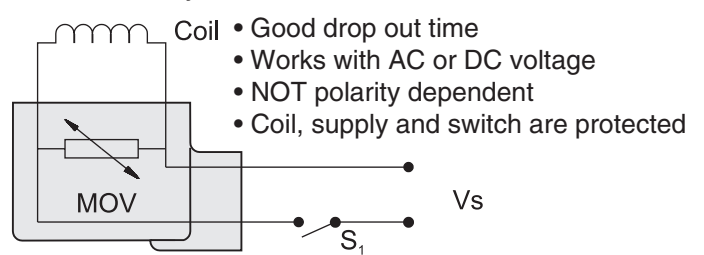
MPC Type 1*

Diode in parallel with coil. When switch (S_1) is opened, the energy stored in the coil is trapped and dissipated by the diode (D_1).



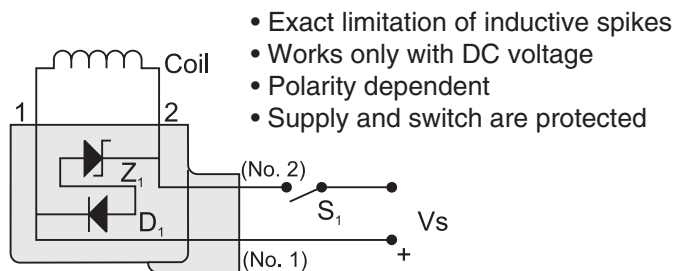
MPC Type 5*

MOV (metal oxide varistor) in parallel with coil. When switch (S_1) is opened or closed, the energy stored in the coil is limited by the MOV.



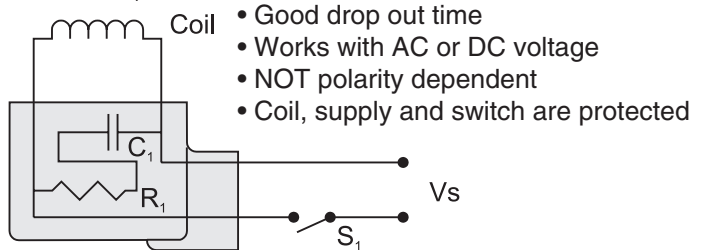
MPC Type 2

Diode & Zener in parallel with coil. When switch (S_1) is opened, the energy stored in the coil is trapped and dissipated by the diode (D_1) and zener diode (Z_1) and the coil resistance.



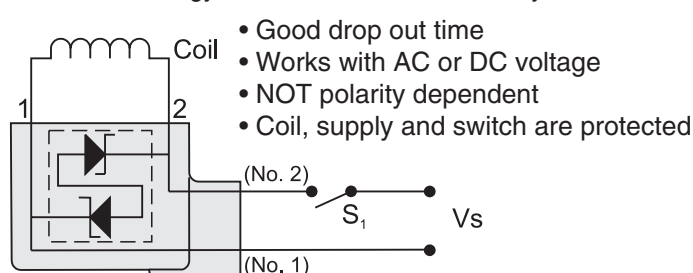
MPC Type 6

RC Network in parallel with coil. When switch (S_1) is opened or closed, the energy stored in the coil is absorbed by the capacitor (C_1) and dissipated by the resistor (R_1).



MPC Type 3

Transorb in parallel with coil. When switch (S_1) is opened or closed, the energy stored in the coil is limited by transorb.



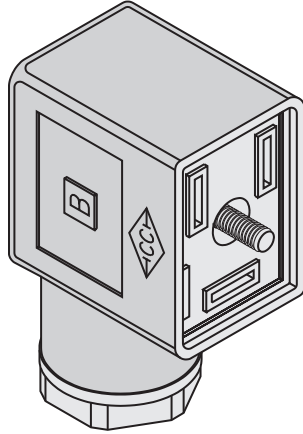
*Most Commonly Used

3 Dimensional Views

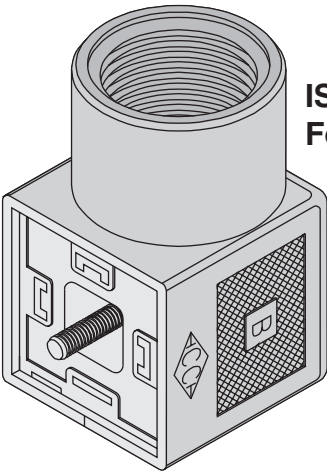
Connectors are available in strain relief as well as conduit versions. See Ordering Information (next page) or call factory for specific configurations.

P5600

Standard MINI Connectors

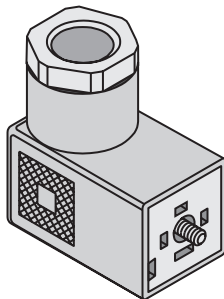


ISO 4400 / DIN 43650 Form "A" Connectors



Sub-Micro 8mm/DIN 43650 Form "C" Connector

Standard Sub-Micro 9mm Connector



		Quick-Ship Bulk Packs		SERIES P5600 - MICRO PROTECTIVE CONNECTORS		
Can-Pak Part Number	Qty	Standard Part Number	Lighted	Prewired	Surge Suppress	
CP-P5103-1311000-025	25	P5103-1311000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1311000-100	100	P5103-1311000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1351000-025	25	P5103-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1351000-100	100	P5103-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5107-1351000-025	25	P5107-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5107-1351000-100	100	P5107-1351000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5163-1311000-010	10	P5163-1311000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5163-1311000-050	50	P5163-1311000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5163-1351000-010	10	P5163-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5163-1351000-050	50	P5163-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5167-1351000-010	10	P5167-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5167-1351000-050	50	P5167-1351000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1611000-025	25	P5103-1611000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1611000-100	100	P5103-1611000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1651000-025	25	P5103-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5103-1651000-100	100	P5103-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5107-1651000-025	25	P5107-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5107-1651000-100	100	P5107-1651000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5167-1651000-010	10	P5167-1651000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CP-P5167-1651000-050	50	P5167-1651000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	



Orientation

- 1 - ground down
- 2 - ground right*
- 3 - ground up
- 4 - ground left*

Wiring Length

- 0 - unwired
- 3 - 3 ft
- 6 - 6 ft
- 9 - 9 ft

Operating Voltage

- 3 - 6 - 48 VDC
- 4 - 48 - 120 VDC
- 5 - 6 - 48 VAC 50/60 Hz
- 6 - 48 - 120 VAC 50/60 Hz
- 7 - 120 - 240 VAC 50/60Hz

Gasket

- 1 - nitrile
- 2 - silicone
- 3 - nitrile profile††

Wire Type

- 00 - unwired or standard for connector type 3 & 6
- 07 - standard for connector type 4, 5 & 8
- 09 - standard for connector type 7
- 11 - standard for connector type B & D
- 36 - standard for connector C & E

For additional Wire Types refer to Appendix A

Housing Color

- 0 - standard translucent
- 1 - gray "A" (not available lighted)

Lighting Specification

- 0 - unlighted
- 1 - lighted

MPC Circuit

- 1 - Diode (DC Only)
- 2 - Diode & Zener Diode (DC Only)
- 3 - Transorb (AC/DC) †
- 5 - MOV (AC/DC)
- 6 - RC Network (AC/DC)

Connector Type

- 3 - MINI Strain Relief PG9
- 4 - MINI 3/8" Conduit
- 5 - MINI 1/2" Conduit
- 6 - ISO Strain Relief PG9
- 7 - ISO Strain Relief PG11
- 8 - ISO 1/2" Conduit
- B - Sub-micro Strain Relief PG7 (9mm)**
- C - Sub-micro 1/2" Conduit (9mm)**
- D - Sub-micro Strain Relief PG7 (8mm)**
- E - Sub-micro 1/2" Conduit (8mm)**

† NOT available in Operating Voltage 7
 †† NOT available in Sub-Micro
 * NOT available in MINI type connectors
 ** MPC Circuits 1 & 5 only

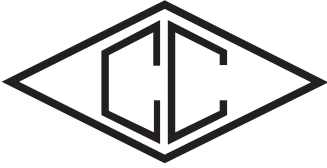
Consult factory for custom configurations.

Ordering Example:

P5167-1351000

Ground down, 6 ft wire length, 120 - 240 VAC, nitrile gasket, MINI Strain Relief, M.O.V., lighted.

Each connector kit contains screw, washer and gasket assembly.
 For additional wire length and wire type options refer to Appendix A.



canfield connector

8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

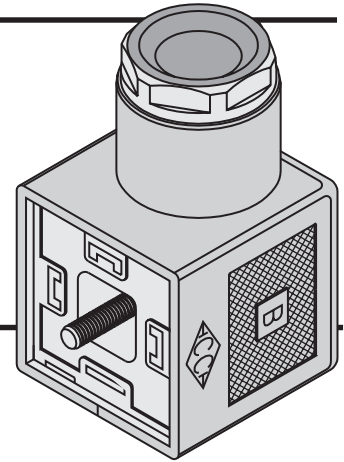
L5000

SERIES L5000 SOLENOID CONNECTOR

DIN 43650 SOLENOID VALVE CONNECTORS FOR PRESSURE SWITCHES AND SPECIALTY ELECTRONICS

General Description

Canfield Connector's L5000 Series incorporates circuitry to accommodate a variety of unique applications found in automation. Designed to fit any product with a male DIN 43650 Form "A" interface, the L5000 Series is available in either the standard compact or new HT housing, designed with more space for easier wiring. All circuits are designed to enhance any application by reducing installation times and simplify troubleshooting. Examples of circuits include a load indicator that lights green when all is well and lights red if a connection is broken. There are also a number of circuits that indicate the logic state of pressure switches. The LEDs can indicate the state of normally open and normally closed contacts. The L5000 is built to NEMA 4/IP 65 environment resistance and accommodates wire from .240 to .410 inches diameter in different versions.



Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

ISO PG9 / PG11	ISO HT** PG9 / PG11	ISO 1/2" Conduit	ISO HT** 1/2" Conduit

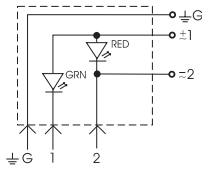
** HT refers to High Top - Larger connector for larger wire gauge and easy installation.

Technical Data

- The cable outlet can be positioned in 90° increments
- Color: translucent
- Cable diameter: PG9 - .240 to .310 inches max.
 PG11 - .310 to .410 inches max.
 1/2" Conduit - .410 inches max.
- Cross section of the conductor wire max.: 14 AWG
- Maximum approved current: 1 Amp (circuit 06)
 10 Amps (circuits 11-15)
 .005 Amps (circuit 16-17)
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Maximum rated temperatures for gaskets:
 Nitrile gasket -25° to +90° C
 Silicone gasket -40° to +125° C

Circuit Types

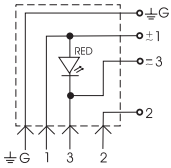
Circuit 06



The Load Indicator Connector is designed to give separate indication of power to the connector and load current. Typical application - solenoid connector. When power is applied to the connector but load current does not exist due to a bad solenoid or bad connection, the connector LED indicator

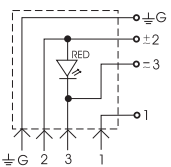
will glow red. When power is applied and load current exists, both LED indicators will glow.

Circuit 11



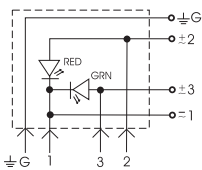
LED Circuit between pins 1 and 3. Typically used for indication of SPST pressure switches.

Circuit 12



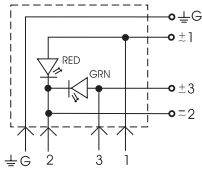
LED Circuit between pins 2 and 3. Typically used for indication of SPST pressure switches.

Circuit 13



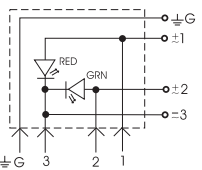
Dual LED Circuits between pins 1 - 2 and 1 - 3 as shown. Typically used for indication of dual solenoid control.

Circuit 14



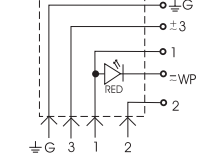
Dual LED Circuits between pins 2 - 3 and 2 - 1 as shown. Typically used for indication of dual solenoid control.

Circuit 15

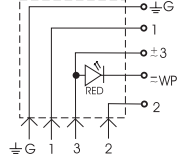


Dual LED Circuits between pins 3 - 2 and 3 - 1 as shown. Typically used for indication of dual solenoid control.

Circuit 16



Circuit 17



The In-Line LED Indicator Connector provides an LED indicator circuit in series with the connector terminal as shown. Typical Application - SPST pressure switch indication. The LED will light when the switch is closed giving both switch and load current indication.

Key to circuit symbols

		WP
Female Connection	Wire Connection	Wire Post On-Board

Ordering Information

L5 -

Orientation

- 1 - ground down
- 2 - ground right
- 3 - ground up
- 4 - ground left

Wire Length

- 0 - unwired
- 3 - 3 ft
- 6 - 6 ft
- 9 - 9 ft
- C - 12 ft

Lighting Specification

- 3 - 6 - 48V AC/DC 50/60 Hz
- 7 - 48 - 120 VDC
- 100 - 240 VAC 50/60 Hz

Gasket

- 1 - nitrile
- 2 - silicone
- 3 - nitrile profile

Connector Types

- 08 - ISO Strain Relief PG9
- 09 - ISO Strain Relief PG11
- 10 - ISO 1/2" Conduit
- 11 - ISO HT Strain Relief PG9**
- 12 - ISO HT PG11**
- 13 - ISO HT 1/2" Conduit**

Circuit Type

- 06 - Circuit 06 (2+G)*
- 11 - Circuit 11 (3+G)
- 12 - Circuit 12 (3+G)
- 13 - Circuit 13 (3+G)
- 14 - Circuit 14 (3+G)
- 15 - Circuit 15 (3+G)
- 16 - Circuit 16 (3+G)*
- 17 - Circuit 17 (3+G)*

*Only Available in ISO HT Connector

Wire Type

- 75 - unwired or standard for connector type 08 & 11
 - 76 - standard for connector type 10 & 13
 - 25 - standard for connector type 09 & 12
- For additional Wire Types refer to Appendix A

Each connector kit contains fastening hardware and gasket assembly.

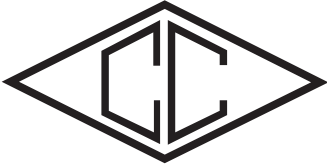
** HT refers to High Top - Larger connector for larger wire gauge and easy installation.

Not all combinations are available. Consult factory for details.

Ordering Example:

L5107 - 1081375

Ground down, unwired, lighted 48 - 120 VDC, 100 - 240 VAC 50/60 Hz, nitrile gasket, ISO PG9 Strain Relief Connector, Circuit type 13



canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES FAC

**ADAPTER CONNECTORS
 FIELDBUS TO SOLENOID VALVES**

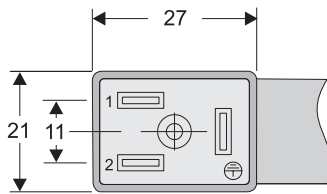
FAC

General Description

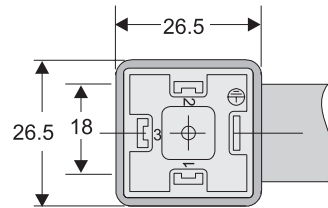
The FAC series connectors are modular interface connectors made to conform to industry standard configurations. These connectors interface female ISO, MINI and Sub-Micro solenoid connections to industry standard male 7/8" (MINI) and 12mm (Micro) circular connectors. These are as shown on the following pages. These rugged modular connectors offer rapid installation and environmental protection designed to IP 65 and NEMA 4. Options include indication LED, surge suppression and various pre-wired circuit configurations to connect with popular multi-port electronic interconnection systems and field-bus systems.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

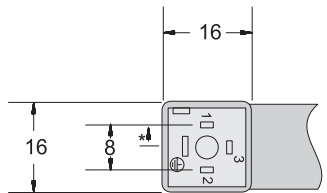


Industry Standard MINI



DIN 43650 Form "A"

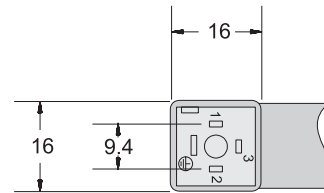
ISO



*Ground spade offset by 0.2mm toward Pin 1.

DIN 43650 Form "C"

Sub-Micro 8mm



Sub-Micro 9mm

Technical Data

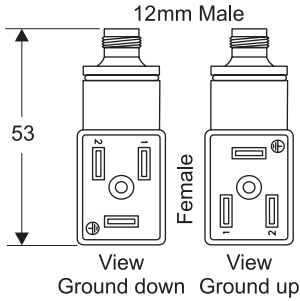
- Wire: Black PVC
- Nominal Voltage Rating: See Connector Type
- Max. Nominal Current: 3/4 Pole 4 Amps
5 Pole 3 Amps
- Environmental Protection: IP 65/NEMA 4
- Temperature Rating: -25° to +85° C

12mm to MINI Connector or ISO (DIN 43650 "A")

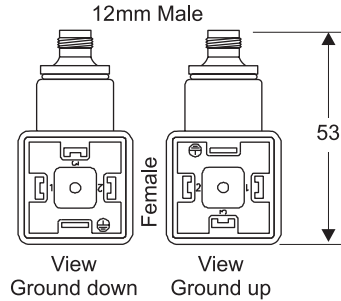
How to Order



MINI



ISO



F A C 1 2 S M [] [] [] [] [] 0

Contact (Poles)
04 - 4 poles
05 - 5 poles *

Lighting Options
0 - no light indicator
3 - with indicator light
6-48V AC/DC
4 - with indicator light
& surge suppression
6-48V AC/DC
7 - with indicator light
100-240 VAC/48-120 VDC
8 - with indicator light
& surge suppression
100-240 VAC/48-120 VDC

Circuit Type†
0 - PNP
1 - NPN

DIN Orientation
1 - ground down
3 - ground up

Connector Type
1 - MINI
2 - ISO

* 5 pole maximum rating of 30 VDC (not available with lighting options 7 & 8)
† See chart at bottom of page 26

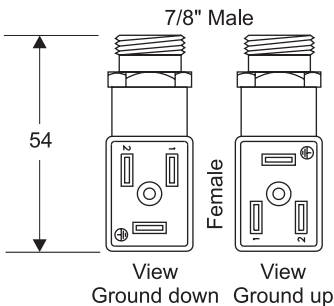
FAC

Automotive Standard to MINI Connector or ISO (DIN 43650 "A")

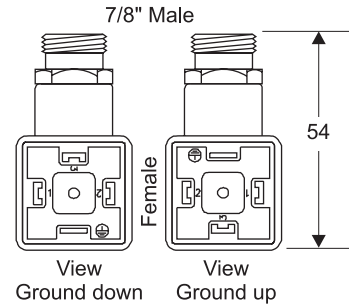
How to Order



MINI



ISO



F A C 2 1 1 M [] [] [] [] [] 0

Males Contact (Poles)
03 - 3 poles
05 - 5 poles

Lighting Options
0 - no light indicator
3 - with indicator light
6-48V AC/DC
4 - with indicator light
& surge suppression
6-48V AC/DC**
7 - with indicator light
100-240 VAC/48-120 VDC
8 - with indicator light
& surge suppression
100-240 VAC/48-120 VDC**

Female Contacts
0 - 2+ ground
1 - 3+ ground

DIN Orientation
1 - ground down
3 - ground up

Connector Type
1 - MINI**
2 - ISO

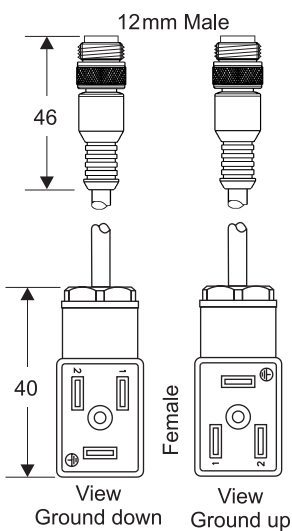
** 2+G version only

12mm (single keyway) Cordset to MINI or ISO (DIN 43650 "A")

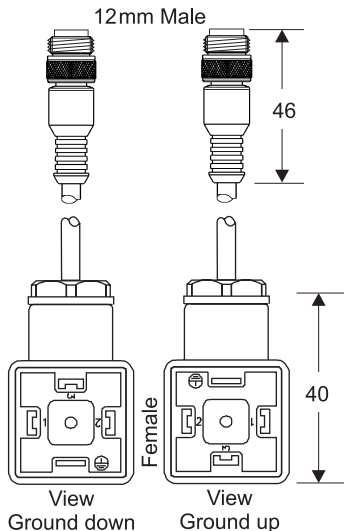
How to Order



MINI



ISO



F A C 3 1 1 M [] [] [] [] [] [] [] 0

Contact (Poles)
04 - 4 poles
05 - 5 poles *

Lighting Options
0 - no light indicator
3 - with indicator light
6-48V AC/DC
4 - with indicator light
& surge suppression
6-48V AC/DC
7 - with indicator light
100-240 VAC/120 VDC
8 - with indicator light
& surge suppression
100-240 VAC/48-120 VDC

Wire Length
2 - 2m
5 - 5m

Circuit Type†
0 - PNP
1 - NPN

DIN Orientation
1 - ground down
3 - ground up

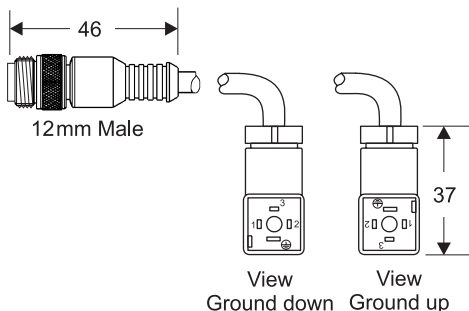
Connector Type
1 - MINI
2 - ISO

* 5 pole maximum rating of 30 VDC (not available with lighting options 7 & 8)
† See chart at bottom of page 26

Most FAC's work in conjunction with B-Type connectors and Distribution Box. (see pages 70-75)

12mm (single keyway) Cordset to Sub-Micro 8mm

How to Order



F A C 4 1 1 M

Male Contact (Poles)

04 - 4 poles
05 - 5 poles *

Lighting Options

0 - no light indicator
3 - with indicator light
6-48V AC/DC
4 - with indicator light
& surge suppression
6-48V AC/DC
7 - with indicator light
100-240 VAC/48-120 VDC
8 - with indicator light
& surge suppression
100-240 VAC/48-120 VDC

Wire Length

2 - 2m
5 - 5m

Circuit Type†

0 - PNP
1 - NPN

DIN Orientation

1 - ground down
3 - ground up

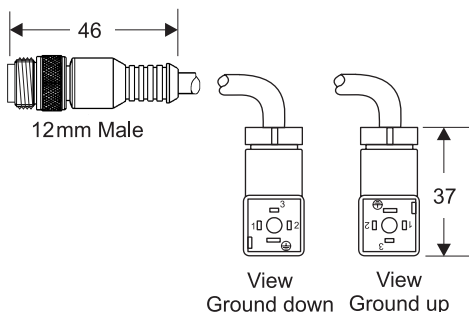
* 5 pole maximum rating of 30 VDC
(not available with lighting options 7 & 8)

† See chart at bottom of this page

FAC

12mm (single keyway) Cordset to Sub-Micro 9mm

How to Order



F A C 5 1 1 M

Male Contact (Poles)

04 - 4 poles
05 - 5 poles *

Lighting Options

0 - no light indicator
3 - with indicator light
6-48V AC/DC
4 - with indicator light
& surge suppression
6-48V AC/DC
7 - with indicator light
100-240 VAC/48-120 VDC
8 - with indicator light
& surge suppression
100-240 VAC/48-120 VDC

Wire Length

2 - 2m
5 - 5m

Circuit Type†

0 - PNP
1 - NPN

DIN Orientation

1 - ground down
3 - ground up

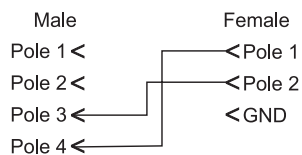
* 5 pole maximum rating of 30 VDC
(not available with lighting options 7 & 8)

† See chart at bottom of this page

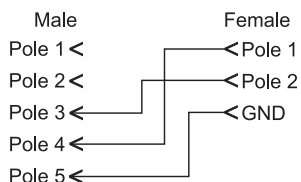
Most FAC's work in conjunction with B-Type connectors and Distribution Box. (see pages 70-75)

† Optional Circuit Types

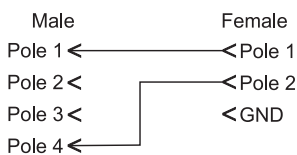
PNP Type 0 - 4 pole



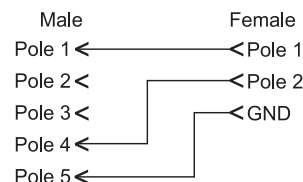
PNP Type 0 - 5 pole



NPN Type 1 - 4 pole



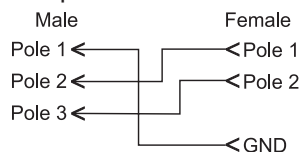
NPN Type 1 - 5 pole



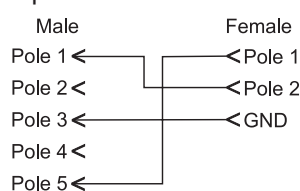
Male connector color code (Pole 1 - Brown, Pole 2 - White, Pole 3 - Blue, Pole 4 - Black, Pole 5 - Gray)

Automotive Standard Circuit Types

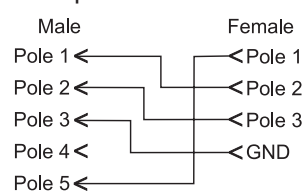
3 pole to ISO or MINI

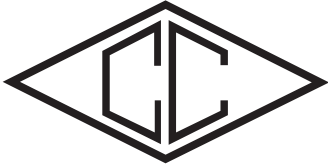


5 pole to ISO or MINI



5 pole to 3+G ISO





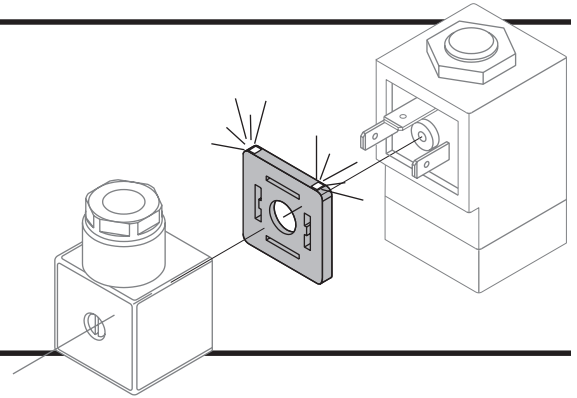
canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

iLW SERIES

**INTERPOSED LIGHTED WAFER
 (MRO) RETRO-FIT INDICATOR LIGHT**

General Description

The Canfield Interposed Lighted Wafer is an electronic, state of the art lighting module designed to install between a DIN type coil and the mating connector. Utilizing SMT (Surface Mount Technology), the iLW's ultra-thin design and high luminescence Gallium Arsenide LEDs enable the lighted wafer to retrofit existing applications or to be used in conjunction with unlighted connectors. Designed to "sandwich" between the connector and the coil, the iLW seals from dust and moisture. The iLW can be installed several times without degradation of the contact surfaces and is not polarity dependent.

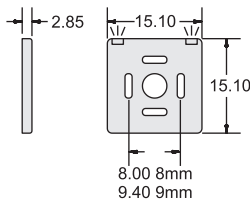


iLW

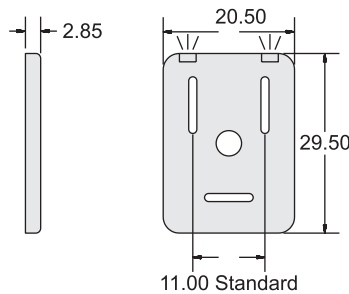
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

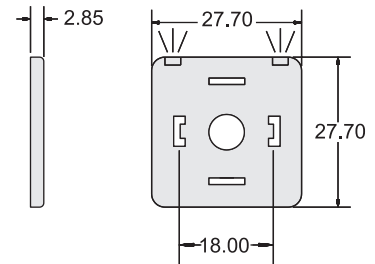
Sub-Micro



MINI



ISO DIN 46350/ISO 4400 Form "A"



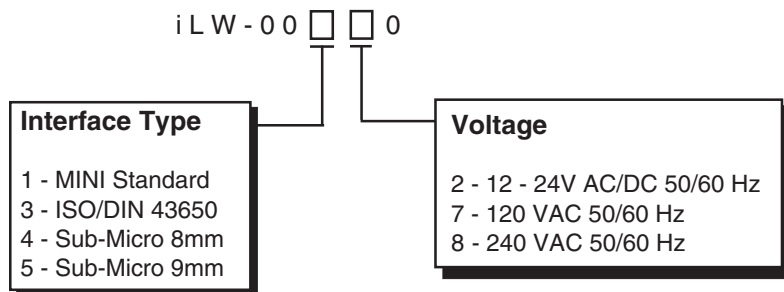
Technical Data

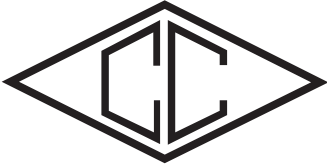
- Retrofits: Sub-Micro 8mm
 Sub-Micro 9mm
 MINI Standard
 ISO 43650 Form "A"
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant
- Ambient temperature range: -20° to +90° C

Electrical Data

- Voltages available: 12 - 24V AC/DC 10 mA max.
 120 VAC 6 mA max.
 240 VAC 9 mA max.
- Light source: Gallium Arsenide light emitting diode
- Not polarity dependent

Ordering Information





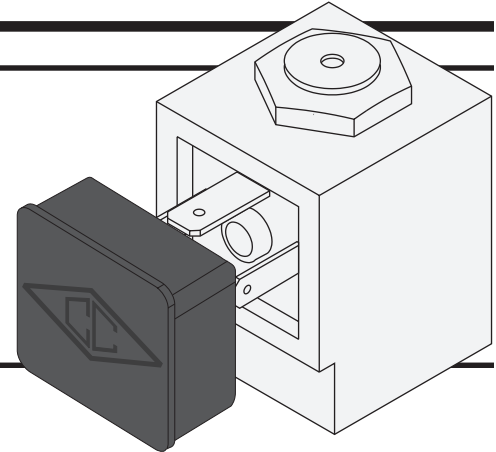
canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES DCP

SOLENOID VALVE DIN COIL PROTECTORS

General Description

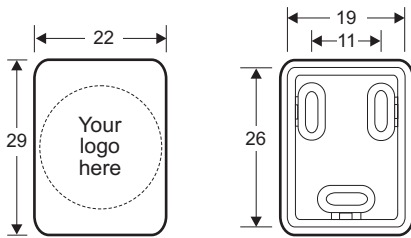
The Canfield Connector DCP coil pin protectors are low cost replacements for solenoid connectors that ensure protection of solenoid terminals during shipping and handling. They can also be used to protect spade style terminals on a variety of other products. DCPs are available in a host of colors and styles as well as special logo markings to match the application. Constructed of low cost yet rugged polymers, the DCP adds aesthetic appeal and advertising value to the solenoid valve. There is a DCP available for ISO, industry standard MINI, Sub-Micro, and dual spade hydraulic coils.



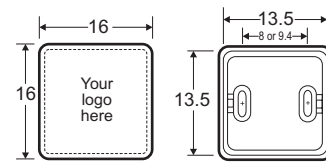
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

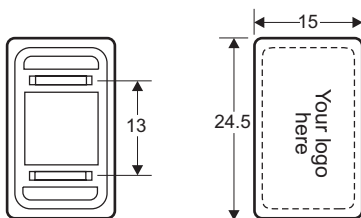
MINI



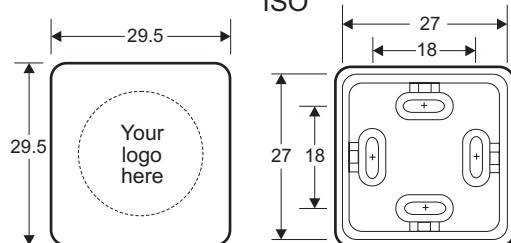
SUB-MICRO



DUAL SPADE



ISO



Technical Data

Ordering Information

- Units to fit DIN 43650 Form A, ISO, Industry standard MINI, Sub-Micro and Dual Spade.

- Materials: HDPE
- **Colors: Many colors available upon request with minimum 20,000 quantity buy.

Must be ordered in multiples of 1,000

Custom logos available upon request with nominal one time tooling charge and minimum quantity buy of 20,000.

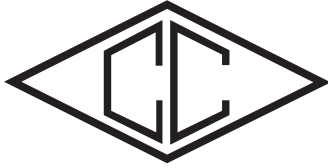
Ordering Example:

DCP100 - 111
 DIN Coil Protector, ISO, black

DCP 100 - 1

Color **
 1 - Black

Coil Type
 1 - ISO (DIN 43650)
 2 - MINI (Ind. Standard)
 3 - Sub-Micro
 5 - Dual Spade Hydraulic



canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES M5

MALE CONNECTORS

General Description

Canfield male connectors are used as electrical quick disconnect interfaces for pneumatic and hydraulic valves and sensors. They are available in standard MINI, DIN 43650 / ISO 4400 Form "A", Sub-Micro 8mm, 9mm, and conduit arrangements. Some male connectors are available with 2+ ground or 3+ ground terminal options.

A10620 MINI Female to ISO Male Adapter

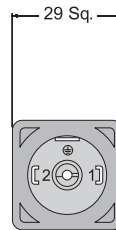
DIMENSIONS IN MILLIMETERS

General Description

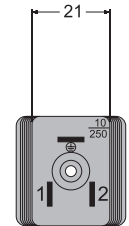
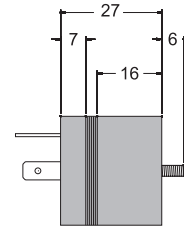
The MINI female to ISO male connector is used to adapt existing ISO connector to MINI coil installations. Connection is very simple and retrofit in the field is accomplished in minutes. The standard ISO female connector connects to the male connection.

Features

- MINI female to ISO DIN 43650 male
- Male/female central screw
- 2 + Ground version only
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Nitrile Gasket
- Temp. rating -25° to +90° C



ISO male



MINI female

M03010 MINI Male for Molding

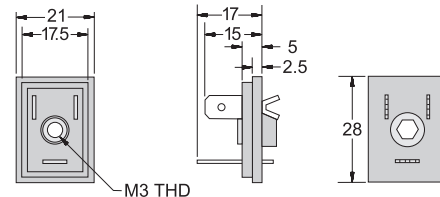
DIMENSIONS IN MILLIMETERS

General Description

This MINI male connector is used as an electrical quick connect. It is generally applied during the molding, potting, or epoxying process for pneumatic and hydraulic valves or pressure switches. The M03010 male connector is built to mate with the Series 5000 or other standard MINI female connectors.

Features

- 2+ Ground Terminals
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Temp. rating -40° to +125° C



M3 THD

M03110 MINI Male for Plate Mounting

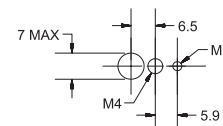
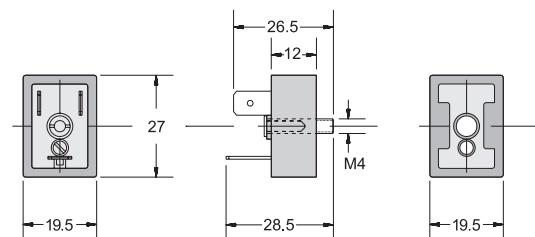
DIMENSIONS IN MILLIMETERS

General Description

This MINI male connector is used as an electrical quick connect for pneumatic and hydraulic valves. The M03110 male connector is built to mate with the Series 5000 or other standard MINI female connectors. This connector can be used for mounting on a plate, panel or bulkhead.

Features

- 2+ Ground Terminals
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Nitrile Gasket
- Temp. rating -25° to +90° C



P10020 ISO Male for Molding

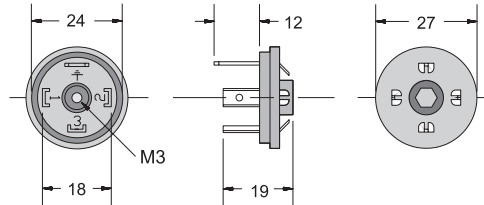
DIMENSIONS IN MILLIMETERS

General Description

This male DIN 43650/ISO 4400 connector can be integrated in tooling to provide a cost effective quick connect electrical interface. The P10020 is designed to mate with Series 5000 or other DIN 43650/ISO 4400 female electrical connectors.

Features

- DIN 43650 Form "A" / ISO 4400 configuration
- 2+ or 3+ Ground versions
- 250V AC/DC max.
- Glass Fiber Reinforced Nylon
- 10 Amps max. rating
- Temp. rating -40° to +125° C



P10121 ISO Male for 2 Hole Plate Mounting

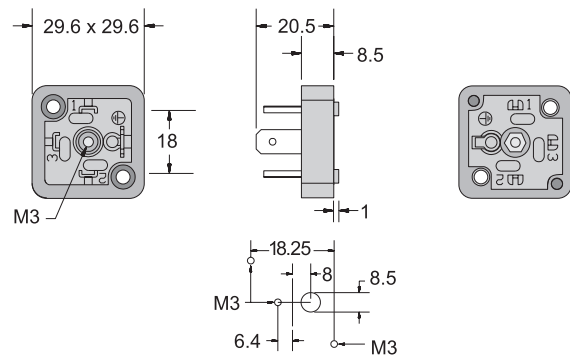
DIMENSIONS IN MILLIMETERS

General Description

This plate mount DIN 43650/ISO 4400 male connector is offered in either 2+ or 3+ ground versions. Easy to install using the template in the dimensional data. The P10121 connector is designed to mate with Series 5000 or other DIN 43650/ISO 4400 female connectors.

Features

- DIN 43650 Form "A" / ISO 4400 configuration
- 2+ or 3+ Ground versions
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Nitrile Gasket
- Temp. rating -25° to +90° C
- Panel mounting screws provided



P10122 ISO Male for 4 Hole Plate Mounting

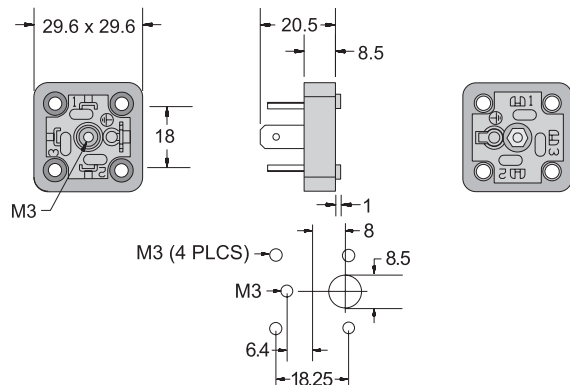
DIMENSIONS IN MILLIMETERS

General Description

This plate mount DIN 43650/ISO 4400 male connector is offered in either 2+ or 3+ ground versions. Easy to install using the template in the dimensional data. The P10122 connector is designed to mate with Series 5000 or other DIN 43650/ISO 4400 female connectors.

Features

- DIN 43650 Form "A" / ISO 4400 configuration
- 2+ or 3+ Ground versions
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Nitrile Gasket
- Temp. rating -25° to +90° C
- For high vibration, mobile applications
- Panel mounting screws provided



P10222 ISO Male for Sheet Metal Mounting

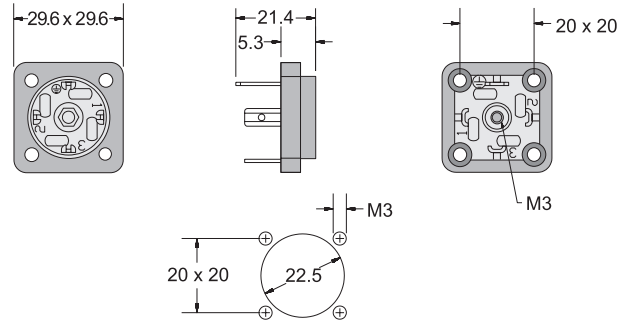
DIMENSIONS IN MILLIMETERS

General Description

This DIN 43650/ISO 4400 male connector is specifically designed for mounting in sheet metal. It has an arc over insulating plastic ridge and includes a gasket and four mounting screws. The P10222 connector is designed to mate with Series 5000 or other DIN 43650/ISO 4400 female connectors.

Features

- DIN 43650 Form "A" / ISO 4400 configuration
- 2+ or 3+ Ground versions
- 250V AC/DC max.
- 10 Amps max. rating
- Glass Fiber Reinforced Nylon
- Nitrile Gasket
- Temp. rating -25° to +90° C



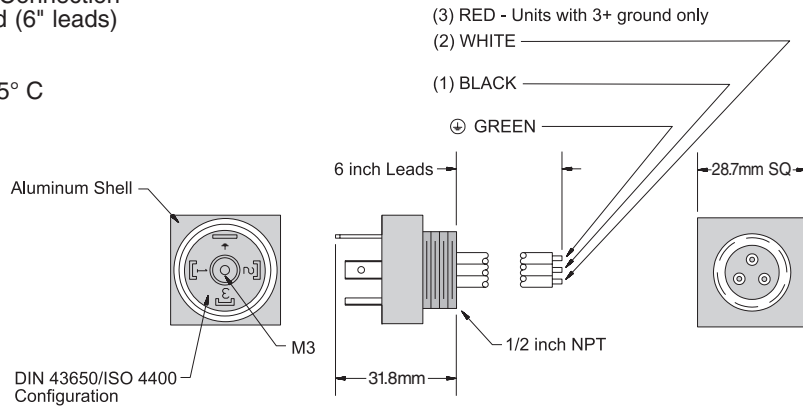
P10500 ISO Male for 1/2" Conduit Male Thread

General Description

This male DIN 43650/ISO 4400 connector is specifically designed to attach to systems with 1/2" conduit connections and mate with Series 5000 or other DIN 43650/ISO 4400 female connectors. These units are pre-wired for ease of installation and epoxy encapsulated in an aluminum shell.

Features

- DIN 43650 Form "A" / ISO 4400 configuration
- 2+ or 3+ Ground versions
- 1/2" NPTF Male Thread Connection
- 18 Gauge Wire Standard (6" leads)
- 250V AC/DC max.
- 10 Amps max. rating
- Temp. rating -40° to +105° C



3 plus ground version shown. 2 plus ground version available.

P20020 Sub-Micro 8mm Male for Molding

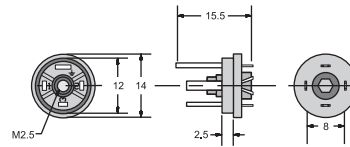
DIMENSIONS IN MILLIMETERS

General Description

This Sub-Micro 8mm male connector is designed as a small electrical interface that can be molded into other products creating an environmentally protected quick connect interface. The P20020 male connector is designed to mate with Series 5000 8mm female connectors.

Features

- 2+ or 3+ Ground versions
- 8mm Centers
- Glass Fiber Reinforced Nylon
- 250V AC/DC max.
- 6 Amps max. rating
- Temp. rating -40° to +125° C



P20420 Sub-Micro 8mm Press In Mounting

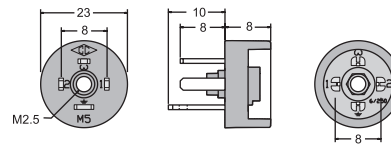
DIMENSIONS IN MILLIMETERS

General Description

This Sub-Micro 8mm male connector is designed to press into a hole as a means of mounting. The P20420 connector is built to mate with Series 5000 8mm center female connectors.

Features

- 2+ or 3+ Ground versions
- 8mm Centers
- Glass Fiber Reinforced Nylon
- 250V AC/DC max.
- 6 Amps max. rating
- Temp. rating -40° to +125° C



Drill a 5/64" hole and press in.
Recommended minimum material thickness is 1/4"

P30120 Sub-Micro 9mm Male for Plate Mount

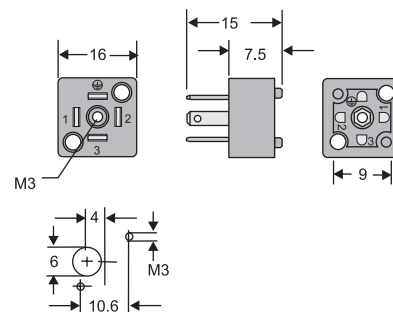
DIMENSIONS IN MILLIMETERS

General Description

This Sub-Micro 9mm male plate mount connector is offered in either 2+ or 3+ ground versions. Easy to install using the template in the dimensional data. The P30120 connector is built to mate with Series 5000 9mm center female connectors.

Features

- 2+ or 3+ Ground versions
- 9mm Centers
- Glass Fiber Reinforced Nylon
- 250V AC/DC max.
- 6 Amps max. rating
- Nitrile gasket
- Temp. rating -40° to +125° C



Ordering Information

M 5 - 0 0

Connector Type

- A10620 - MINI Female to ISO Male*
- M03010 - MINI for Molding
- M03110 - MINI for Plate *
- P10020 - ISO for Molding
- P10121 - ISO for Plate 2 Hole
- P10122 - ISO for Plate 4 Hole
- P10222 - ISO for Sheet Metal
- P10500 - ISO for 1/2" Conduit
- P20020 - Sub-Micro 8mm Molding
- P20420 - Sub-Micro 8mm Press In
- P30120 - Sub-Micro 9mm for Plate Mount

Contacts

- 2 - 2+ ground
- 3 - 3+ ground

Each connector kit contains all mounting hardware.

* 2+ Ground Terminals Only

Ordering Example:

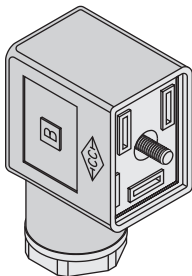
M5P10222-300

Model P10222 ISO Male Connector for Sheet Metal with 3+ ground terminals.

M5

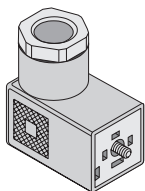
The Perfect Match for a Canfield Male Connector is a Canfield FEMALE Connector!

SERIES 5000
(pages 10-15)
Field Wireable / Pre-Wired
Lighted / Unlighted

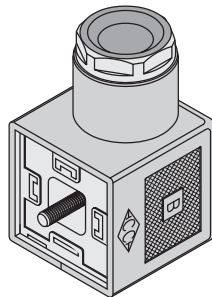


Standard MINI

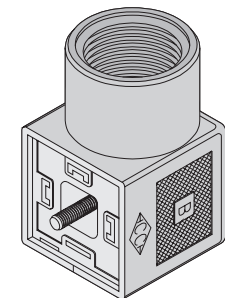
Sub-Micro 8mm /
DIN 43650 Form "C"
or
Standard Sub-Micro 9mm



SERIES P5600
(pages 18-21)
Field Wireable / Pre-Wired
Lighted / Unlighted
With Surge Suppression

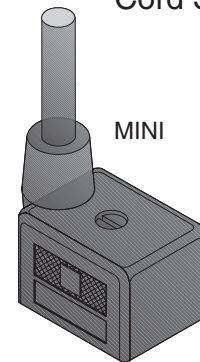


ISO Strain Relief
ISO 4400 / DIN 43650



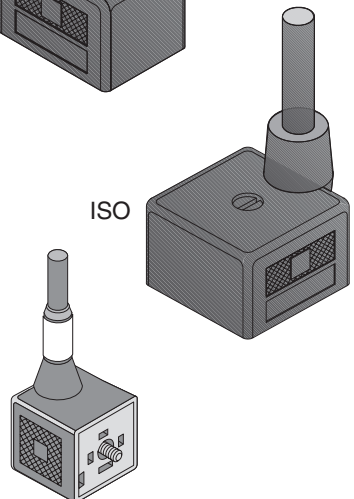
ISO 1/2 Conduit
ISO 4400 / DIN 43650

SERIES 5K
(pages 16-17)
Molded One-Piece
Cord Sets

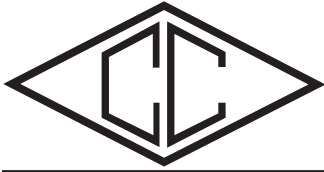


MINI

ISO



Sub-Micro



canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES R5000

**MINI AND ISO
 RECTIFIED CONNECTORS**

General Description

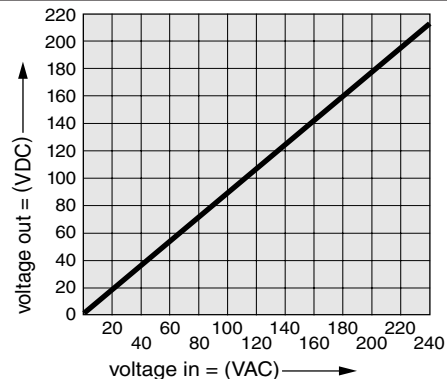
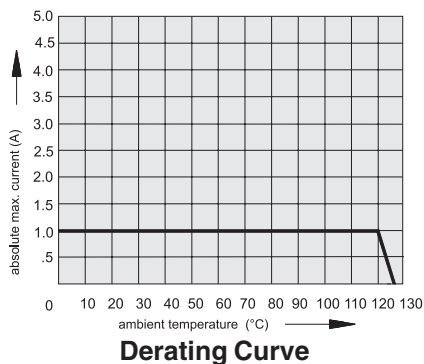
Canfield Connector's R5000 Series solenoid valve connectors incorporate full-wave bridge rectifiers inside the DIN 43650 Form "A" ISO and MINI connectors. This standard permits industry interchange-ability and has been embraced by the solenoid valve industry worldwide. The R5000 converts alternating current to direct current reducing coil burnout due to valve sticking. Also, direct current eliminates AC "hum" inherent to alternating current. Features include the ability for the user to wire the connector into existing installations or order the connector prewired at the factory. Wire connections are made inside the connector housing and the wire inlet is either PG9 strain relief, 3/8" or 1/2" conduit. The R5000 has a maximum current rating of 1 Amp continuous with maximum wire gauge diameter of 14 AWG. An indicator light is offered for instant diagnostics and to aid setup and installation.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

MINI PG9	MINI 3/8" Conduit	MINI 1/2" Conduit
ISO HT PG9**	ISO HT 1/2" Conduit**	Schematic

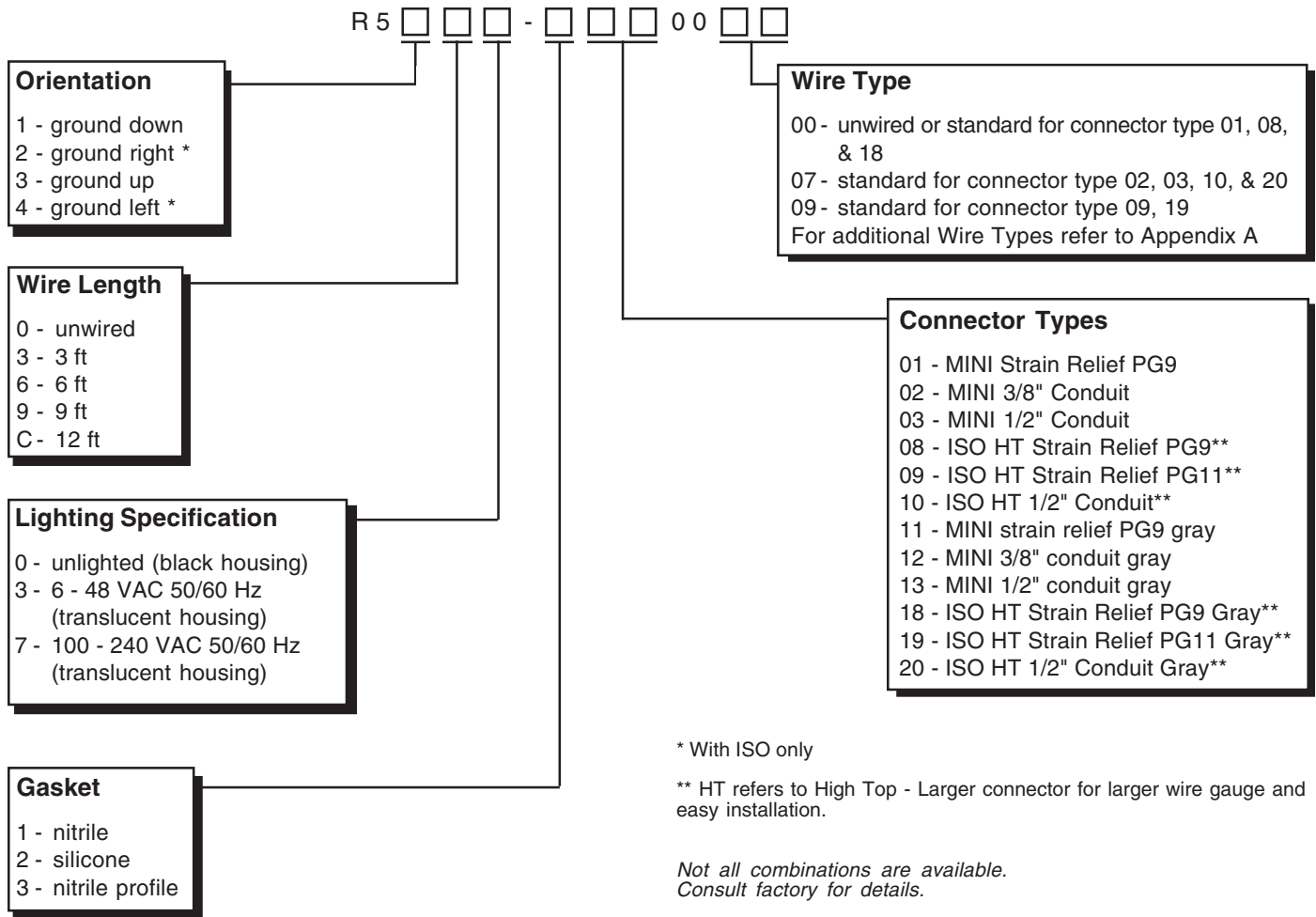
Technical Data



Technical Data Con't

- Voltage max.: 250 VAC 50/60 Hz
- Voltage drop: 2.2 volt max.
- Current max.: Continuous - 1 Amps
Inrush - 15 Amps for 15 ms
- Wire gauge max.: 14 AWG
- Recommended cable diameter:
PG9 .230 to .310 in. O.D.
PG11 .310 to .410 in. O.D.
3/8" Conduit .410 inch max.
1/2" Conduit .410 inch max.
- Gaskets temperature max.: Nitrile -25° to +90° C
Silicone -40° to +125° C
- Environmental protection: NEMA 4 and IP 65 dust tight and water resistant

Ordering Information



* With ISO only

** HT refers to High Top - Larger connector for larger wire gauge and easy installation.

*Not all combinations are available.
Consult factory for details.*

Each connector kit contains fastening hardware and gasket assembly.

For additional wire length and wire type options refer to Appendix A.
For wire installation refer to Appendix B.

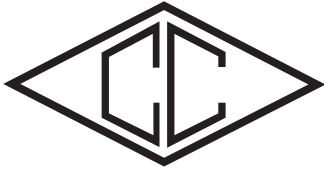
Ordering Example:

R 5167 - 1030007

Rectified, ground down, 6 ft wire length, lighted 100 - 240 VAC 50/60 Hz, nitrile gasket, MINI 1/2" conduit connector



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.



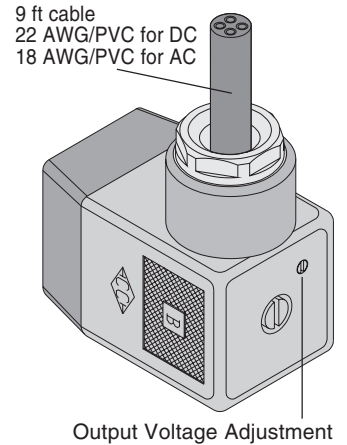
canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

**SERIES D5400 (MSD)
 MICRO SOLENOID DRIVER, POWER CONVERTER**



General Description

The Canfield Connector Series D5400 Micro Solenoid Driver is a NEMA 4 DIN 43650 Form "A" and MINI type connector with a built in electronic circuit used to induce solenoid pull-in and reduce holding current. The time proven MSD has been designed into many applications where heat buildup occurs which reduces operating efficiency and life span of solenoid valves. The MSD has two main functions: one is to induce faster or stronger than usual response times at solenoid pull-in, the second is to reduce the net wattage of the solenoid during hold-in. The MSD drives the coil with a high input voltage for a fixed time period until the coil has shifted at which time the MSD reduces the holding voltage, which saves power, and the solenoid runs cool. The MSD is often used to replace low voltage power supplies where a 24 VDC solenoid valve can then be operated by 120 VAC. The Alternating current is rectified and the duty cycle reduced so as to operate the valve at proper voltage and wattage ranges. An additional advantage can be found when the MSD drops the holding voltage, which then reduces heat and current requirements.

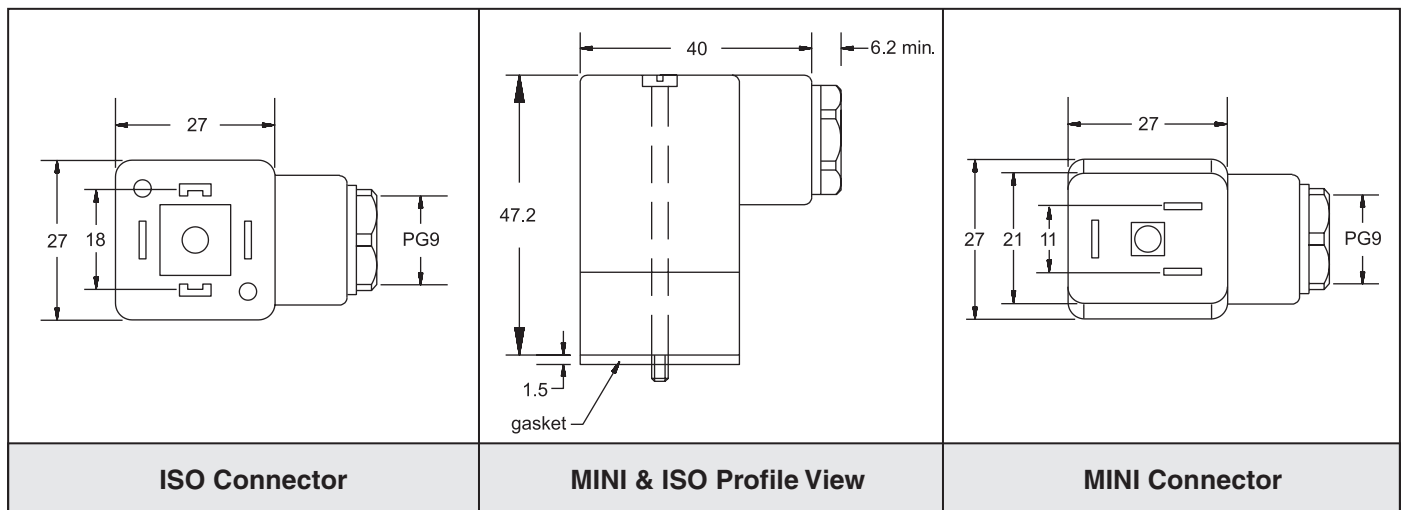


D5400

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

Reduce Heat • Increase Speed



Features

- Speed operator cycle rates with greater consistency
- Enable coils to be energized for extended periods without burnout
- Save energy by reducing overall coil consumption
- MINI or DIN 43650 / ISO 4400 Form "A" electrical connector enclosure saves hook up space and is a generally accepted quick connect interface
- Reduce hold-in voltage to reduce coil heat related losses
- Increases coil life expectancy
- Enclosure NEMA 4 accepted
- All versions have LED indicator lights
- 9 ft cable is standard on all versions

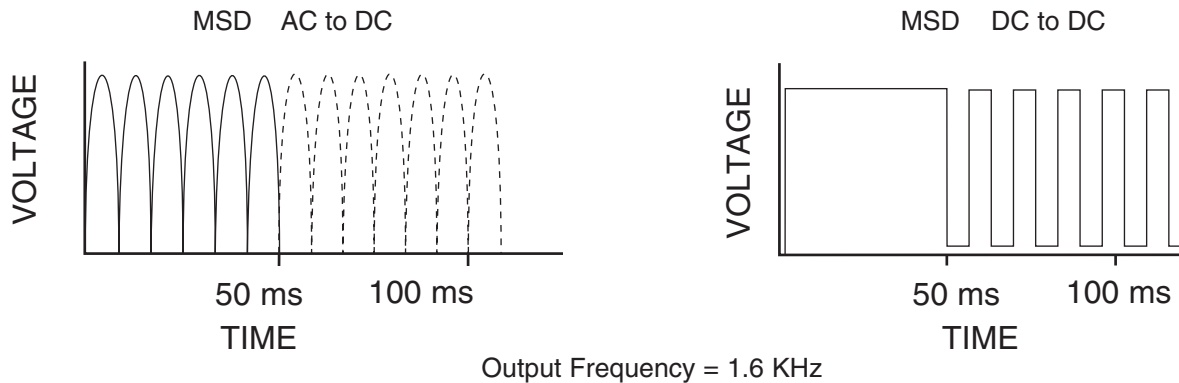
Technical Data

- Ambient temperature range: -20° to +50° C
- Maximum input voltage tolerance: 10%
- Input voltage: AC or DC (in different versions)
- Output voltage: DC (+/- 10% of selected output)
- Peak output voltage: Supply - .5v
- Maximum output current: 8 Amps inrush for 50 ms / 1 Amp holding
- Maximum allowable input DC ripple: 20% peak to peak
- 2 ms max. response time

How it Works

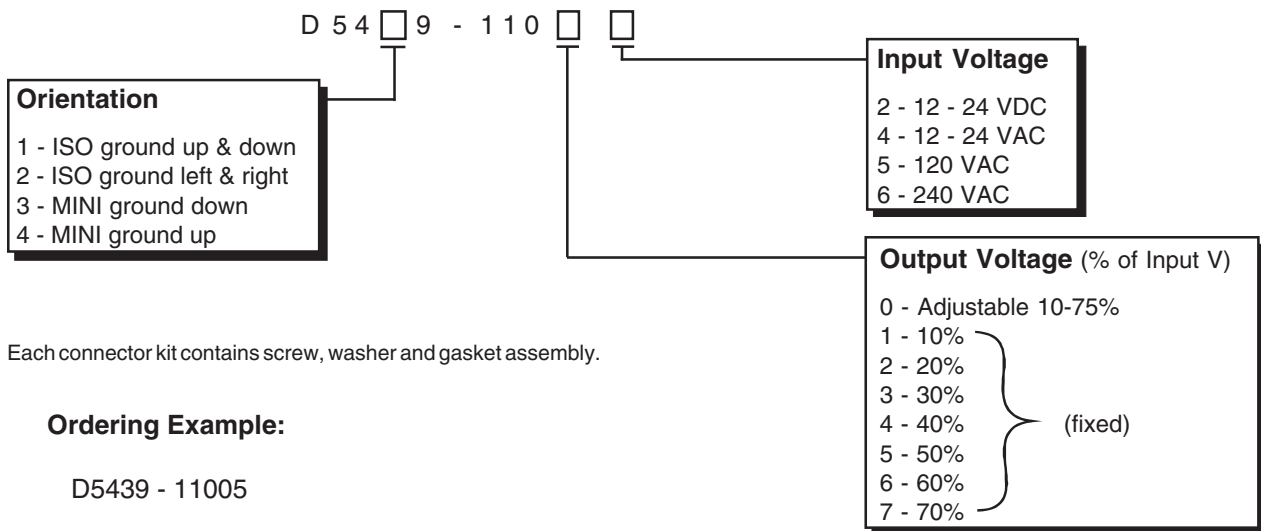
The MSD allows the input line voltage directly to the coil for a fixed single shot of 50 milliseconds. After that period, the MSD automatically pulses the input voltage to the coil. In either fixed or adjustable versions, the MSD turns the power on and off so fast that the armature does not respond. By adjusting the off period so that it is longer than the on period, the net RMS voltage decreases and wattage is decreased. Many coils can be adjusted much lower than expected due to the fact that much less energy is required for hold-in as opposed to pull-in.

Output Waveforms



D5400

Ordering Information

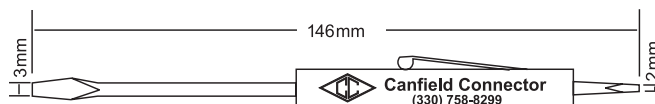


Each connector kit contains screw, washer and gasket assembly.

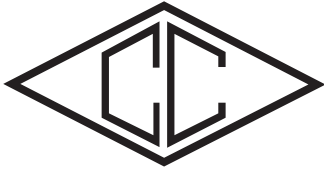
Ordering Example:

D5439 - 11005

MINI ground down, Adjustable output, 120 VAC.



Optional Voltage Adjustment Tool
part # 5000-TOOL



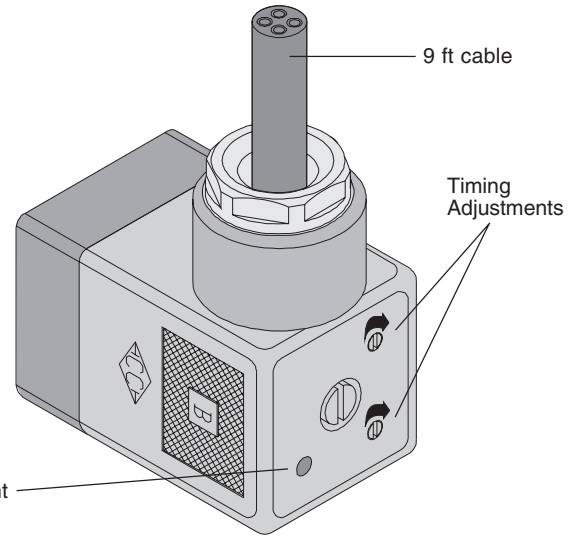
canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 5800 MICRO LOGIC TIMER (MLT)

**DIN CONNECTOR WITH
 INTERNAL TIMER CIRCUIT**

General Description

The Canfield Connector Micro Logic Timer is a solid state electronic timing unit incorporated inside the standard MINI and DIN 43650 / ISO 4400 Form "A" electrical connectors. The MLT allows precise timing and logic functions in a small, easily mounted enclosure. There are eight standard timer types. Each timer incorporates circuitry for AC or DC operation with a wide voltage range.



5800

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

<p>ISO Connector</p>	<p>MINI & ISO Profile View</p>	<p>MINI Connector</p>

Features

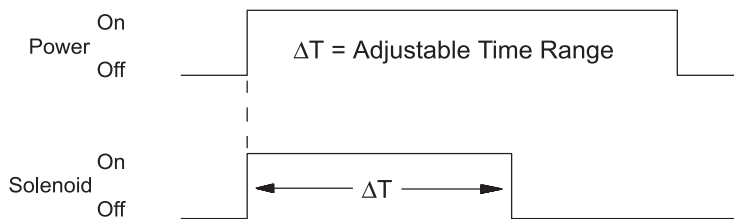
- Makes any logic valve multifunctional
- Easy installation pre-wired timers mount directly to valve
- Built-in surge suppression
- Custom configurations available
- High range of adjustability
- Highly compact design
- Indicator light standard
- Interchangeable AC/DC power supply
- NEMA 4 and IP 65 rated
- Polycarbonate Makrolon housing material
- Quick disconnect design
- Timer repeat accuracy +/- 0.5% under normal conditions
- Wide operating voltage range
- 9 ft PVC cable standard

Technical Data

- Input Voltage Range: 12-240 VDC
24-240 VAC (50/60 Hz)
- Maximum timer current draw: 15 mA
- Maximum input voltage tolerance: +/-10%
- Maximum output current: 1 Amp
- Frequency: AC 50/60 Hz or DC
- Ambient temperature range: -20° to +60° C
- 15 turn time adjustment potentiometers for accuracy
- Wire gauge: 20 AWG standard
- Time ranges: 0.1 seconds to 33 minutes in standard versions, shorter and longer times available upon request

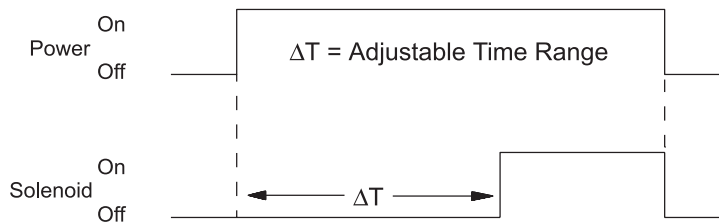
Timing Diagrams

Interval Delay/(One Shot) Timer Type 1



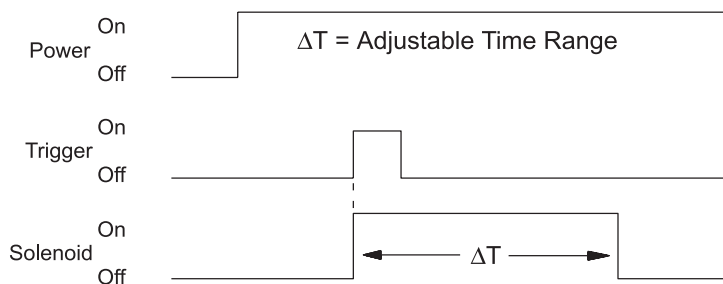
Solenoid is energized for ΔT upon application of power. Reset occurs when power is removed.

On Delay/(Delay On Make) Timer Type 2



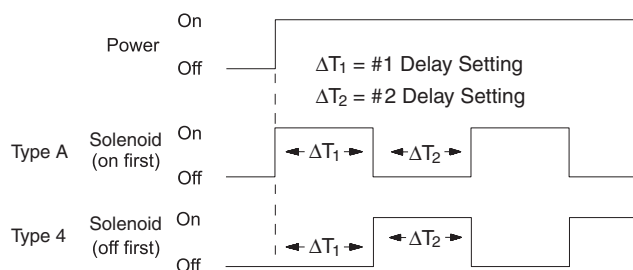
Solenoid remains OFF for ΔT upon application of power. Reset occurs when power is removed.

Off Delay/(Triggered One Shot) Timer Type 3



When power is applied, solenoid remains OFF. Solenoid is energized for ΔT only upon closure of a normally open momentary contact switch (trigger). Reset occurs when solenoid is OFF and trigger is re-applied.

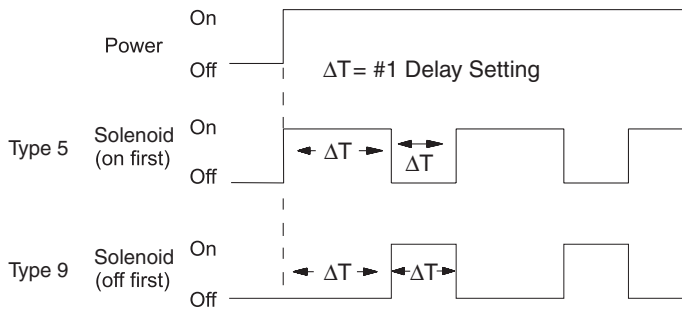
Cycle Timer Timer Type 4 / Type A



Solenoid cycles ΔT_1 OFF and ΔT_2 ON when power is applied. Reset occurs when power is removed. Timer is available in normally on (Type A) or normally off (Type 4) versions.

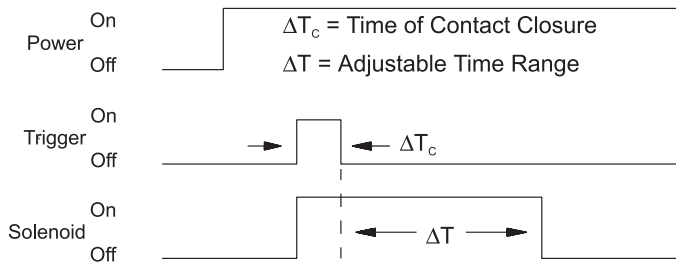
Timing Diagrams Continued

Square Wave Cycle Timer
Timer Type 5 / Type 9



Solenoid cycles with equal ON and OFF times when power is applied. Reset occurs when power is removed. Timer is available in normally on (Type 5) or normally off (Type 9) versions.

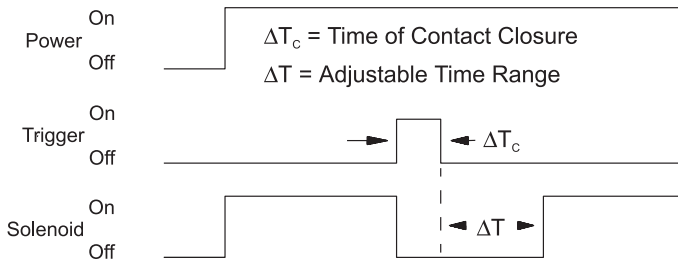
Delay On Break Normally Off
Timer Type 6



When power is applied, solenoid remains OFF. Solenoid is energized for $\Delta T_c + \Delta T$ when trigger switch is closed and opened. Reset occurs when solenoid is OFF and trigger is re-applied.

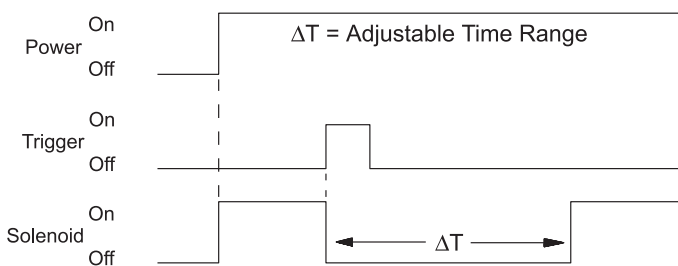
5800

Delay On Break Normally On
Timer Type 7



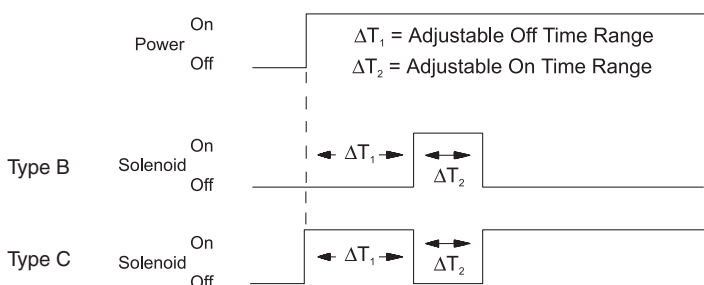
When power is applied, solenoid is energized and remains energized until the trigger switch is closed. Solenoid is then OFF for $\Delta T_c + \Delta T$. Reset occurs when solenoid is ON and the trigger is re-applied.

Triggered One Shot Normally On
Timer Type 8



When power is applied, the solenoid is energized. Solenoid de-energizes for ΔT only upon closure of a normally open momentary contact switch (trigger). Reset occurs when solenoid is ON and the trigger is re-applied.

Single Cycle Timer
Timer Type B / C



Solenoid cycles ΔT_1 OFF and ΔT_2 ON when power is applied. Reset occurs when power is removed. Timer is available in normally off (Type B) or normally on (Type C) versions.

Ordering Information

5 8 □ □ - 9 1 0 □ 3

Timer Type

- 1 - Interval Delay
One Shot
- 2 - On Delay
Delay On Make
- 3 - Off Delay
Triggered One Shot
- 4 - Cycle Timer
Normally Off
- 5 - Square Wave Cycle Timer
Normally On
- 6 - Delay On Break
Normally Off
- 7 - Delay On Break
Normally On
- 8 - Triggered One Shot
Normally On
- 9 - Square Wave Cycle Timer
Normally Off
- A - Cycle Timer
Normally On
- B - Single Cycle Timer
Normally Off
- C - Single Cycle Timer
Normally On

Connector Orientation

- 1 - ISO ground up & down
- 2 - ISO ground right & left
- 3 - MINI ground down
- 4 - MINI ground up

Period Delay

- A - 0.5 to 5 seconds
- B - 0.5 to 25 seconds
- C - 0.5 to 50 seconds
- D - 0.5 to 100 seconds
- E - 2.0 to 20 seconds
- F - 2.0 to 200 seconds
- G - 2.0 to 400 seconds
- H - 5.0 to 50 seconds
- I - 5.0 to 500 seconds
- J - 10.0 to 100 seconds
- K - 10.0 to 1000 seconds
- L - 10.0 to 2000 seconds
- Z - 0.1 to 5 seconds

5800

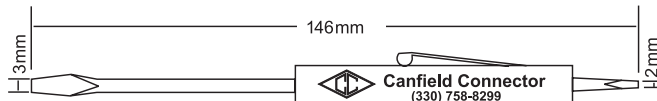
Ordering Example:

5811-910A3

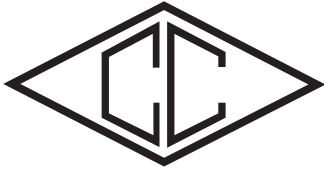
Interval Delay, ISO ground up & down, 0.5 to 5 second delay.

Each kit contains fastening hardware and gasket assembly.

Custom Time Ranges are Available.
Consult Factory for Details.



Optional Adjustment Tool
part # 5000-TOOL



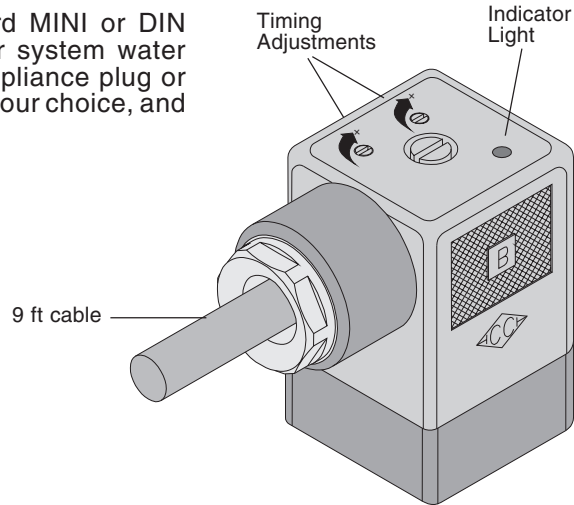
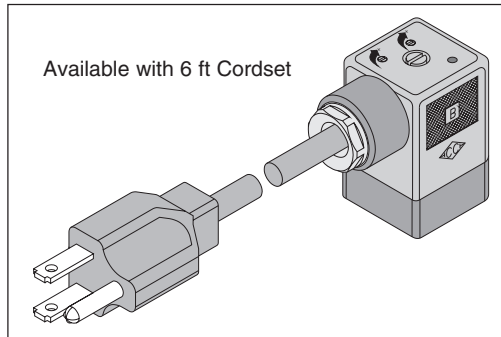
canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

MODEL CRT

CONDENSATION REMOVAL TIMER (CRT)

General Description

This miniature timer changes any valve with the standard MINI or DIN 43650/ISO 4400 Form "A" electrical interface into an air system water removal valve. The unit easily installs using a standard appliance plug or multi-conductor cable. It works with the flow/brand valve of your choice, and provides adjustable cycle and on time.



CRT

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

<p>ISO Connector</p>	<p>MINI & ISO Profile View</p>	<p>MINI Connector</p>

Features

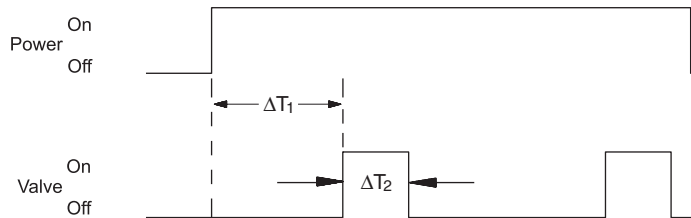
- Built-in surge suppression
- Custom configurations available
- Easy installation pre-wired timer mounts directly to valve
- High range of adjustability
- Compact design
- Indicator light standard
- Enclosure is NEMA 4 and IP 65 rated
- Polycarbonate Makrolon housing material
- Quick disconnect design
- Timer repeat accuracy +/- 0.5% in fixed conditions
- Wide operating voltage range
- 6 ft PVC cable w/grounded plug standard on 120 VAC only
- 9 ft PVC cable on all others

Technical Data

- CMOS digital circuitry
- Maximum timer current draw: 15 mA (No load)
- Maximum input voltage tolerance: +/-10%
- Input Voltage Range: 12-240 VDC
24-240 VAC (50/60 Hz)
- Maximum output current: 1 Amp
- Maximum allowable DC ripple: 20% peak to peak
- Ambient temperature range: -20° to +60° C
- 15 turn time adjustment potentiometers for accuracy
- Wire gauge: 20 AWG cable or 18 AWG cordset

Timing Diagram

Upon application of power to the input terminals, the OFF cycle is initiated. At the end of the preset OFF time, the solenoid is energized and the ON cycle begins. At the end of the preset ON time, power is removed from the solenoid and a new cycle begins. Cycling continues until power is removed from the input terminals.



T_1 = OFF TIME - 1 min. to 45 min.
 T_2 = VALVE ON TIME - .25 sec. to 25 sec.

Ordering Information

584 - 10R5

Connector Orientation

- 1 - ISO ground up & down
- 2 - ISO ground right & left
- 3 - MINI ground down
- 4 - MINI ground up

Wiring Length

- P - 120 VAC 6 ft Cordset
- 9 - 9 ft cable

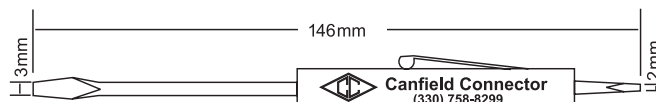
Ordering Example:

5841 - P10R5

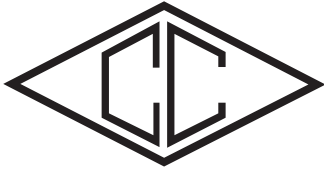
ISO ground up & down, 6 ft cordset, 120-240 VAC.

Each kit contains screw, washer and gasket assembly.

Custom Time Ranges are Available.
Consult Factory for Details.



Optional Adjustment Tool
part # 5000-TOOL



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www.canfieldconnector.com

SANDWICH CRT

CONDENSATION REMOVAL TIMER (CRT)

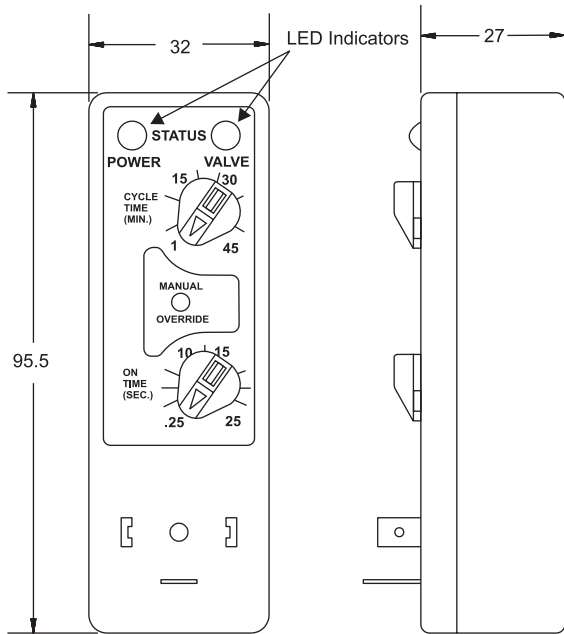
General Description

This Canfield Connector miniature timer makes any valve, with the DIN 43650/ISO 4400 Form "A" electrical interface, able to operate as a compressed air system condensate removal valve. The unit installs in a modular form between an existing coil and connector. No new wiring is necessary. Retrofits on virtually any installation. It works with the valve brand of your choice. The cycle and on times are easily adjustable and two indicator lights show status.

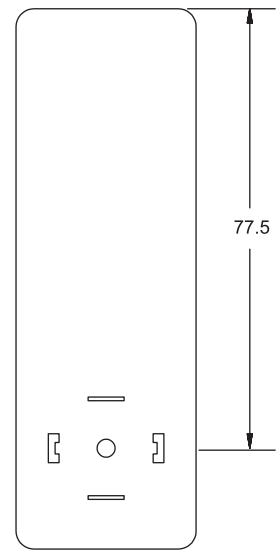
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

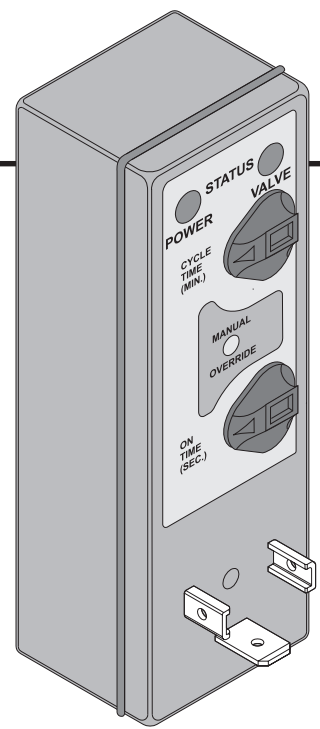
SAND CRT



DIN 43650 male ISO Connector on Front.



DIN 43650 female ISO Connector on Rear. Timer can be rotated 180°.



Adjust by hand or screwdriver
 LEDs can be seen from side view



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.

Features

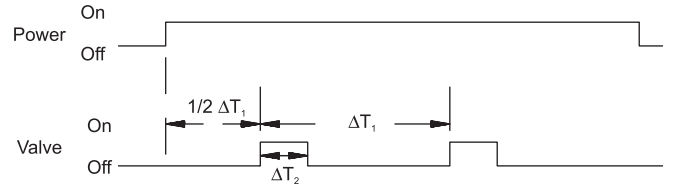
Technical Data

- Make any valve a condensate removal system
- Environmental protection: dust tight and water resistant
- All solid state; No moving parts to wear
- Indicator lights standard for power and valve status
- Optional 6 ft PVC cable w/grounded plug available

- Voltage ranges: 12 to 60 VDC
12 to 240 VAC 50/60 Hz
- Current draw: 1 Amp max. AC
1 Amp max. DC
- Ambient temperature range: -20° to +65° C
- ISO DIN interface: DIN 43650 / ISO 4400
- Transient suppression: AC – MOV
DC – Diode

Timer Function

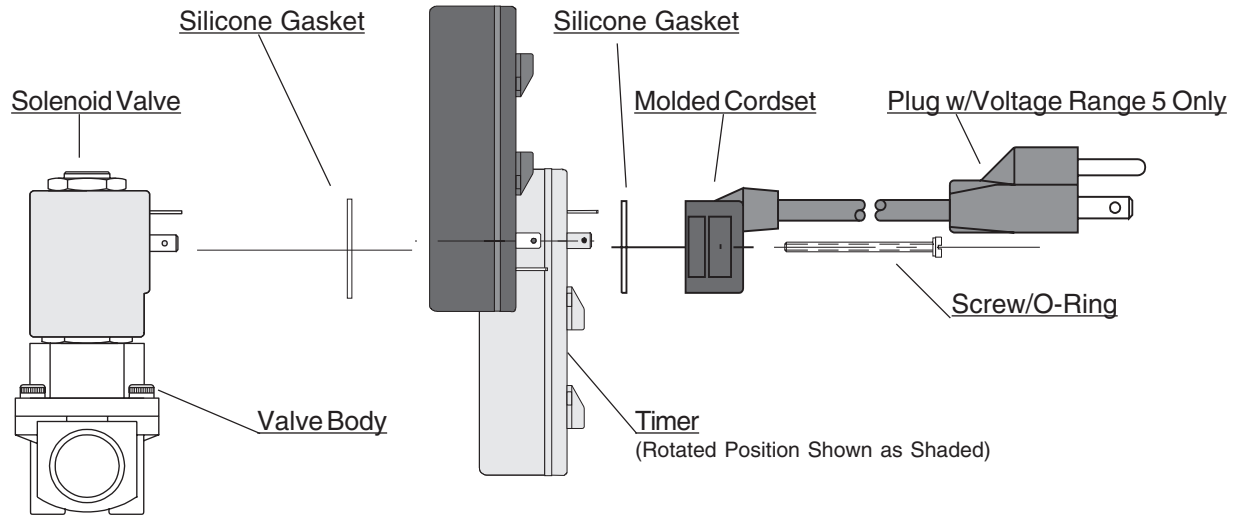
Upon application of power to the input terminals, the OFF time is initiated. At the end of the preset CYCLE time, the solenoid is energized and the ON time begins. At the end of the preset ON time, power is removed from the solenoid and a new cycle begins. Cycling continues until power is removed from the input terminals.



ΔT_1 = Cycle Rate (1 min. to 45 min.)

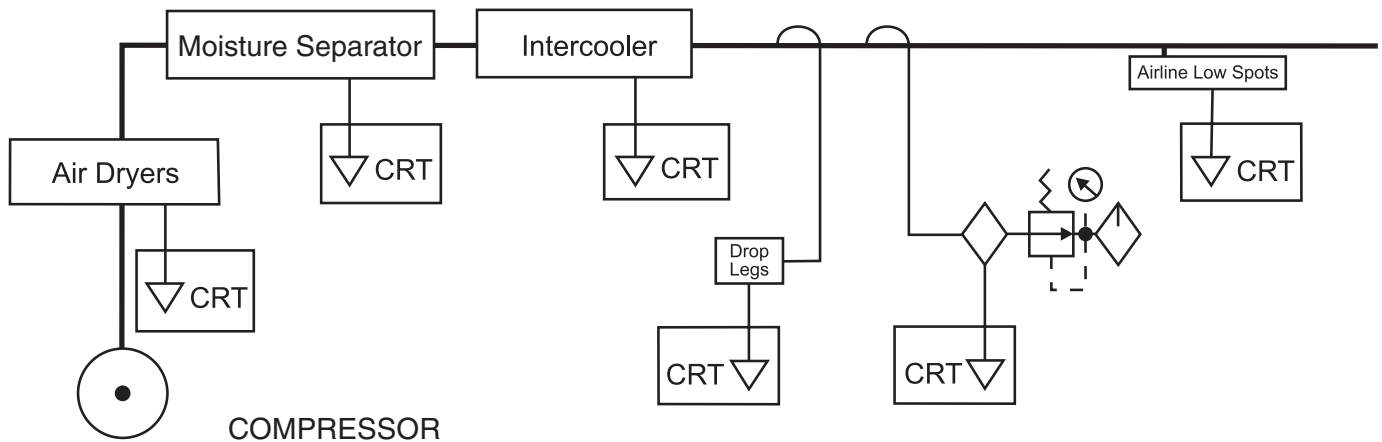
ΔT_2 = Valve ON Time (.25 sec. to 25 sec.)

Assembly



SAND CRT

Applications



Ordering Information

5940 - 000

Power Connection

- 0 - without molded cordset
- 1 - with molded cordset
- 2 - with ISO 1/2" conduit connector

Voltage Range

- 2 - 12 - 60 VDC
- 4 - 12 - 120 VAC
- 5 - 120 - 240 VAC

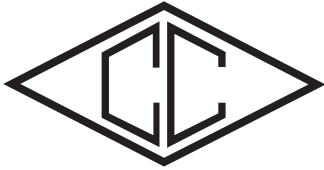
Each kit contains screw, o-ring and gasket assembly.

Ordering Example:

5940 - 10005

Sandwich Timer (CRT) with molded cordset, 120 to 240 VAC.

Custom Time Ranges are Available.
Consult Factory for Details.



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www.canfieldconnector.com

SERIES 5950

MICRO PROPORTIONAL DRIVER

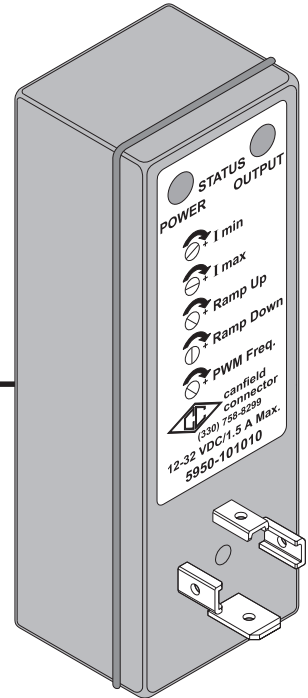
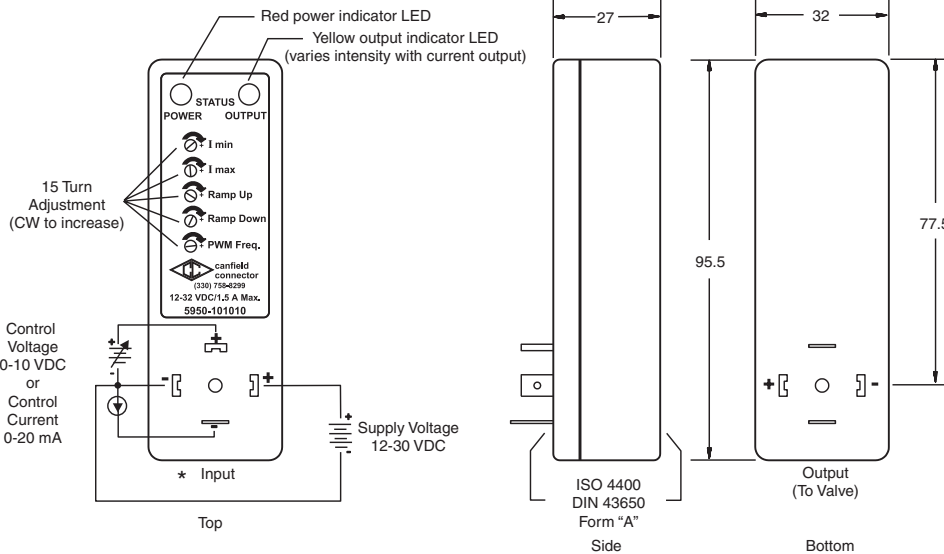
General Description

The Micro Proportional Driver is a compact electronic circuit built into an environment-resistant (NEMA 4) miniaturized enclosure. The circuit features control of proportional solenoids and operators. Functions include minimum and maximum current limiting, control signals from 0-10 V or 0-20 mA (with a step function at 0.2 volts or 0.4 mA included for minimum current), a 0.10-20 seconds linear ramp up/ramp down adjustment and output current proportional to input command signal.

This unit incorporates the DIN 43650/ISO 4400 Form "A" connector male and female interface and is mounted by use of a single mounting screw, DIN connector and two gaskets. The MPD is made from engineered polymers for resistance to harsh chemicals and ingress of water or foreign substances. Adjustments are made on the top surface of the unit. The unit can control any proportional solenoid valve operating within the values specified below using variable pulse width modulation.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



5950

*Also available as 8.0 VDC reference voltage in place of control current (see ordering information)

Technical Data

Parameter	All Version
Supply Voltage	11.5V DC min. - 32V DC max.
Supply Current	45 mA max. (no load)
Input Control Signal	
Control Voltage	0 - 10 VDC (500K Ω impedance)
Control Current:	0 - 20 mA (100 Ω impedance)
Regulation ΔV	+/- 0.2% / V
Regulation ΔT	+/- 0.1% / $^{\circ}C$
Ramping Up/Down Time	0.1 - 20 sec. linear (+/- 1% / $^{\circ}C$)
PWM Frequency	95 - 225 Hz
Output Leap to I min.	@ 0.2V or 0.4mA control (+/- 15%)
Operating Temp.	-25 $^{\circ}$ to +85 $^{\circ}$ C

Parameter	Standard Version	High Output Version
	Output Current @ 25 $^{\circ}C$ T _A	
Continuous	1.5A max.	3.0A max.
Peak Pulsed (16ms)	4.7A max.	17.0 A max.
I min. (+/- 20%)	0 - 0.5 A max.	0 - 1.0 A max.
I max. (+/- 20%)	I min. + 1.0 A max.	I min. + 2.0 A max.

Function

Minimum Current & Maximum Current - These two adjustments will vary the minimum and maximum output current limits. The minimum current can be set between 0 - 500 mA or 0 - 1 A, depending on output current option. The maximum current can be set in the range between the minimum current setting and the minimum current setting plus 1 A or 2 A, depending on output current option. The minimum current must be set first as described below.

Minimum Current Adjustment - Set both min. and max. current adjusters max. counterclockwise. Apply an input command signal of approximately 0.5 volts or 1.0 mA. Adjust the min. current adjuster for a minimum current or to a desired system response. Back up adjuster until system stops responding. Proceed to max. current adjuster.

Maximum Current Adjustment - Increase the input command signal to 10 volts or 20 mA. Adjust max. current adjuster for a maximum current limit or to a desired system response.

Note: To minimize any effect of supply voltage, load resistance or temperature variation, make setup adjustments when these parameters are at the midpoint of the expected operating range for a particular installation. For example, if

the expected operating temperature range is 20° C to 60° C, make final setup adjustments when system is approximately 40° C. If the supply voltage has a tolerance of 22 to 32 volts, make adjustments when the supply voltage is approximately 27 VDC.

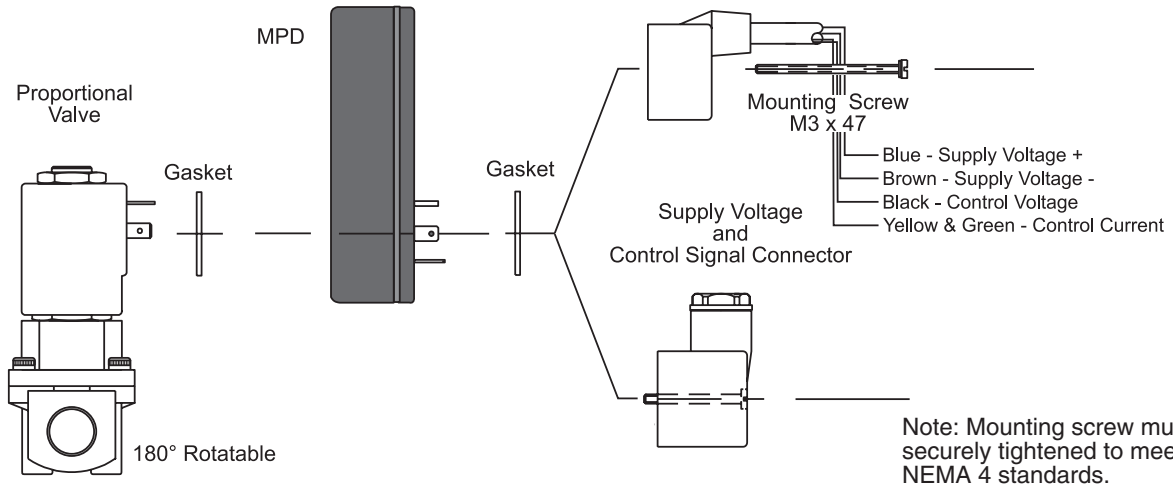
Ramp Up/Ramp Down - Adjust to desired ramp up/ramp down time (0.10 - 20 sec.). Ramp time is linear and is proportional to the step change in the control signal. For example: 0.2 - 10 VDC change in control signal gives max. ramp of 20 sec. 0.2-5 VDC change in control signal gives max. ramp of 10 sec.

PWM Frequency - The output is pulse-width modulated to control output current within the minimum and maximum current settings. The frequency of the modulation is continuously adjustable from 95 - 225 Hz.

Output - The output is current regulated and will remain constant (within the limits specified under Technical Data on previous page) at the level set by the input command signal. Variations in supply voltage and load resistance have little effect as long as these values satisfy the equality stated below.

$$\text{Maximum Required Currents} \leq \frac{\text{Min. Supply Voltage}}{\text{Max. Load Resistance}}$$

Installation



5950

Ordering Information

5950 - 1 0 0 1 0 1

Power Connection

- 0 - none
- 1 - ISO molded cordset (6' 3+G)
- 2 - ISO PG9 connector (3+G)
- 3 - ISO 1/2" conduit connector (3+G)

Output Current Options

- 0 - 1.5 Amps max. (high resolution)
- 1 - 3.0 Amps max. (high output)

Ordering Example:

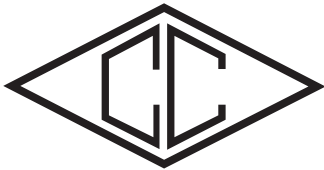
5950 - 1010100

Micro Proportional Driver (MPD)
1.5 Amps max. with 6' molded cordset,
control voltage and control current input

Control Options

- 0 - control voltage and control current input (no reference voltage output)
- 1 - control voltage input and reference voltage output (no control current input)

Each kit contains screw, o-ring and gasket assembly ready for complete installation.



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 Youngstown, Ohio 44514
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SERIES B5950

BLOCK MICRO PROPORTIONAL DRIVER

General Description

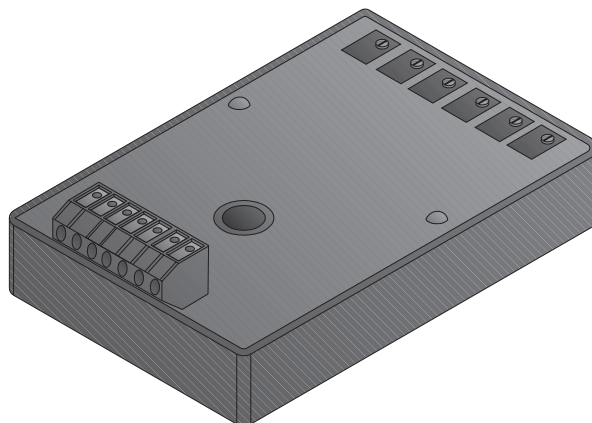
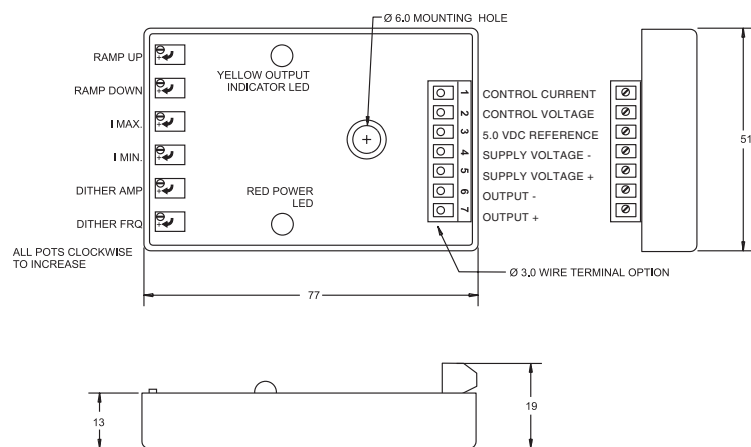
The Block Micro Proportional Driver is a compact electrical circuit built into an epoxy potted enclosure designed to control linear proportional solenoid operators. Features include selectable control signal inputs from 0-5 V or 0-20mA with adjustable min./max. current output. The output steps to the minimum current setting when 0.1 volts or 0.4 mA is applied to the control signal input. Also included in the compact package is a 0.1 to 20 second adjustable ramp-up and ramp-down output and sine wave dithering (PWM) with adjustable amplitude and frequency. The B5950 has an output current that is proportional to the command signal input.

Assembly and mounting of the unit is accomplished by use of a 6mm diameter mounting hole in the body of the unit. Connection is made by use of a miniature header strip which accommodates stranded or solid wire to 3mm diameter. Adjustments are made by turning screwdriver adjustment screws on top surface of the unit. Additional features include on-board diagnostics such as a red indicator light for power and a yellow indicator light for output to the solenoid. The B5950 can be used to control any solenoid operator designed to meet the technical specifications as shown on this brochure.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

B5950



Technical Data

Parameter	All Versions
Supply Voltage	9.0V DC min. - 32V DC max.
Supply Current	45 mA max. (no load)
Input Control Signal	
*Control Voltage	0-5V DC (300K Ω impedance)
Control Current:	0-20 mA (100 Ω impedance)
Ramping Up/Down Time	0.1-20 sec. linear(+/- 0.1%/°C)
PWM Frequency	1.2 KHz fixed
Output Leap to I min.	@0.1 V or 0.4 mA control (+/- 15%)
Dithering Frequency	30-150 Hz
Dithering Amplitude	0-500 mA peak to peak
Voltage Reference	5.0 V +/- 5% regulated
Operating Temp.	-25° to +85° C

Parameter	High Resolution Version	High Output Version
Output Current @ 25°C T_A		
Continuous	1.5 Amps max.	3.0 Amps max.
Peak Pulsed (16 ms)	4.7 Amps max.	17.0 Amps max.
I min. (+/- 20%)	0-0.5 Amps max.	0-1.0 Amps max.
I max. (+/- 20%)	1 min. +1.0 Amps max.	1 min. +2.0 Amps max.
Regulation ΔV	+/- 0.2% / V	
Regulation ΔT	+/- 0.1% / °C	

* Also available with 0 - 10 VDC control voltage (see ordering information)

Function

Minimum Current & Maximum Current - These two adjustments will vary the minimum and maximum output current limits. The minimum current can be set between 0 - 500 mA or 0 - 3 A, depending on output current option. The maximum current can be set in the range between the minimum current setting and the minimum current setting plus 1 A or 2 A depending on output current option. The minimum current must be set first as described below.

Minimum Current Adjustment - Set both min. and max. current adjusters max. counterclockwise. Apply the minimum input command signal (approximately 0.5 volts or 1.0 mA). Adjust the min. current adjuster for a minimum current or to a desired system response. Back up adjuster until system stops responding. Proceed to max. current adjuster.

Maximum Current Adjustment - Increase the input command signal to maximum. Adjust max. current adjuster for a maximum current limit or to a desired system response.

Note: To minimize any effect of supply voltage, load resistance or temperature variation, make setup adjustments when these parameters are at the midpoint of the expected operating range for a particular installation. For example, if the expected operating temperature range is 20° C to 60° C, make final setup adjustments when system is approximately 40° C. If the supply voltage has a tolerance of 22 to 32 volts, make adjustments when the supply voltage is approximately 27 VDC.

Ramp Up/Ramp Down - Adjust to desired ramp up/ramp down time (0.10 - 20 sec.). Ramp time is linear and is proportional to the step change in the control signal. For example: 0.1 - 5 VDC change in control signal gives max. ramp of 20 sec. 0.1 - 2.5 VDC change in control signal gives max. ramp of 10 sec.

PWM Frequency - The output is pulse-width modulated to control output current within the minimum and maximum current settings. The frequency of the modulation is fixed at 1.2 KHz.

Dither - The coil current is sine wave modulated with adjustable frequency (30 - 150 Hz) and amplitude (0 - .5A peak to peak).

Reference Voltage - A regulated 5.0 VDC voltage is available for on site command voltage. Use of a 10K - 100K potentiometer connected from 5.0 VDC Reference to Supply Voltage (-) is recommended.

Output - The output is current regulated and will remain constant (within the limits specified under Technical Data on previous page) at the level set by the input command signal. Variations in supply voltage and load resistance have little effect

$$\text{Maximum Required Currents} - \frac{\text{Min. Supply Voltage}}{\text{Max. Load Resistance}}$$

B5950

Ordering Information

B 5 9 5 0 - 1 0 0 0 1

Output Current Options

0 - 3.0 Amps max. (High Output)
1 - 1.5 Amps max. (High Resolution)

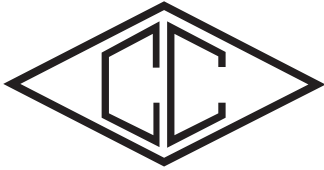
Control Options

0 - 0 - 5 V control voltage
1 - 0 - 10 V control voltage

Ordering Example:

B5950 - 1000100

Block Micro Proportional Driver (MPD)
3.0 Amps max. and 0 - 5 V control voltage



canfield connector

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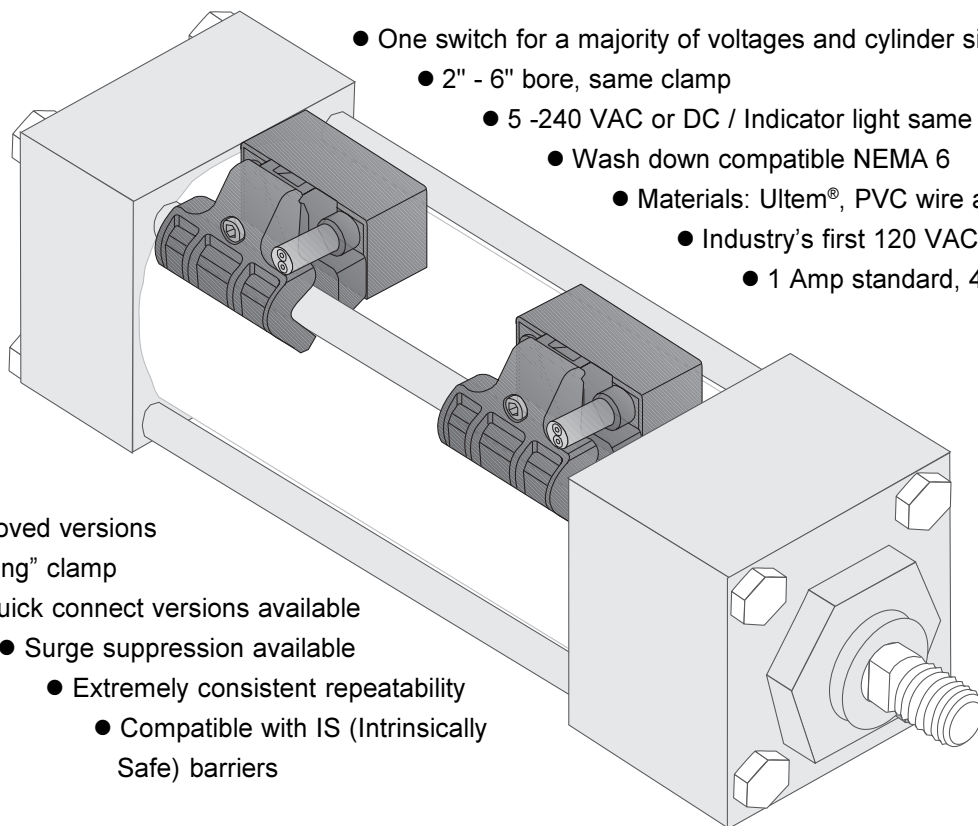
SERIES 7000

REED AND ELECTRONIC SENSORS FOR 2" TO 6" BORE TIE ROD CYLINDERS

General Description

The Canfield Series 7000 proximity sensors are used to sense position on cylinders from 2 to 6 inch bore. This proven design is rugged yet cost effective. All switches feature a self adjusting clamp that grips standard NFPA and custom cylinders eliminating stocking requirements of many clamps for different bore sizes. The Series 7000 boasts the largest number of custom circuits to match applications found in the market. Examples include; 1 or 4 Amp reed switches, normally open, normally closed or SPDT switch types, reed or electronic sensing elements in the same package style, and the industry's first 120 VAC Hall sensor. A wide range of enclosures and connector options are available.

Features



- One switch for a majority of voltages and cylinder sizes
- 2" - 6" bore, same clamp
- 5 -240 VAC or DC / Indicator light same brightness
- Wash down compatible NEMA 6
- Materials: Ultem®, PVC wire and stainless steel
- Industry's first 120 VAC all electronic
- 1 Amp standard, 4 Amps optional output

- CSA approved versions
 - "Floating" clamp
 - Quick connect versions available
 - Surge suppression available
 - Extremely consistent repeatability
 - Compatible with IS (Intrinsically Safe) barriers

Technical Data

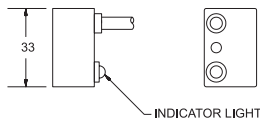
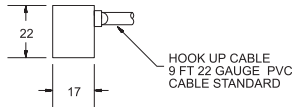
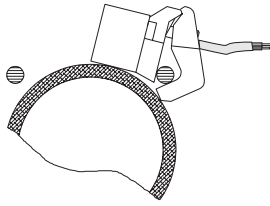
- Temperature Range: Operational from -20° to +80° C.
- Shock: Operational up to 30G (11 ms.) reeds only. Not applicable for electronics.
- Vibration: Operational up to 20 G (10 - 55Hz) reeds only. Not applicable for electronics.
- Sensitivity and orientation: 85 gauss parallel minimum required for proper operation, as measured on sensor surface. Size of sensing area depends on size and strength of magnet and thickness of cylinder wall.
- Most versions designed to meet NEMA 6 specifications.

7000

Dimensional Data

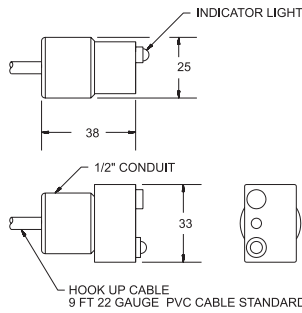
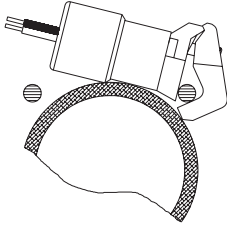
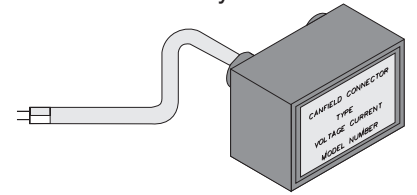
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

Mounting

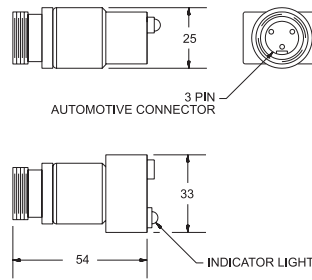
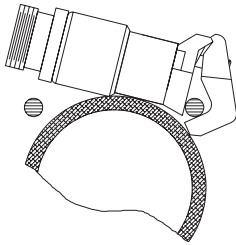
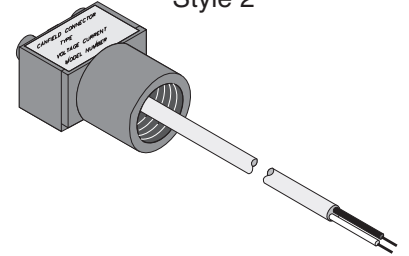


Connector Style

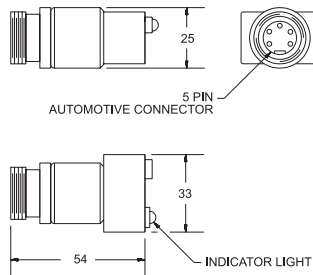
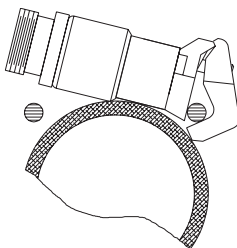
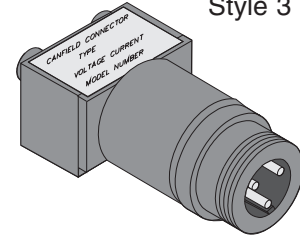
Standard Cable Module (9 ft)
Style 0



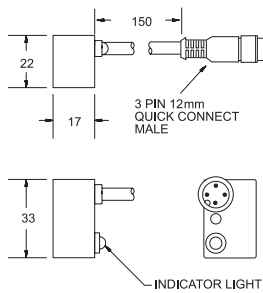
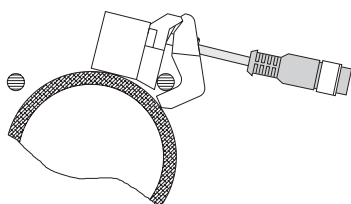
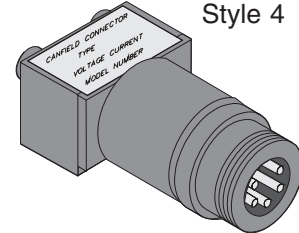
1/2" Conduit Hub
Style 2



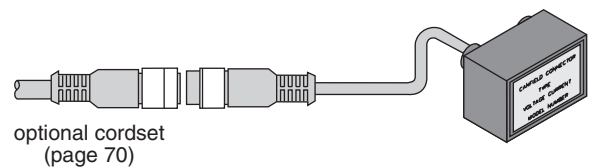
3 Pin Automotive Connector
Style 3



5 Pin Automotive Connector
Style 4



12mm Quick Connect
Style 5



7000

Ordering Information

710-000 -

Connector Style

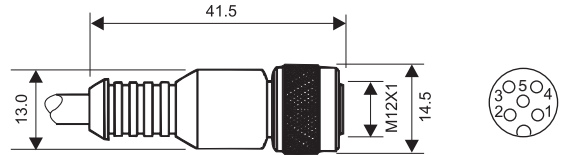
- 0 - Standard Cable Module (9 ft)
- 2 - 1/2" Conduit Hub
- 3 - 3 Pin Automotive Connector
- 4 - 5 Pin Automotive Connector
- 5 - 12mm Quick Connect Male*

*Mates with cordset RC12S-F0M030120 (2m) or RC12S-F0M030150 (5m) shown at right.
(refer to pages 70 & 71 for more information concerning mating connectors)
Each switch supplied with clamp assembly

12mm female molded locking connector (3 pole)

250VAC/DC 4 Amps max.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Brown = Pin 1
Blue = Pin 3
Black = Pin 4
N/C = Pin 2
N/C = Pin 5

Order part number

RC12S-F0M030120 (2m length)
RC12S-F0M030150 (5m length)

Type Code	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop
01	Reed Switch, 2 Wire	Normally Open SPST	0 - 240V AC/DC 50/60 Hz	1 Amp max.	30 watts max.	0.6 ms operate 0.05 ms release	0 Volts
04	Reed Switch, MOV, LED, 2 Wire	Normally Open SPST	5 - 240V AC/DC 50/60 Hz	1 Amp max. .005 Amps min.	30 watts max.	0.6 ms operate 0.05 ms release	3 Volts
05	Reed Switch, 2 Wire	Normally Closed SPST	0 - 120V AC/DC 50/60 Hz	1 Amp max.	20 watts max.	1.0 ms operate 0.02 ms release	0 Volts
06	Reed Switch, LED, 3 Wire	Single Pole, Double Throw	5 - 120V AC/DC 50/60 Hz	1 Amp max. .005 Amps min.	20 watts max.	1.0 ms operate 0.02 ms release	3Volts/load1 0Volts/load2
09	Reed Switch, MOV, LED, 2 Wire	Normally Closed SPST	5 - 120V AC/DC 50/60 Hz	1 Amp max. .005 Amps min.	20 watts max.	1.0 ms operate 0.02 ms release	3 Volts
15	AC Electronic Sensor for Reed Magnets, LED, 3 Wire	Normally Open TRIAC output	12-24 VAC	600mA max. 5 Amps Inrush	15 watts max.	1.5 µs operate 0.5 µs release	1 Volt
16	AC Electronic Sensor for Reed Magnets, LED, 3 Wire	Normally Open TRIAC output	120 VAC	600mA max. 5 Amps Inrush	72 watts max.	1.5 µs operate 0.5 µs release	1 Volt
21	Reed Switch, MOV, 2 Wire	Normally Open TRIAC output	10 - 240 VAC 50/60 Hz	4 Amps max. 50 Amps Inrush	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
23	Reed Switch, MOV, LED, 3 Wire	Normally Open TRIAC output	10 - 50 VAC 50/60 Hz	4 Amps max. 50 Amps Inrush .005 Amps min.	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
24	Reed Switch, MOV, LED, 3 Wire	Normally Open TRIAC output	24 - 240 VAC 50/60 Hz	4 Amps max. 50 Amps Inrush .005 Amps min.	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
25	Reed Switch, MOV, 2 Wire	Normally Closed TRIAC output	10-120 VAC 50/60 Hz	4 Amps max. 50 Amps Inrush	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
29	Reed Switch, MOV, LED, 3 Wire	Normally Closed TRIAC output	10-120 VAC 50/60 Hz	4 Amps max. 50 Amps Inrush .005 Amps min.	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
31	Electronic Sensor for Reed Magnets, LED, Sourcing, 3 Wire	Normally Open PNP output	6 - 24 VDC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts
32	Electronic Sensor for Reed Magnets, LED, Sinking, 3 Wire	Normally Open NPN output	6 - 24 VDC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts

7000



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.



Quick-Ship Bulk Packs

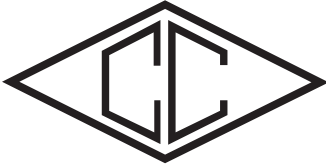
SERIES 7000 - MAGNETIC CYLINDER SENSORS

Ordering Example:

710-000-004

Standard style reed switch, lighted, MOV surge suppression, normally open, 5-240 VDC/VAC 50/60 Hz, with universal tie rod clamp.

Can-Pak Part Number	Qty	Standard Part Number	Function	Normally Open	Switch Type	LED
CP-710-000-004-010	10	710-000-004	SPST	Reed	<input checked="" type="checkbox"/>	
CP-710-000-031-010	10	710-000-031	PNP	Electronic	<input checked="" type="checkbox"/>	
CP-710-000-032-010	10	710-000-032	NPN	Electronic	<input checked="" type="checkbox"/>	



canfield connector

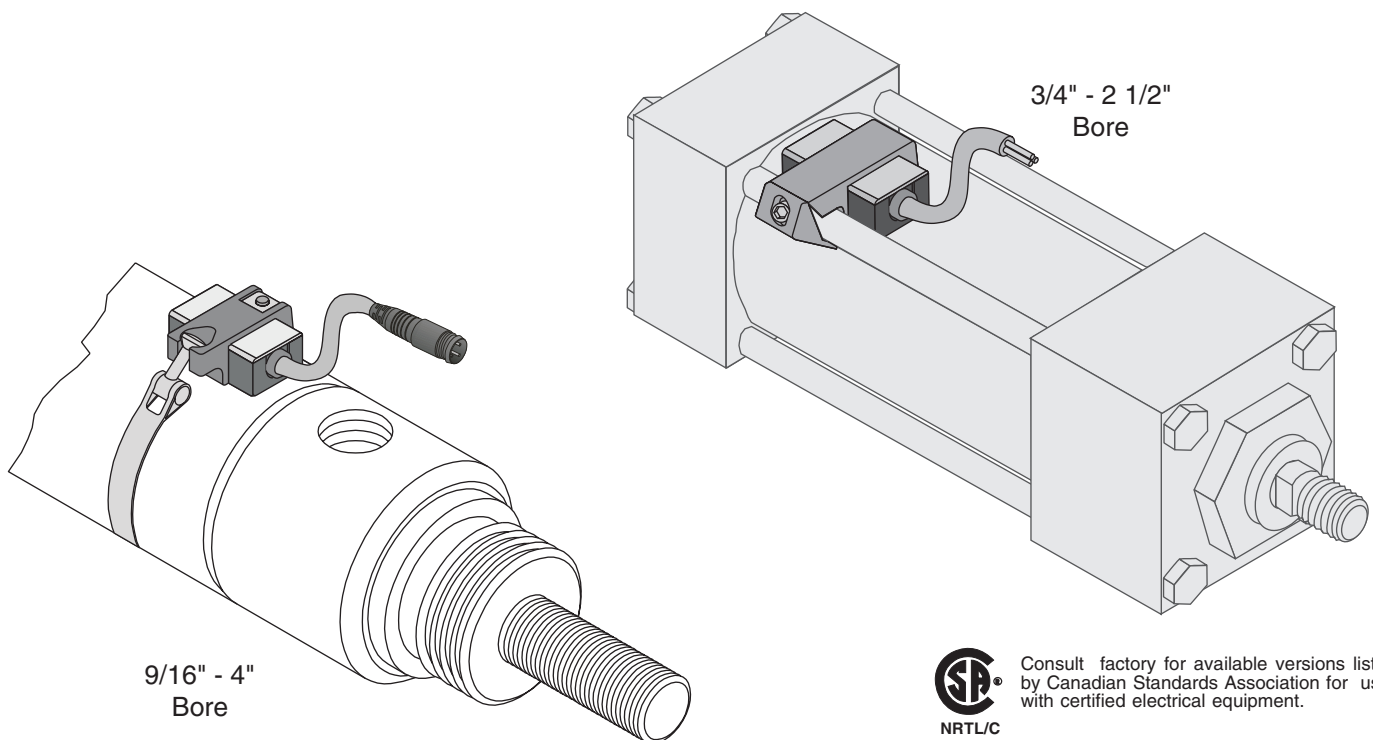
8510 Foxwood Court
Youngstown, Ohio 44514
(330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 8000

REED & ELECTRONIC SENSORS FOR ROUND, TIE-ROD, OR EXTRUDED CYLINDERS

General Description

The Canfield Connector Series 8000 reed and electronic sensors are compact units designed for sensing applications on round cylinders, tie-rod cylinders and extruded cylinders. These sensors offer a wide voltage range from 0-120V AC/DC 50/60 Hz and high current capacity up to 0.5 Amps. They include high intensity indicator lights and a wide viewing angle. The sensors small package can fit easily on the smallest cylinder without appearing too large. The Series 8000 design promotes ease of installation with a tight fit. Options include nine feet of PVC cable or 8mm NEMA 4/IP65 quick connect version.



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.

8000

Features

- Quick connect versions available
- Extremely consistent repeatability
- Compact design
- Surge suppression available (standard on electronic)
- Reverse polarity protection
- Wide voltage range
- Compatible with IS (Intrinsically Safe) barriers
- High intensity light (LED) standard on most models
- Compatible with most corrosive and washdown applications
- High current capacity for small size (up to 10 times the competition)
- Both reed and electronic versions work with the same (reed) magnet
- Encapsulated circuit for wet environment (NEMA 4)
- Available for tie-rod, round or extruded cylinder mounting

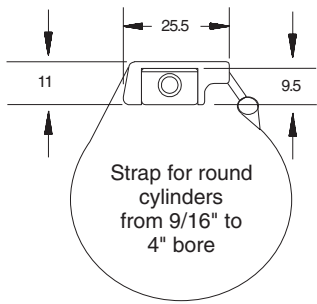
Technical Data

- Temperature Range: operational from -20° to +80° C
- Shock: Operational up to 30G (11 ms.) reeds only. Not applicable for electronic.
- Vibration: Operational up to 20G (10 - 55 Hz) reeds only. Not applicable for electronic.
- Sensitivity and orientation: 85 gauss parallel (standard) minimum required for proper operation, as measured on sensor surface. Size of sensing area depends on size and strength of magnet and thickness of cylinder wall
- Most versions designed to meet NEMA 4/IP65 specifications
- NEMA 6 versions available. Consult factory

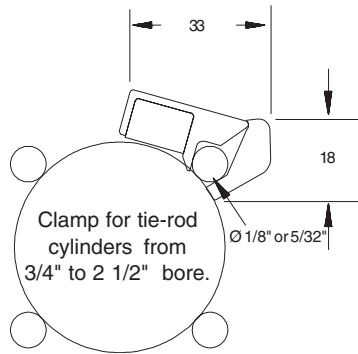
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

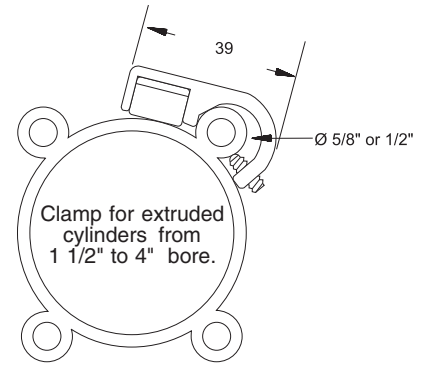
Clamp Styles



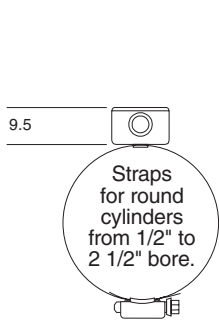
Strap for round cylinders from 9/16" to 4" bore
Standard Round Cylinder Universal Clamp (Style 0)



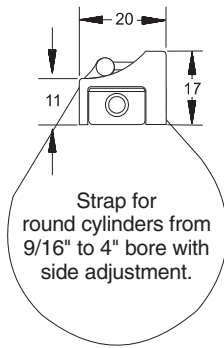
Clamp for tie-rod cylinders from 3/4" to 2 1/2" bore.
Standard Tie-Rod Cylinder Clamp (Style 2)



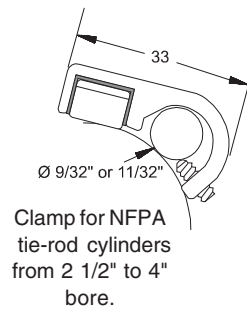
Clamp for extruded cylinders from 1 1/2" to 4" bore.
Extruded Cylinder Clamp (Style 3)



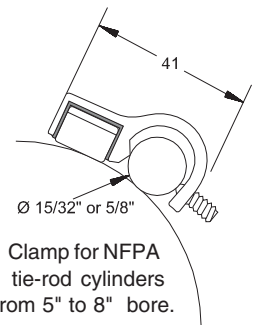
Straps for round cylinders from 1/2" to 2 1/2" bore.
Low-Profile Round Cylinder Clamp (Style 5-9)



Strap for round cylinders from 9/16" to 4" bore with side adjustment.
Side Adjust Round Cylinder Clamp (Style A)



Clamp for NFPA tie-rod cylinders from 2 1/2" to 4" bore.
NFPA Tie-Rod Cylinder Clamp (Style B)



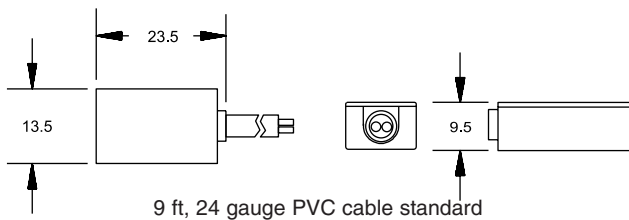
Clamp for NFPA tie-rod cylinders from 5" to 8" bore.
NFPA Tie-Rod Cylinder Clamp (Style C)

8000

Connection Options

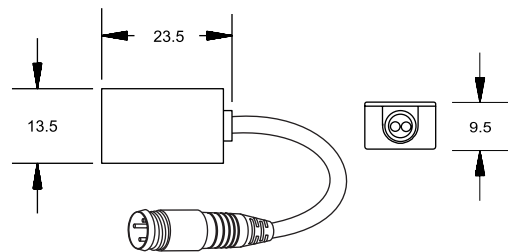
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

9 ft PVC Cable Switch Type 0



9 ft, 24 gauge PVC cable standard

6" 8mm Quick Connect Male Pigtail Type 1



See optional cordset on page 71

Ordering Information

8 1 0 - 0 0 -

Clamp Styles

- 0 - Universal Round Cylinder Clamp
- 1 - No Clamp
- 2 - Universal Tie-Rod Clamp
- 3 - Extruded Cylinder Clamp
- 5 - Clamp Loop / No Clamp**
- 6 - Clamp Loop / 1/2" - 3/4" Clamp
- 7 - Clamp Loop / 1" - 1 1/2" Clamp
- 8 - Clamp Loop / 1 1/2" - 2" Clamp
- 9 - Clamp Loop / 2" - 2 1/2" Clamp
- A - Side Adjust Round Cylinder Clamp
- B - NFPA 2 1/2" - 4" Tie-Rod Cylinder Clamp
- C - NFPA 5" - 8" Tie-Rod Cylinder Clamp

**Uses 5/16" wide band clamp

Connection Options

- 0 - 9 ft PVC Cable
- 1 - 6" 8mm Quick Connect Male Pigtail*

*Mates with cordsets shown at right.
(refer to page 71 for more information concerning mating connectors)

Mating Cordsets

8mm female molded locking connectors

(for sensor types 01, 02, 31, 32)

Order part number

- Brown = Pin 1 RC08S-F0M030120 (2m length)
- Blue = Pin 3 RC08S-F0M030150 (5m length)
- Black = Pin 4

(for sensor type 50)

Order part number

- Brown = Pin 1 RC08S-F0M040120 (2m length)
- White = Pin 2 RC08S-F0M040150 (5m length)
- Blue = Pin 3
- Black = Pin 4

Type Code	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop
01	Reed Switch	SPST Normally Open	0 - 120V AC/DC 50/60 Hz	0.5 Amps max.	10 Watts max.	0.5mS operate 0.1mS release	0 Volts
02	Reed Switch for PLC's w/ LED	SPST Normally Open	5 - 120V AC/DC 50/60 Hz	0.03 Amps max. 0.001 Amps min.	4 Watts max.	0.5mS operate 0.1mS release	3.5 Volts @ 5 mA
31*	Electronic Sensor, LED, Sourcing	Normally Open PNP output	6 - 24 VDC	0.5 Amps max.	12 Watts max.	1.5µS operate 0.5µS release	1.0 Volts
32*	Electronic Sensor, LED, Sinking	Normally Open NPN output	6 - 24 VDC	0.5 Amps max.	12 Watts max.	1.5µS operate 0.5µS release	1.0 Volts
50*	Electronic Dual Output Sinking or Sourcing	Normally Open NPN or PNP output	6 - 30 VDC	0.2 Amps max.	6 Watts max.	1.5µS operate 0.5µS release	1.5 Volts

8000

* Electronic sensors use reed switch magnet orientation.

Ordering Example:

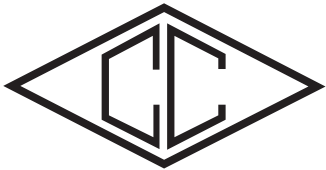
810-000-002

Standard Style SPST reed switch with LED and Universal Round Cylinder Clamp.

Quick-Ship Bulk Packs

SERIES 8000 - MAGNETIC CYLINDER SENSORS

Can-Pak Part Number	Qty	Standard Part Number	Function Normally Open	Switch Type	LED
CP-810-000-002-010	10	810-000-002	SPST	Reed	<input checked="" type="checkbox"/>
CP-810-000-050-010	10	810-000-050	NPN or PNP	Electronic	<input checked="" type="checkbox"/>
CP-810-200-002-010	10	810-200-002	SPST	Reed	<input checked="" type="checkbox"/>
CP-810-200-050-010	10	810-200-050	NPN or PNP	Electronic	<input checked="" type="checkbox"/>
CP-810-000-102-010	10	810-000-102	SPST	Reed	<input checked="" type="checkbox"/>
CP-810-000-150-010	10	810-000-150	NPN or PNP	Electronic	<input checked="" type="checkbox"/>
CP-810-200-102-010	10	810-200-102	SPST	Reed	<input checked="" type="checkbox"/>
CP-810-200-150-010	10	810-200-150	NPN or PNP	Electronic	<input checked="" type="checkbox"/>



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MODEL 9A1

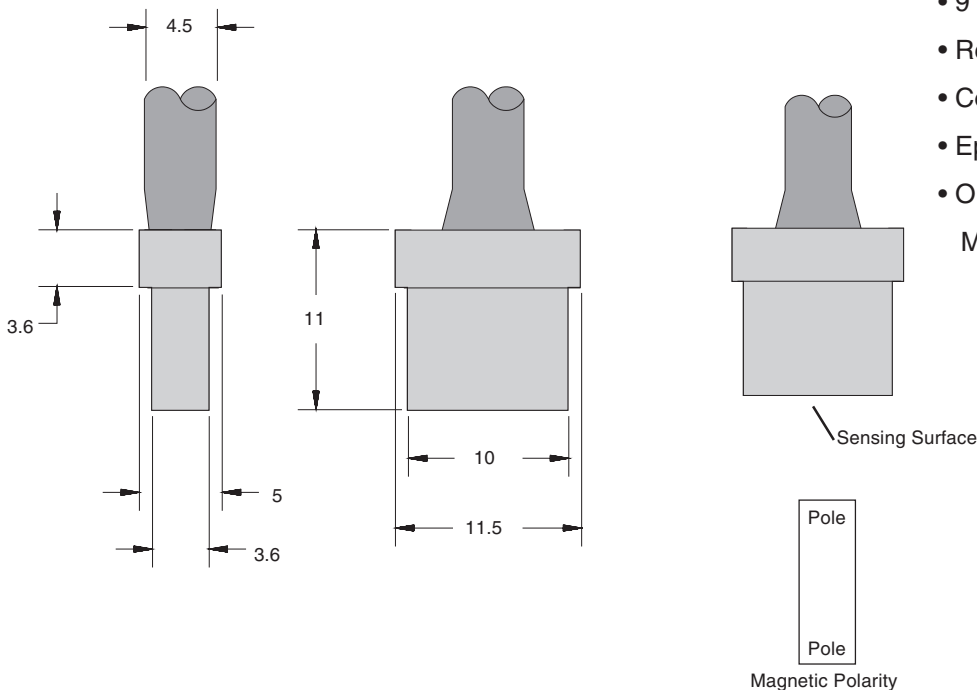
SUB-MICRO ELECTRONIC SENSOR

General Description

The Model 9A1 Sub-Micro electronic sensor senses magnetism (either North or South pole) with a sinking output. With operating speeds above 100 KHz, the Sub-Micro electronic sensor can handle even the fastest of operations. The Model 9A1 needs only very low magnetic fields to operate, allowing for greater distances between magnet and sensor. This sensor is extremely compact to accommodate applications with minimum space requirements.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Features

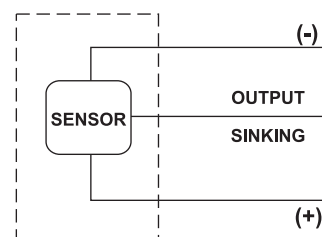
- Sub-Micro size
- 9 ft 3-Lead PVC Wire
- Requires only 25 gauss to operate
- Corrosion resistant nylon shell
- Epoxy encapsulated
- Omnipolar sensing North or South Magnetic Pole

9A1

Technical Data

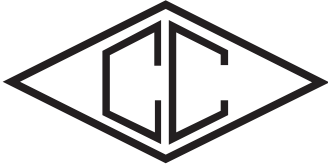
- | | |
|------------------------------|--------------------------------------|
| • Supply Voltage: 6 - 24 VDC | • Sensitivity: 25 Gauss to operate |
| • Supply Current: 14 mA max. | • Switch Time: 1.5 μ sec. - Rise |
| • Output Current: 20 mA max. | 0.5 μ sec. - Fall |
| • Output Type: Sinking | • Operating Temp.: -30° to +80° C |

Schematic Diagram



Ordering Information

Model 9A1 - 000 - 001 Sub-Micro Electronic Sensor, Sinking, 6 - 24 VDC



canfield connector

8510 Foxwood Court
Youngstown, Ohio 44514
(330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 9B

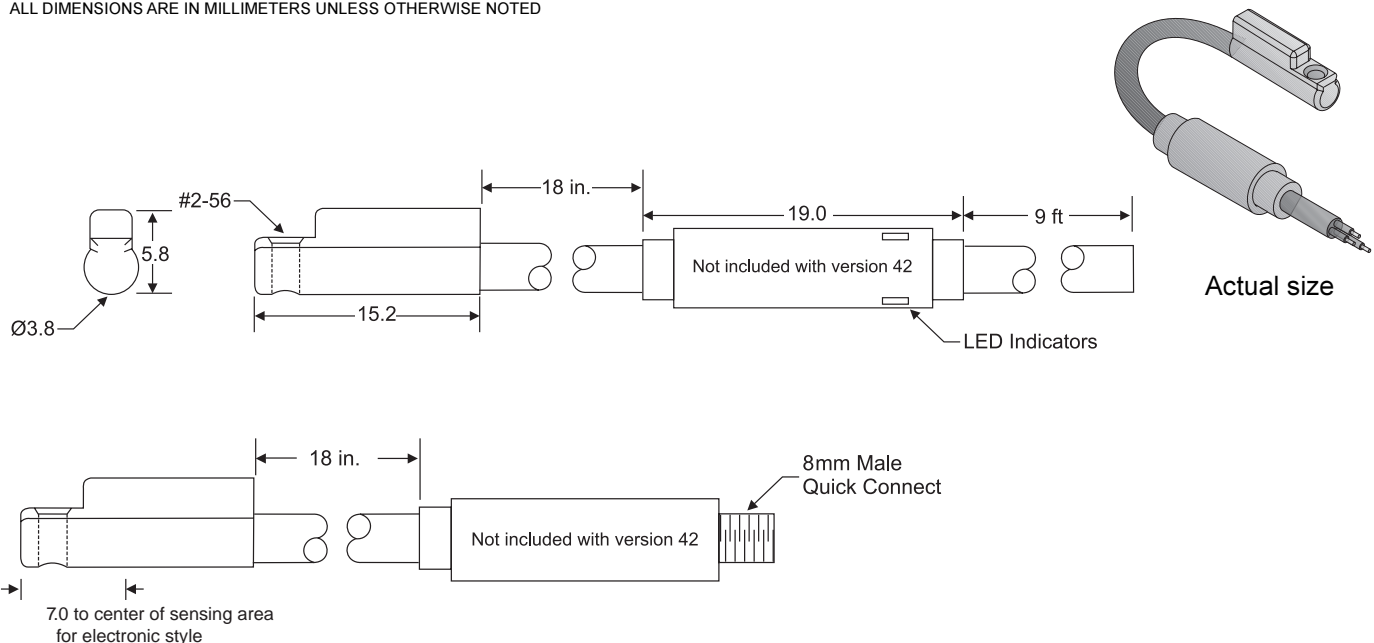
ELECTRONIC MAGNETIC SENSORS FOR ROUND KEYWAY

General Description

The Canfield Connector Series 9B combines an ultra-miniature sensor with an in-line module. The 9B is designed to exceed stringent customer requirements for miniature size without sacrificing features associated with much larger sensors. Those features include reverse polarity protection, surge suppression, and indicator lights. The 9B also features accurate and repeatable sensing, with reduced deadband and hysteresis on all standard actuators that meet the physical and magnetic specifications shown below. The unique molding process, along with state of the art surface mount and solid state technologies, provides extensive life expectancy and reliability. This switch is ideally suited for use with programmable controllers. The unit is available in either sinking or sourcing electrical outputs with wire leads or 8mm connector versions for connection. The 9B is molded in engineered polymers and is designed to meet NEMA 4/IP 65 environmental specifications.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Features

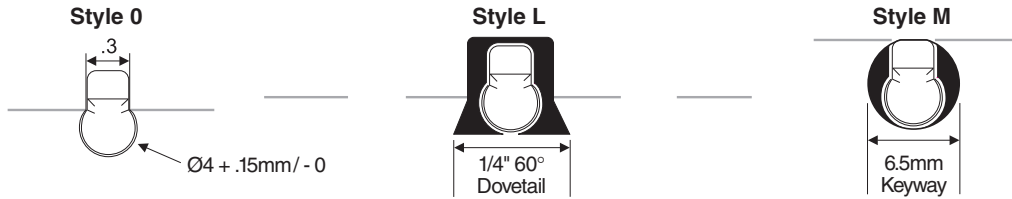
- Ultra small sensor fits where other sensors will not
- Will fit in competitor's keyway mounting of the same style
- Reverse polarity and surge suppression
- Indicator light
- Corrosion and washdown resistance.
- Electronic sensing (no moving parts)
- In-line wire outlet for close mounting
- Quick connect version
- 9 ft cable standard

Technical Data

- Temperature Range: operational from -20° to +80° C
- Sensitivity and orientation: 25 gauss parallel
- Most versions designed to meet NEMA 4/IP65 specifications.
- NEMA 6 versions available. Consult factory

9B

Mounting Adapter Data



Note: Mounting adapter styles 1-J available in both series 9000 and 9B (Refer to mounting adapters, page 60).

Ordering Information

9 B 1 0 - 0 0 -

Mounting Styles

- 0 - 4mm keyway adapter (STANDARD)
 - 1 - 12mm 60° Dovetail Adapter
 - 2 - 3/8" 60° Dovetail Adapter
 - 3 - Round Cylinder Clamp 3/4" - 4" bore
 - 4 - 14mm 60° Dovetail Adapter
 - F - NFPA Tie-Rod Cylinder Clamp 1" - 2 1/2" bore
 - G - Flat Series Cylinder Clamp 3/4" - 2" bore
 - H - Flat Series Cylinder Clamp 2 1/4" - 4" bore
 - J - NFPA Tie-Rod Cylinder Clamp 3 1/4" - 8" bore
 - L - 1/4" 60° Dovetail Adapter
 - M - 6.5mm Keyway Adapter
- Contact factory for other mounting versions

Connection Options

- 0 - 9 ft PVC Cable
- 3 - 6" 8mm Quick Connect Male Pigtail*

*Mates with cordset RC08S-F0M030120 (2m) or RC08S-F0M030150 (5m) shown at right. (refer to page 71 for more information concerning mating connectors)

Ordering Example:

9B10-000-032

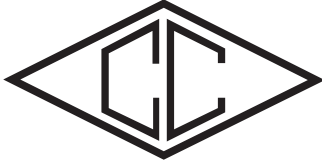
Electronic for Reed Magnet, LED & Sinking with 9 ft PVC Cable

9B

Type Code	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop	Magnetic Sensitivity*
31	Electronic for Reed Magnet, LED, Sourcing & Polarity Protection	Normally Open PNP	6 - 24 VDC	0.20 Amp Max.	4.8 Watts Max.	1.5µs operate 0.5µs release	1.0 Volts max.	25 Ga.
32	Electronic for Reed Magnet, LED, Sinking & Polarity Protection	Normally Open NPN	6 - 24 VDC	0.20 Amp Max.	4.8 Watts Max.	1.5µs operate 0.5µs release	1.0 Volts max.	25 Ga.
42	Electronic for Reed Magnet & Sinking	Normally Open NPN	6 - 24 VDC	0.02 Amp Max.	.48 Watts Max.	1.5µs operate 0.5µs release	0.5 Volts max.	25 Ga.

** Minimum gauss rating required for proper operation, as measured on sensor surface. Size of sensing area depends on size and strength of magnet and thickness of cylinder wall.

CAN-PAK Quick-Ship Bulk Packs		SERIES 9B - MAGNETIC CYLINDER SENSORS			
Can-Pak Part Number	Qty	Standard Part Number	Function Normally Open	Switch Type	LED
CP-9B10-000-031-010	10	9B10-000-031	PNP	Electronic	<input checked="" type="checkbox"/>
CP-9B10-000-032-010	10	9B10-000-032	NPN	Electronic	<input checked="" type="checkbox"/>
CP-9B10-000-331-010	10	9B10-000-331	PNP	Electronic	<input checked="" type="checkbox"/>
CP-9B10-000-332-010	10	9B10-000-332	NPN	Electronic	<input checked="" type="checkbox"/>



canfield connector

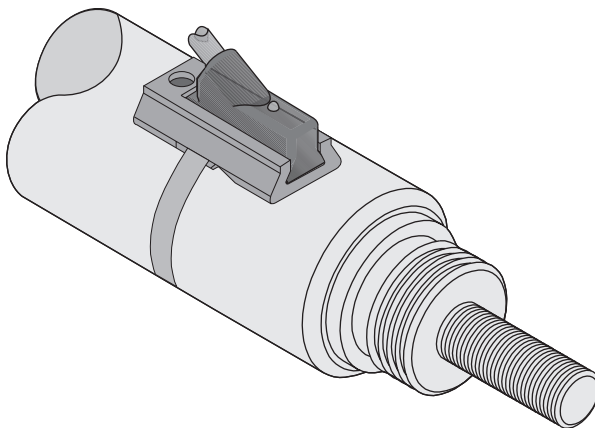
8510 Foxwood Court
Youngstown, Ohio 44514
(330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

SERIES 9000

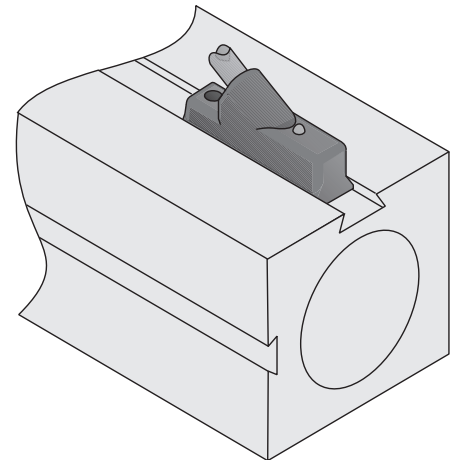
REED & ELECTRONIC SENSORS FOR UNIVERSAL APPLICATIONS

General Description

The Canfield Connector Series 9000 is a universal, ultra-small, magnetic proximity switch available in both solid state electronic and reed styles. These sensors are designed to fit the most stringent space requirements by use of a standard .250 inch dovetail slot. Many other mounting options are also available. The electronic sensor exhibits greater sensitivity to magnetism with reduced dead-band and hysteresis as compared to competitive devices. The reed sensor offers a wide operating voltage range. The molded switch has an on board indicator light that can be viewed from wide angles. Although the electronic version is primarily designed for use with low voltage programmable controllers, an optional in-line amplifier (Model iLA) can be used to increase output current and voltage capacity while providing the ability to operate the electronic sensor with AC voltage. Standard connection to the sensor is provided by a 9 ft cable or an optional industry standard 8mm circular connector with 6 inch cable. The rugged 20% glass-filled polypropylene switch is shipped with mounting hardware ready for installation.



Round Cylinder Clamp w/ Band



1/4" 60° Dovetail



Consult factory for available versions listed
by Canadian Standards Association for use
with certified electrical equipment.

NRTL

Features

- Small sensor fits most space requirements.
- Stand-alone mounting into any 1/4" dovetail slot (machined or extruded)
- Other special mounting clamp styles available
- Indicator light
- Corrosion and washdown resistance.
- Electronic sensing version (no moving parts)
- 45 degree wire outlet for close mounting
- Quick connect versions
- 9 ft cable standard
- DC or AC voltage versions
- Compatible with IS (Intrinsically Safe) barriers
- Molded construction for wet environment (NEMA 4)
- Available for dovetail, round, tie-rod and rodless cylinder mountings.

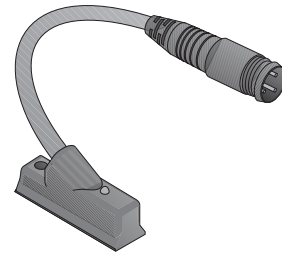
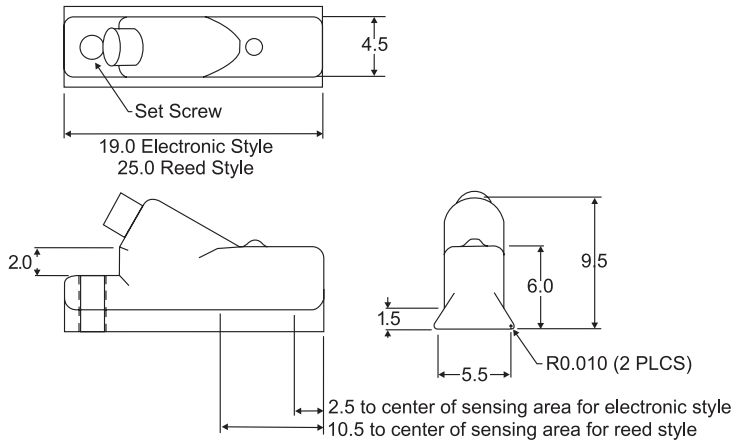
Technical Data

- Temperature Range: Operational from -20° to +80° C
- Shock: Operational up to 30G (11 ms.) reeds only. Not applicable for electronic.
- Vibration: Operational up to 20G (10 - 55 Hz) reeds only. Not applicable for electronic.
- Most versions designed to meet NEMA 4/IP65 specifications
- NEMA 6 versions available. Consult factory.
- Sensitivity and Orientation: 85 gauss parallel (standard for reeds)
25 gauss parallel (standard for electronic)

9000

Dimensional Data

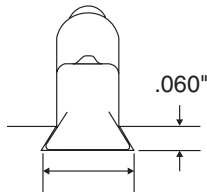
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



View shown with 8mm Male Pigtail

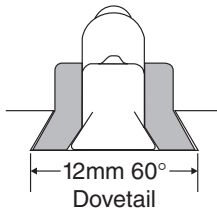
Mounting Adapter Data

Style 0

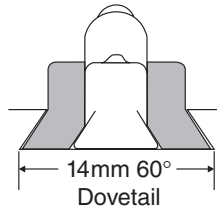


1/4" 60° Dovetail

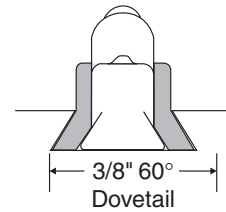
Style 1



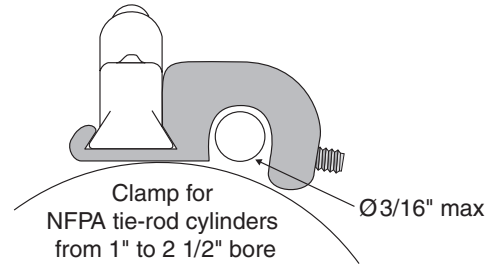
Style 4



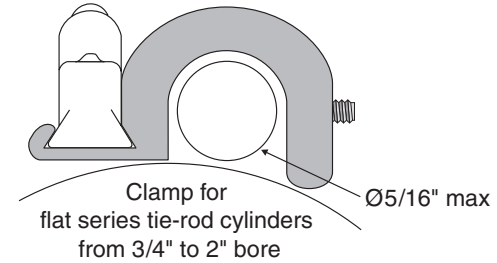
Style 2



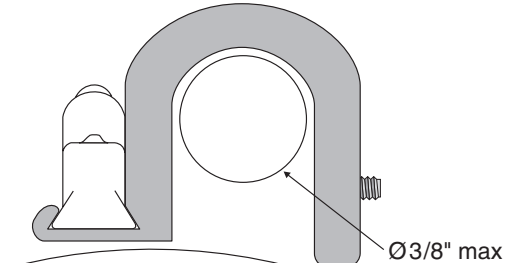
Style F



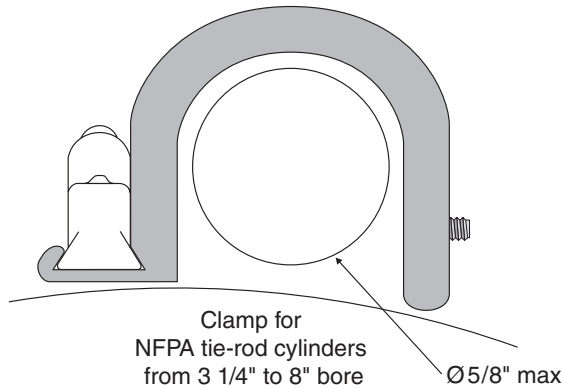
Style G



Style H



Style J



Strap for round cylinders from 3/4" to 4" bore

9006

Ordering Information

9 1 0 - 0 0 -

Mounting Styles

- 0 - 1/4" 60° Dovetail (STANDARD)
 - 1 - 12mm 60° Dovetail Adapter
 - 2 - 3/8" 60° Dovetail Adapter
 - 3 - Round Cylinder Clamp 3/4" - 4" bore
 - 4 - 14mm 60° Dovetail Adapter
 - F - NFPA Tie-Rod Cylinder Clamp 1" - 2 1/2" bore
 - G - Flat Series Cylinder Clamp 3/4" - 2" bore
 - H - Flat Series Cylinder Clamp 2 1/4" - 4" bore
 - J - NFPA Tie-Rod Cylinder Clamp 3 1/4" - 8" Bore
- Contact factory for other mounting versions

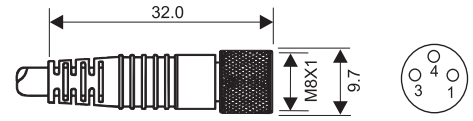
Connection Options

- 0 - 9 ft PVC Cable
- 3 - 6" 8mm Quick Connect Male Pigtail*

*Mates with cordsets shown at right.
(refer to page 71 for more information concerning mating connectors)

Mating Cordsets

8mm female molded locking connectors



(for sensor types 01, 02, 31, 32, 61, 62, 63, 64)

Order part number

- Brown = Pin 1 RC08S-F0M030120 (2m length)
- Blue = Pin 3 RC08S-F0M030150 (5m length)
- Black = Pin 4



(for sensor type 50)

Order part number

- Brown = Pin 1 RC08S-F0M040120 (2m length)
- White = Pin 2 RC08S-F0M040150 (5m length)
- Blue = Pin 3
- Black = Pin 4

Type Code	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop	Magnetic Sensitivity*
01	Reed Switch	SPST Normally Open	0 - 120V AC/DC 50/60 Hz	0.5 Amps max.	10 Watts max.	0.5 ms operate 0.1 ms release	0 Volts	85 Ga.
02	Reed Switch for PLC's w/ LED (current limiting)	SPST Normally Open	5-120V AC/DC 50/60 Hz	0.03 Amps max. 0.001 Amps min.	4 Watts max.	0.5 ms operate 0.1 ms release	3.5 Volts @ 5 mA	85 Ga.
31	Electronic for Reed Magnet, LED & Sourcing	PNP Normally Open	6 - 24 VDC	0.2 Amps max.	4.8 Watts max.	1.5 µs operate 0.5 µs release	1.0 Volts max.	25 Ga.
32	Electronic for Reed Magnet, LED & Sinking	NPN Normally Open	6 - 24 VDC	0.2 Amps max.	4.8 Watts max.	1.5 µs operate 0.5 µs release	1.0 Volts max.	25 Ga.
50	Electronic Dual Output Sinking or Sourcing	Normally Open NPN or PNP Output	6 - 30 VDC	0.2 Amps max.	6 Watts max.	1.5 µs operate 0.5 µs release	1.5 Volts	25 Ga.

** Minimum gauss rating required for proper operation, as measured on sensor surface. Size of sensing area depends on size and strength of magnet and thickness of cylinder wall.

Ordering Example:

910-000-002

1/4" 60° dovetail Reed switch for PLC with LED.

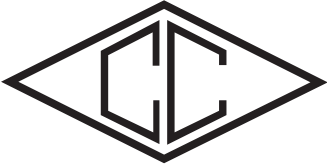


Quick-Ship Bulk Packs

SERIES 9000 - MAGNETIC DOVETAIL SENSORS

Can-Pak Part Number	Standard Qty	Part Number	Function Normally Open	Switch Type	LED
CP-910-000-002-010	10	910-000-002	SPST	Reed	<input checked="" type="checkbox"/>
CP-910-000-031-010	10	910-000-031	PNP	Electronic	<input checked="" type="checkbox"/>
CP-910-000-032-010	10	910-000-032	NPN	Electronic	<input checked="" type="checkbox"/>
CP-910-000-302-010	10	910-00-302	SPST	Reed	<input checked="" type="checkbox"/>
CP-910-000-331-010	10	910-000-331	PNP	Electronic	<input checked="" type="checkbox"/>
CP-910-000-332-010	10	910-000-332	NPN	Electronic	<input checked="" type="checkbox"/>

9000



canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

MODEL iLA

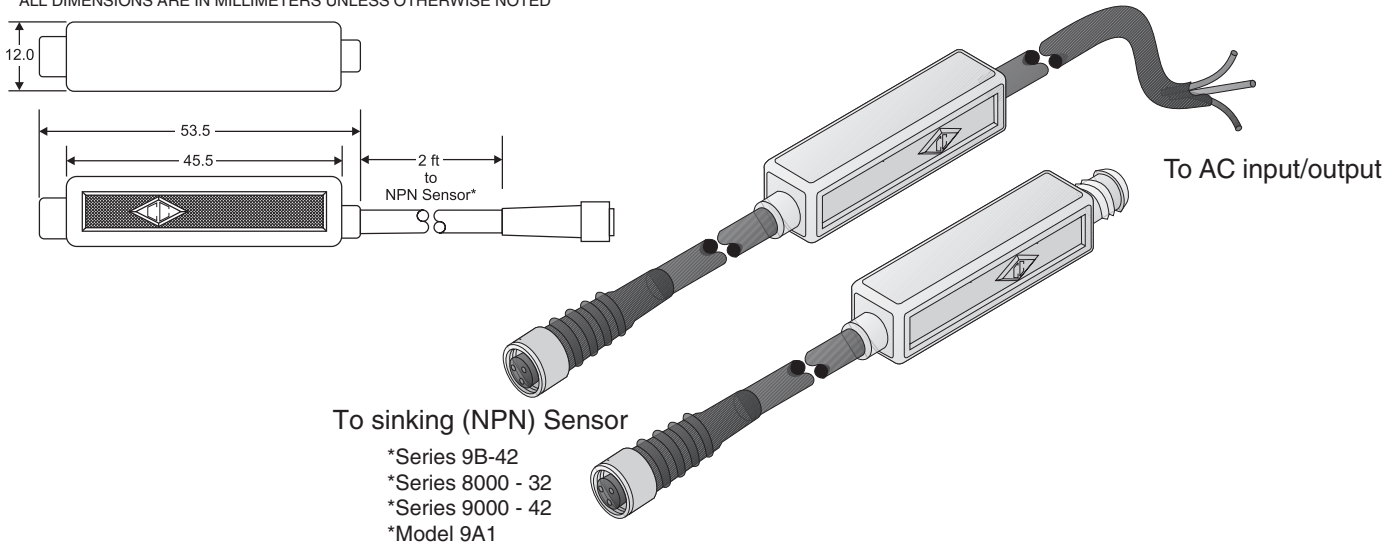
**DC TO AC IN-LINE
 VOLTAGE AND CURRENT AMPLIFIER**

General Description

The Canfield Connector In-Line Amplifier (iLA) is commonly used with small DC sensors to convert and amplify the output for use with AC supplies, PLCs and loads. With the iLA, a DC sinking (NPN) sensor can become an AC sensor. Standard features include fully solid state circuitry and surge suppression isolation for the sensor. No mounting is necessary, as the iLA is simply a part of the cable assembly. Additional features include on board indicator light depicting power, the availability of either multi-conductor cable or 8mm connector, and 500 mA output. The iLA's compact package allows for the use of sub-miniature DC sensors without addition of transformers and DC power supplies.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Features

- Converts low voltage electronic switches into 120 VAC
- Converts low current sensors to switch 500 mA current loads
- Surge suppressed input and output adds life to small sensors
- In-line device, no mounting necessary
- Available with wire leads or 8mm quick connect
- Designed to NEMA 4 environmental protection
- Low cost all molded construction

Technical Data

- Temperature Range: Operational from -20° to +80° C.
- Supply Voltage: 120 VAC 50/60 Hz +/- 10%
- Supply Current: 30 mA max. (no load/sensor)
- Output Voltage: Supply voltage less 2 V
- Output Current: 500 mA
- Sensor Supply Current: 13.5 mA max.
- Sensor Supply Voltage: 7.0 VDC (nominal)
- Sensor Output Current: 6 mA min. (sinking)
- Suppression: MOV
- Cable: Black 24 AWG PVC
- Enclosure: Glass-filled polypropylene

Ordering Information

iLA - 100 1300

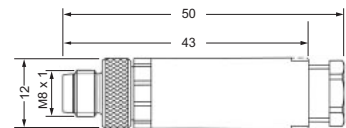
Output Style

- 1 - 9 ft Cable
- 2 - 8mm Male to Body

Ordering Example:

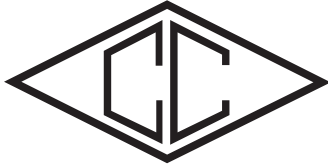
iLA - 10011300
 In-Line amplifier, 9 ft cable output,
 2 ft 8mm female pigtail, 120 VAC

Optional mating 8mm Male
 Screw Terminal Connector



Adapts sensor cable to iLA

iLA



canfield connector

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 Youngstown, Ohio 44514
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www.canfieldconnector.com

MODEL iLC

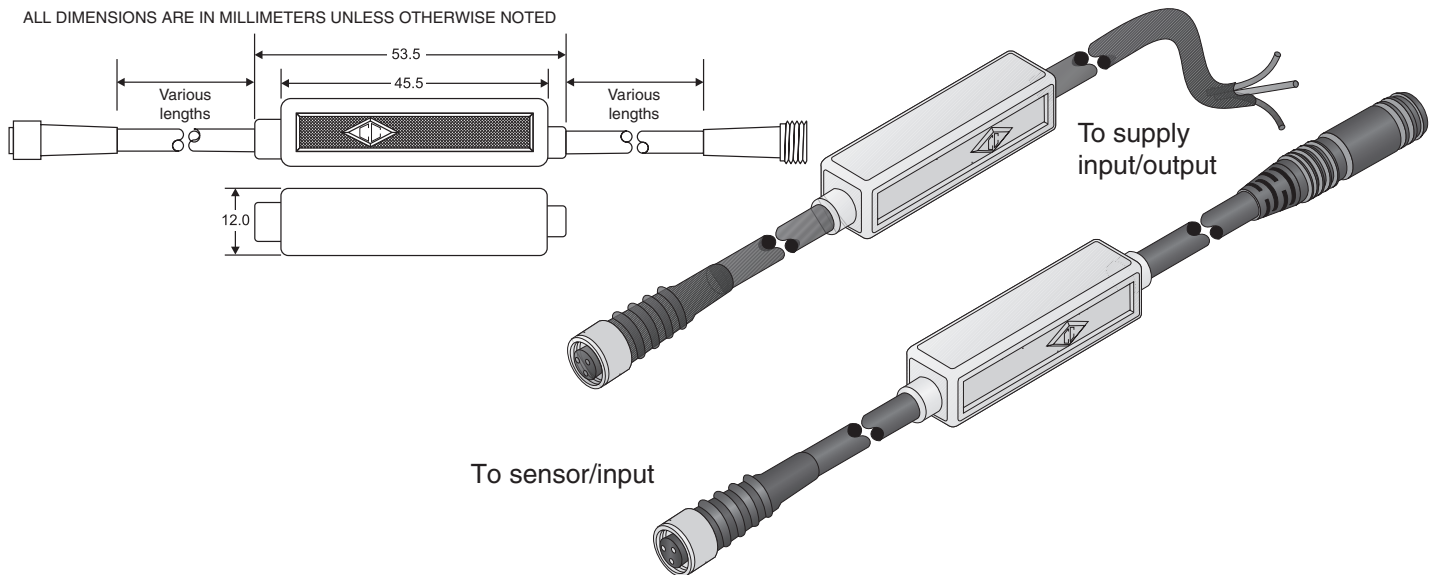
IN-LINE CONVERTER

General Description

The Canfield Connector iLC is a highly compact fully solid state in-line electronic module designed to convert electronic outputs from sensors with NPN outputs to PNP outputs or PNP outputs to NPN outputs. The electronics are encapsulated in a fully environment resistant miniature package. The iLC is commonly used with many types of DC sensors to convert and amplify the output to match circuit loads. The converted signal is more versatile and robust for use with a large variety of load conditions. Standard features include reverse polarity and overload protection for the sensor and no mounting necessary as the iLC is simply a part of the cable assembly with a very small size. Additional features include on board indicator light depicting power and output status and availability of either wire leads, or 8mm or 12mm connectors. The iLC solves problems when the incorrect output version has been chosen for the load.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



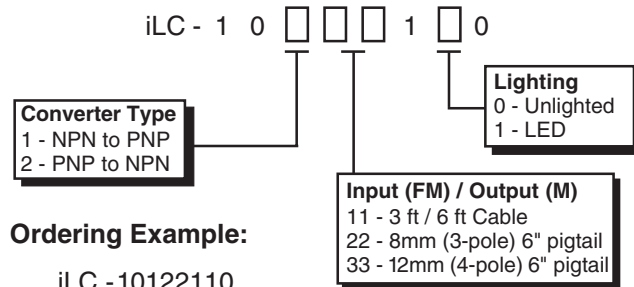
Features

- Converts NPN outputs to PNP outputs or PNP to NPN
- In-line device, no mounting necessary
- Available with wire leads or 8mm quick connect
- Designed to NEMA 4 environmental protection
- Low cost all molded construction
- Reverse polarity protection
- Overload protection

Technical Data

- Temperature Range: Operational from -20° to +80° C.
- Supply Voltage: 12-24 VDC +/- 10%
- Supply Current: 20 mA max. (no load/sensor)
- Output Voltage: Supply voltage less 1.7V max.
- Output Current: 500 mA max. (before overload shutdown)
- Sensor Supply Voltage: Equal to supply voltage less 0.7V
- Sensor Output Current: 6 mA min.
- Cable: Black 24 AWG PVC
- Enclosure: Glass-filled polypropylene

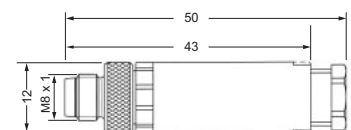
Ordering Information



Ordering Example:

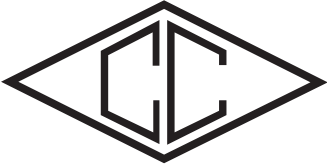
iLC - 10122110
 In-Line NPN to PNP converter,
 6" 8mm female pigtail input,
 6" 8mm male pigtail outlet, LED

Optional mating 8mm Male
 Screw Terminal Connector



Adapts sensor cable to iLC

iLC



canfield connector

8510 Foxwood Court
Youngstown, Ohio 44514
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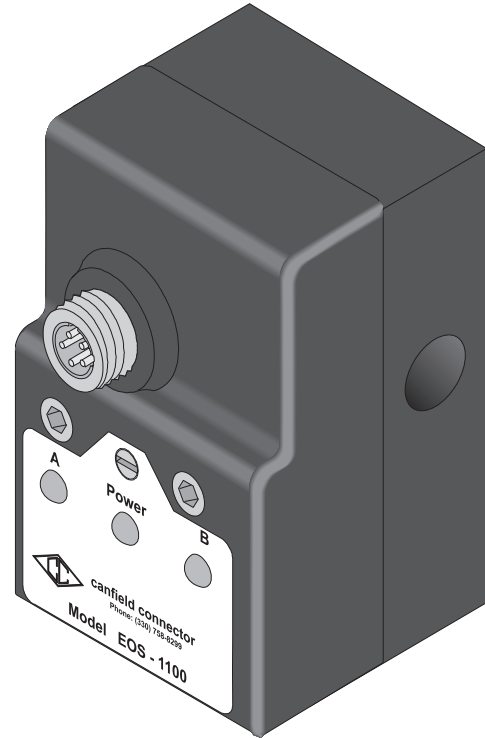
SERIES EOS



TACTILE END OF STROKE PNEUMATIC /
HYDRAULIC WELD FIELD IMMUNE SENSOR

General Description

The Canfield Connector EOS differential pressure switch is a compact device used, in place of proximity switches, to sense the end of stroke and/or clamping pressure of a linear actuator. The basic working principle of the EOS is that port "A" and "B" connect in the pressure line between the actuator and the valve. Using a highly accurate differential solid state pressure sensor, the pressures are compared electronically within the EOS. Extremely consistent and repeatable proximity sensing based on reference pressure (from exhaust line) and dependent pressure (from input line) bring an added dimension to end of stroke sensing. The EOS is unaffected by changes in stroke length. Trip points are adjustable based on forces applied by the actuator. This unit is especially useful for clamping various size work pieces, for spot welding applications, or where electronic magnetic proximity devices need to be constantly recalibrated if the application requires changing trip points. Installation does not require specialized cylinders (i.e. magnetic pistons, special flanged end caps, specialized keyways, or aluminum barrels) and works especially well on short stroke cylinders. The EOS features an analog output for analysis of pressure profiles used in clamping, staking, swaging or welding. This output can be connected to data acquisition or S.P.C. programs for process monitoring and control. The EOS is 100% AC or DC weldfield immune since its function is not dependent on magnetic or electrical fields.



Patent # 5,585,536

Features

- Remote installations / Can be mounted away from the cylinder and work area
- Quick Connect circular electrical connector
- Sub-based pneumatic / hydraulic interface
- Senses proximity in both directions from one unit
- Simple connection between valve and cylinder
- One sensor for both ends of stroke
- Adjustable precise trip points
- Sensing independent of magnetic bands or metal proximity
- Designed for welding operations but can sense any clamping or end of stroke movement
- No electronics affected by stray magnetic fields
- User selectable sinking or sourcing output
- Weld field immune (AC or DC)
- Designed to NEMA 4 environmental protection

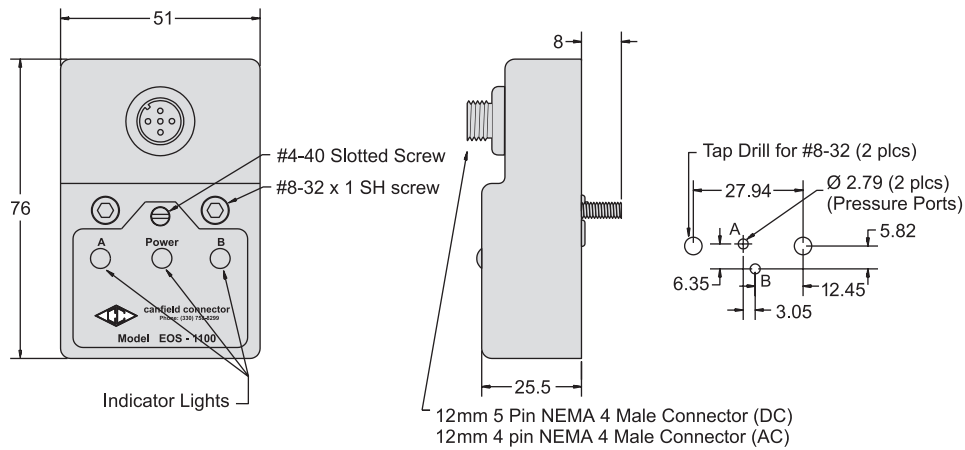
Technical Data

- Supply Volt. Range: 12 - 30 VDC
24 - 48, 120 VAC
- Supply Current: 20 mA max.
- Current Output: .05 Amps AC / DC
- Analog Output: 3 -5 VDC (4v @ 0 PSI) 5 mA max.
- Sensing Range: 0 to 100 PSI
- Response Time: 10 ms
- Repeatability: +/- 0.1 PSI
- Hysteresis: 4 PSI max.
- Max. Pressure: 200 PSI
- Adjustability: 1 PSI
- Temp. Range: -25° to +85° C
- Enclosure Material: Polyetherimide
- Flame Rating: (UL94) V-O
- Media Compatibility: Liquids and gas compatible with glass, ceramic, silicone, RTV and nickel.

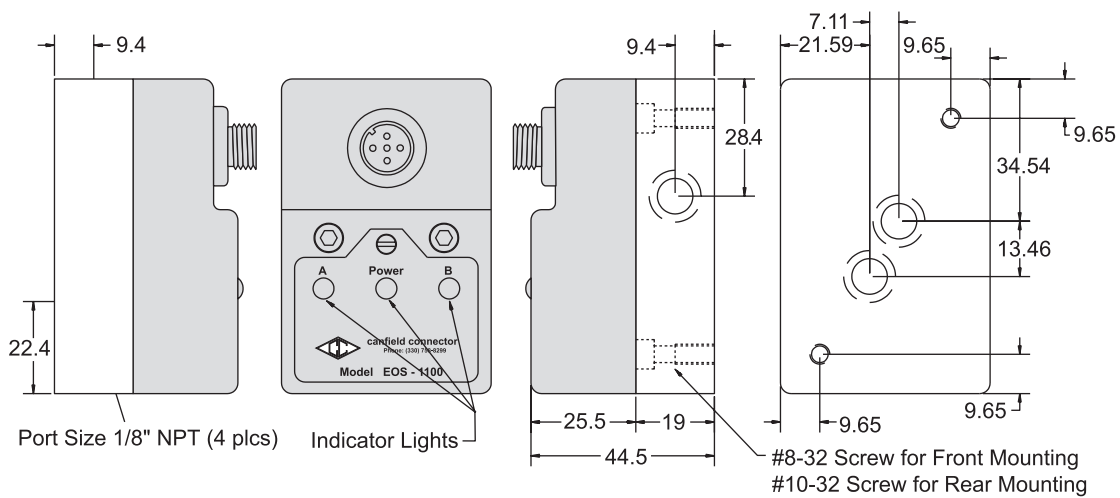
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

Base Module (no sub-base) option 0



Base Module and Standard Sub-base option 1



Typical Application and Installation

CONNECT ANYWHERE BETWEEN VALVE AND CYLINDER, BUT FOR BEST SENSITIVITY ADJUSTMENT, CONNECT BETWEEN CYLINDER AND FLOW CONTROL.

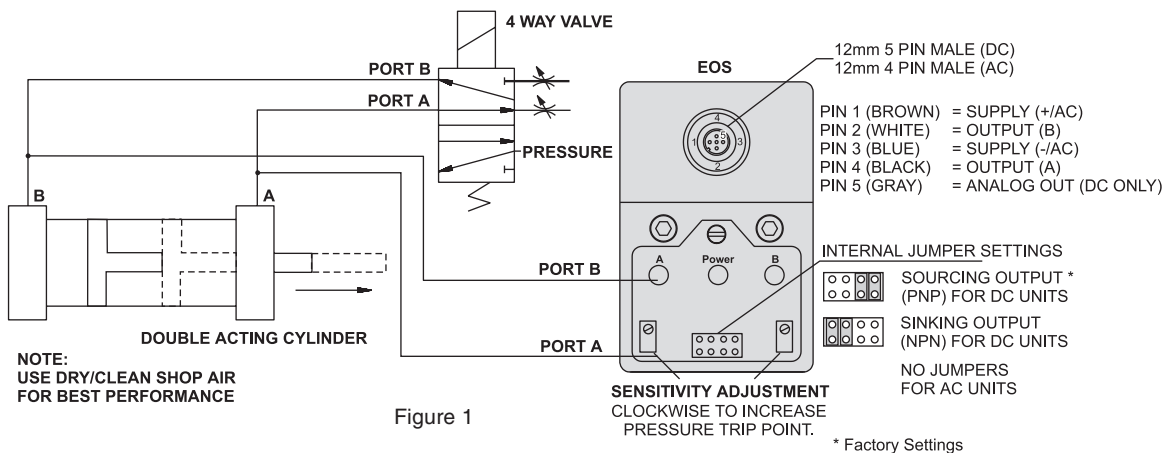
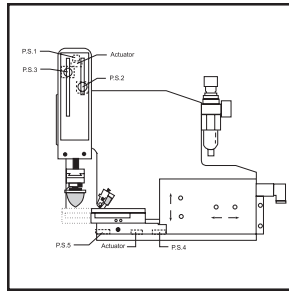


Figure 1

Pad Printing

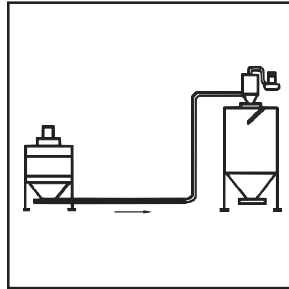
Offset Gravure, commonly known as Pad Printing, uses air valves and cylinders in order to place high quality markings on custom made products. Although there are many configurations of machines, all commonly use a motion which moves the pad down to pick up the ink image. The next motion moves the pad into an up position, then the last motion has the pad moving down again to place the image on the product. Conventional stops and proximity switches are commonly used to accomplish this marking motion as shown by items P.S.1, P.S.2 and P.S.3 in the graphic.



EOS Advantage: Replace conventional proximity switches with the EOS. Very important in this process is the pressure applied to the cliché image and then again to the product. The EOS gives +/- 1% repeatability on this force essentially giving the cylinder a tactile "feel". Since the EOS triggers on precise pad force (independent of proximity), changing work piece height settings are eliminated. The result is highly repeatable images with lower setup costs.

Material Handling

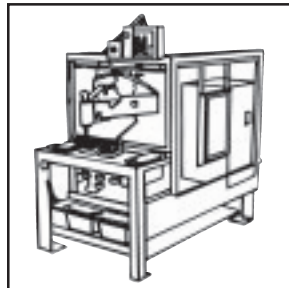
A pneumatic conveyor system uses the constant flow of low pressure air to move powder material at 3 PSI. Along the way the material often clogs and the flow becomes stopped.



EOS Advantage: Large 2 way air valves under high pressure are stationed along the way. The EOS is connected in the upstream and downstream flow of air. If the blockage creates a pressure differential in the line, the EOS senses, trips and sends a signal to the valve to throw a burst of air down the line in just the right area to unstop the clog.

Riveting

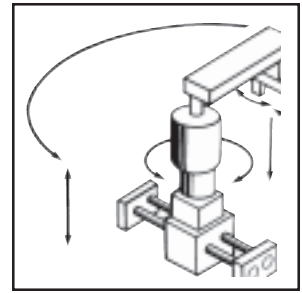
Rivet machines use an anvil and swaging tool in order to join two or more parts together. One manufacturer offers a .250 inch diameter rivet which comes in many lengths from .250 inch to 3.5 inches. In an automated installation a ram cylinder is used to swage the cupped end of the rivet.



EOS Advantage: Changing rivet lengths play havoc with proximity devices which need elaborate adjustment systems in order to sense the ram stroke and deliver the correct amount of force. The EOS ensures consistency of force applied and triggers at the same force every time regardless of rivet length without proximity adjustment.

Pick and place

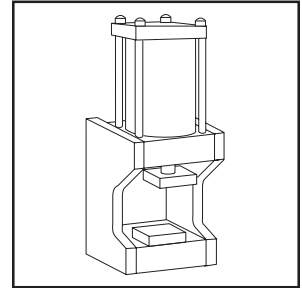
Pick and place machines are a key feature in modern specialized assembly equipment. In fact, these machines are actually dedicated robots which have the responsibility of material handling of products in and out of processing work stations. While these machines vary broadly in their scope, it is a common application to have stacks of paper, metal slabs or for the use of our example, printed circuit boards (PCBs) waiting in a que to be used by the work cell. In the queuing area for a PCB assembly machine, PCBs are stacked one on top of the other. A pick and place robot feeds the PCBs one at a time into the equipment as is needed. An expensive DC drive mechanism is used in order to present the PCB to the exact height the pick and place robot needs in order to acquire it properly.



EOS Advantage: Using a pick and place robot equipped with a cylinder and EOS combination saves time and is more forgiving to variations in workplace height. The Z axis cylinder becomes positioned over the PCB stack which is stationary. The cylinder extends toward the PCB until the EOS senses that the proper preset force (tactile) is met and grasps the top PCB regardless of stack height. The EOS switches sending a signal immediately back to the control whereby the cylinder retracts and feeds the PCB into the machine. The next cycle repeats and the EOS senses regardless of stroke length until the last PCB is removed.

Wire Terminal Crimping

A well known maker of wire harnesses for automobiles cuts, strips and terminates wires in several operations on automated machinery. The problem was that their crimping tools would often times crush the terminations or not apply enough force to ensure a good continuity and crimp connection.

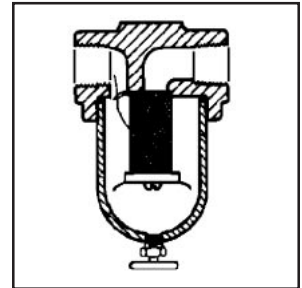


EOS Advantage: By applying the EOS to the ram cylinders of the termination presses, crimp forces were brought under control and quality of the process was attained. Now the machines apply the same force each time regardless of fluctuations in input pressures.

Field Service Indicator for Air Filters

Many air systems need clean, consistent air quality for instrumentation and working components.

EOS Advantage: Connection of the EOS in the upstream (port A) and downstream (port B) will sense differentials of pressures and trigger when the pressure reaches a set point indicating electronically when filters are becoming obstructed with debris.

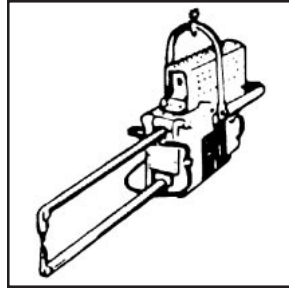


Typical Application and Installation

Resistance Welding

Many resistance welders used in the automotive industry rely on proximity devices in order to sequence the force, time and current needed to produce welds.

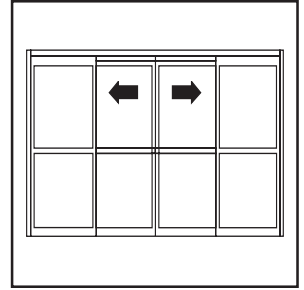
EOS Advantage: Since the EOS adjusts to finite triggering based on cylinder (tactile) force, precise trip points based on those forces save time to weld. The reason for this is that the weld can be accomplished without the need to add time frames for flow restrictions and pressure drops inherent in each system. The EOS also remains unaffected by weld fields as the principle of operation and does not use magnetism or inductive sensing. Additionally, differing thicknesses of metals and weld tip erosion can not change the trip points of the EOS. The EOS can be mounted either at or away from the cylinder. The EOS will not trip in low pressure situations as proximity sensors would ensuring quality welds. The EOS is also available with an SPC output in the DC version. Pressure profiles can be fed back into a computer data acquisition terminal where the pressure profiles for each individual weld can be stored for quality assurance.



Automatic Door Closing and Obstacle Sensing

Some doors and covers which are used to separate rooms in plants or sections of machinery are closed by use of air cylinders.

EOS Advantage: An EOS attached to the circuit replaces electric eyes and tape switches. Setting the EOS to the proper force, an obstacle of varying sizes can be placed anywhere along the path of the door. A resistance great enough to create a pressure differential signals the control that an obstacle is in the way of normal travel which in turn reverses the travel of the door. A conventional proximity device is in place at the end of the door travel which negates the EOS output and signals to the control that the door is in fact closed. The EOS gives the door a tactile response. In this application the EOS is simply a single component of a more elaborate safety system.



How It Works

(Refer to schematic figure 1 and graph figure 2)

- ① Four way valve shifts switching pressure from port "A" to port "B".
- ② Pressure builds in line "B" and drops in line "A" until cylinder load / friction are overcome.
- ③ Dependent upon the response time and valve flow, "B" line pressure exceeds "A" line pressure.
- ④ Friction / load overcome, cylinder travel begins.
- ⑤ End of stroke or clamping force begins, "B" line pressure increases and "A" line pressure decays.
- ⑥ When the pressure differential between port "A" and "B" ($B \text{ PSI} - A \text{ PSI} = \Delta p$) increases to the preset trip point output "B" will activate.

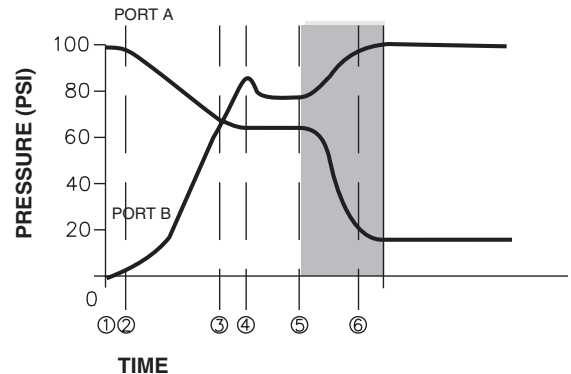
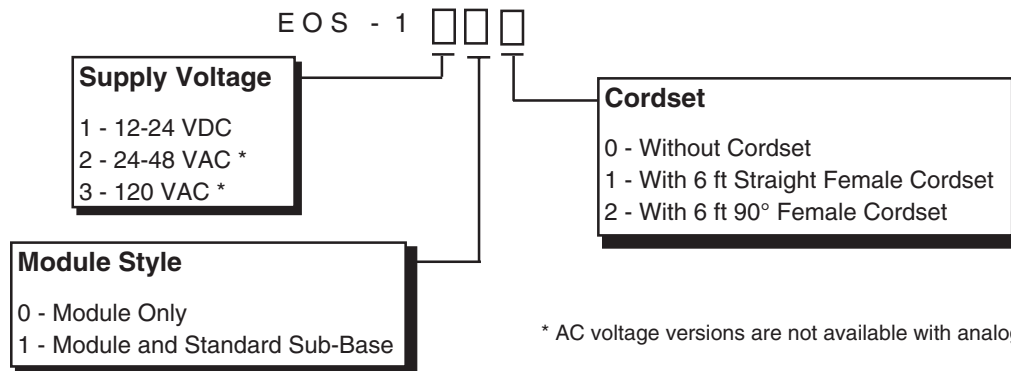
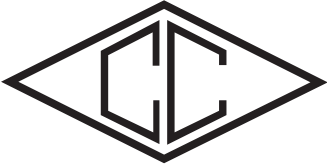


Figure 2

The sensor can be set to trip anywhere in the shaded region depending on desired clamping force and/or delay.

Ordering Information





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 8510 Foxwood Court
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 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

MODEL EOS-2



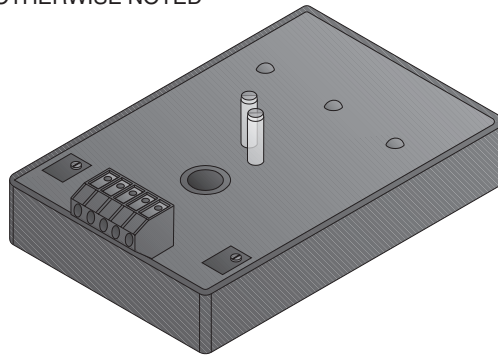
TACTILE END OF STROKE PNEUMATIC AND HYDRAULIC SENSOR

General Description

The Canfield Connector EOS differential pressure switch is a compact device used in place of proximity switches to sense the end of stroke and/or clamping pressure of a linear actuator. Sensing the pressure on the exhaust and pressure side of the double acting cylinder enables the EOS to determine when the end of stroke is reached. The end of stroke is determined based on pressure, not proximity. Trip points are adjustable based on forces applied by the actuator. This unit is especially useful in applications with inconsistent size work pieces, clamping, staking, swaging, welding or where electronic magnetic proximity devices do not work as well. The EOS can replace proximity devices on applications where these devices are used to sense end of stroke. Installation is easier than standard proximity devices and cylinders can be made of any material. Cylinders need not incorporate any magnetic pistons or special flanged end caps.

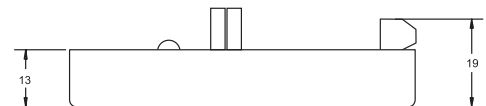
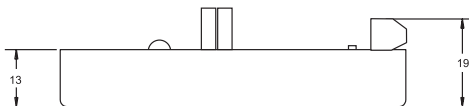
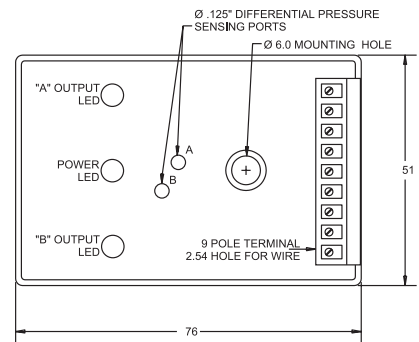
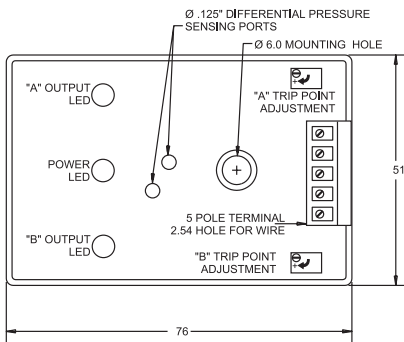
Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



On-Board Adjust

Off-Board Adjust



Technical Data

- Supply Voltage Range: 12 - 30 VDC / 24-48, 120 VAC
- Supply Current: 20 mA max.
- Current Output: .05 Amps AC / DC
- Analog Output: 3-5 VDC (4V @ 0 PSI) 5 mA max.
- Sensing Range: 0 to 100 PSI
- Response Time: 10 ms
- Repeatability: 0.1 PSI
- Hysteresis: 4 PSI max.
- Max. Pressure: 200 PSI
- Adjustability: 0.1 PSI
- Temperature Range: -25° to +85° C
- Enclosure Material: ABS, Epoxy
- Flame Rating: (UL94) V-O
- Media Compatibility: Liquids and gas compatible with glass, ceramic, silicone, RTV and nickel

EOS-2

How It Works

(Refer to schematic Figure 1 and graph Figure 2)

- ① Four way valve shifts switching pressure from port "A" to port "B".
- ② Pressure builds in line "B" and drops in line "A" until cylinder load / friction are overcome.
- ③ Dependent upon the response time and valve flow, "B" line pressure exceeds "A" line pressure.
- ④ Friction / load overcome, cylinder travel begins.
- ⑤ End of stroke or clamping force begins, "B" line pressure increases and "A" line pressure decays.
- ⑥ When the pressure differential between port "A" and "B" ($B \text{ PSI} - A \text{ PSI} = \Delta\pi$) increases to the preset trip output point "B" will activate.

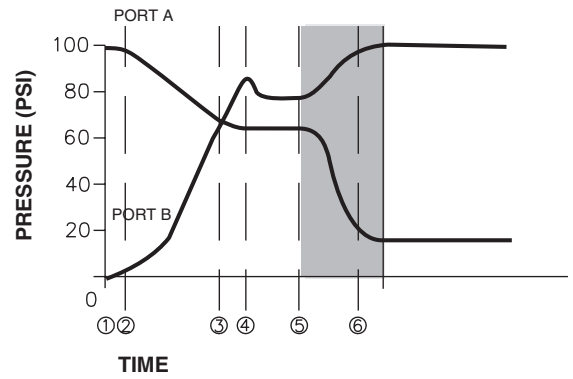


Figure 2

The sensor can be set to trip anywhere in the shaded region depending on desired clamping force and/or delay.

Typical Application and Installation for Remote Adjust

CONNECT ANYWHERE BETWEEN VALVE AND CYLINDER, BUT FOR BEST RESULTS, CONNECT BETWEEN CYLINDER AND FLOW CONTROL.

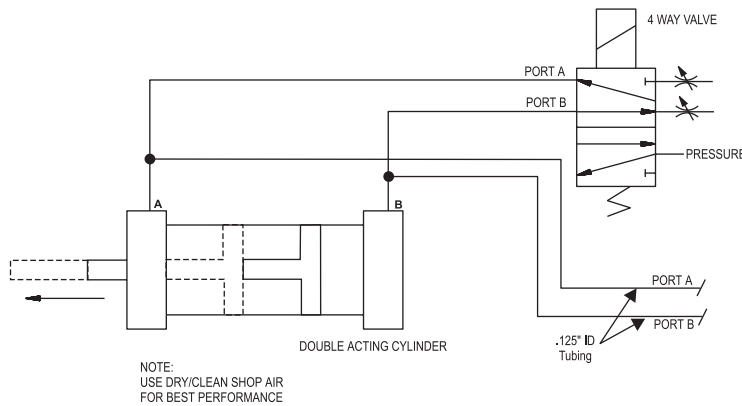
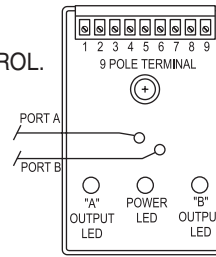


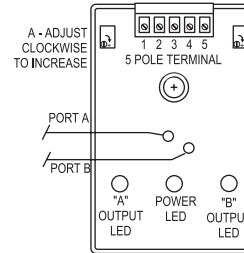
Figure 1

Off-Board Adjust**



REMOTE ADJUST CONNECTIONS
 PIN 1 = REMOTE +
 PIN 2 = REMOTE ADJUST A
 PIN 3 = OUTPUT A
 PIN 4 = SUPPLY +/AC
 PIN 5 = ANALOG OUT (DC ONLY)
 PIN 6 = SUPPLY -/AC
 PIN 7 = OUTPUT B
 PIN 8 = REMOTE ADJUST B
 PIN 9 = REMOTE -

On-Board Adjust



ON-BOARD ADJUST CONNECTIONS
 PIN 1 = OUTPUT A
 PIN 2 = SUPPLY +/AC
 PIN 3 = ANALOG OUT (DC ONLY)
 PIN 4 = SUPPLY -/AC
 PIN 5 = OUTPUT B

Ordering Information

EOS - 2 0

Supply Voltage/Output Type

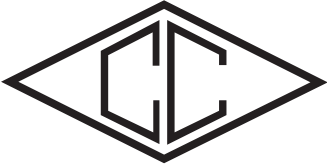
- 1 - 12-24 VDC / NPN (Sinking)
- 2 - 12-24 VDC / PNP (Sourcing)
- 3 - 24-48 VAC / Triac *
- 4 - 120 VAC / Triac*

Module Style

- 0 - With On-Board Adjustments
- 1 - With Off-Board Adjustments

* AC voltage versions are not available with analog output.

** Customer must supply two 100k ohm potentiometers. Shielded cable is recommended for remote potentiometer hook-up.



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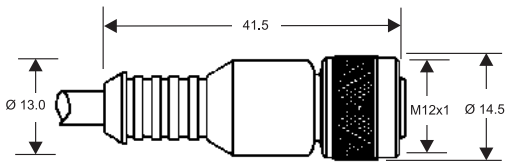
B-TYPE SENSOR CONNECTORS

FOR USE WITH CANFIELD
PROXIMITY DEVICES

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

12mm female molded locking connector (3 pole) 250V AC/DC 4 Amps max.

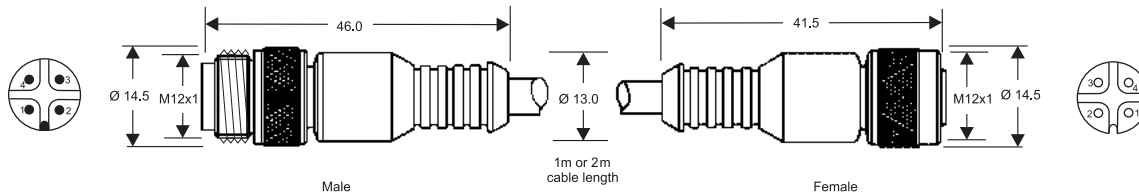


Brown = Pin 1
Blue = Pin 3
Black = Pin 4
N/C = Pin 2
N/C = Pin 5

Order part number

RC12S-F0M030120 (2m length)
RC12S-F0M030150 (5m length)

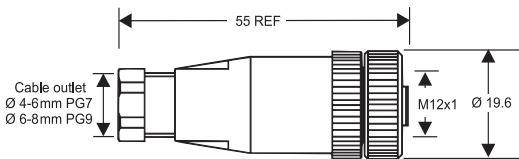
12mm male x 12mm female molded locking cable (4 pole) 250V AC/DC 4 Amps max.



Order part number

RC-12SM0A-12SF041 (1m length)
RC-12SM0A-12SF042 (2m length)

12mm female field wire connector (4 pole) 250V AC/DC 3 Amps max.

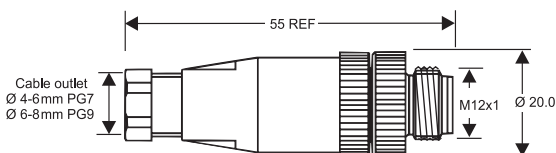


Order part number

RC12B-F0F0400 (4-6mm cable dia.)
RC12B-F0F0401 (6-8mm cable dia.)

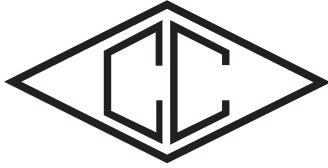
B-TYPE

12mm male field wire connector (4 pole) 250V AC/DC 3 Amps max.



Order part number

RC12B-M0F0400 (4-6mm cable dia.)
RC12B-M0F0401 (6-8mm cable dia.)



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B-TYPE SENSOR CONNECTORS

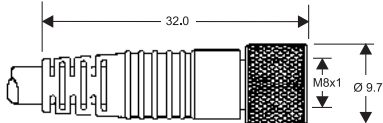
FOR USE WITH CANFIELD
 PROXIMITY DEVICES

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

8mm female molded locking connector (3 pole or 4 pole)

120V AC/DC 4 Amps max.



Brown = Pin 1
 Blue = Pin 3
 Black = Pin 4

Order part number

RC08S-F0M030120 (2m length)
 RC08S-F0M030150 (5m length)



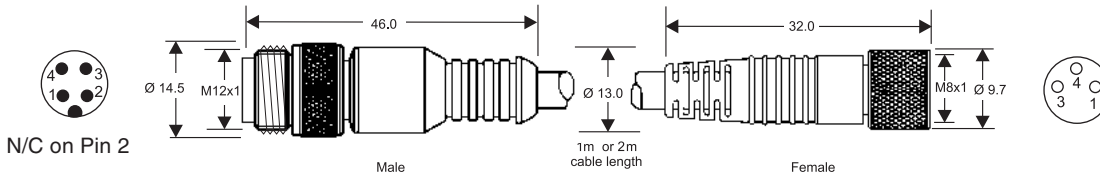
Brown = Pin 1
 White = Pin 2
 Blue = Pin 3
 Black = Pin 4

Order part number

RC08S-F0M040120 (2m length)
 RC08S-F0M040150 (5m length)

12mm male molded locking cable (3 pole) x 8mm female

120V AC/DC 4 Amps max.

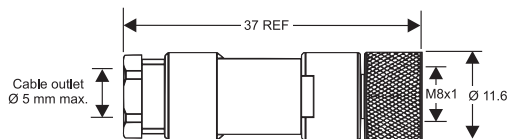


Order part number

RC-12SM0I-080F0A1 (1m length)
 RC-12SM0I-080F0A2 (2m length)

8mm female field wire connector (3 pole)

120V AC/DC 4 Amps max.



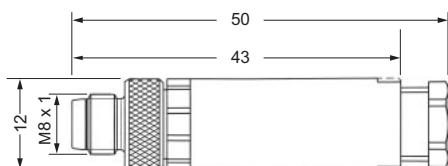
Order part number

RC08B-F0F0300

Note: Cannot be used with Connection Option #3 in Series 8000.

8mm male field wire connector (3 pole)

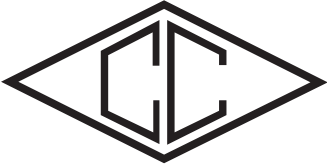
120V AC/DC 4 Amps max.



Order part number

RC08B-M0F1300

B-TYPE



canfield connector

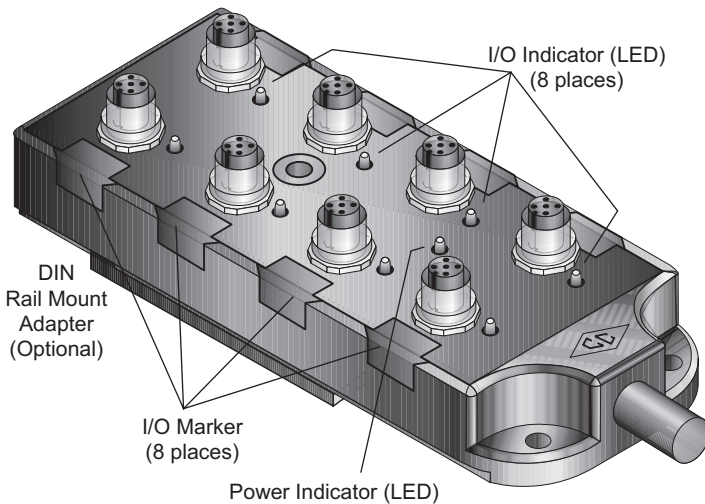
8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
www.canfieldconnector.com

D-BOX

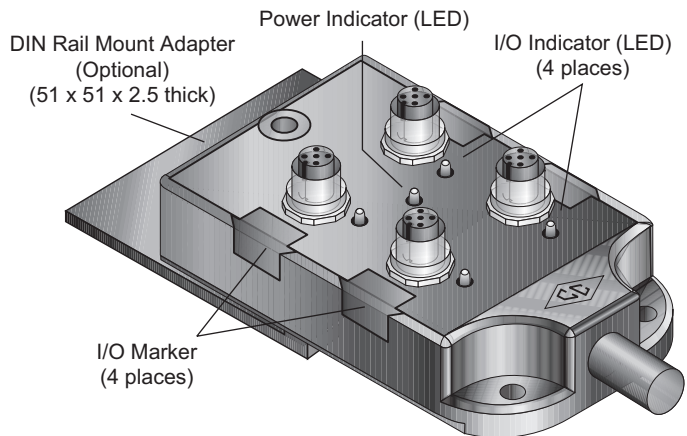
DISTRIBUTION BOX FOR USE WITH CANFIELD 12mm ROUND CONNECTORS

General Description

This electrical Distributor Box (D-Box) is designed to reduce installation and troubleshooting time. Using 12mm quick connect cables, the D-Box is epoxy encapsulated for harsh environments. Computerized controls can be quickly and efficiently connected to sensors and actuators at the machine level using the features of the D-Box.



**D-Box shown with
 8-12mm Connectors**



**D-Box shown with
 4-12mm Connectors**

Features

- Power / I/O LED Indicator Lights
- Built-in Input Surge Suppression
- PNP (sinking) / NPN (sourcing) options
- DIN Rail Mounting Option
- 15 ft Cable Length standard

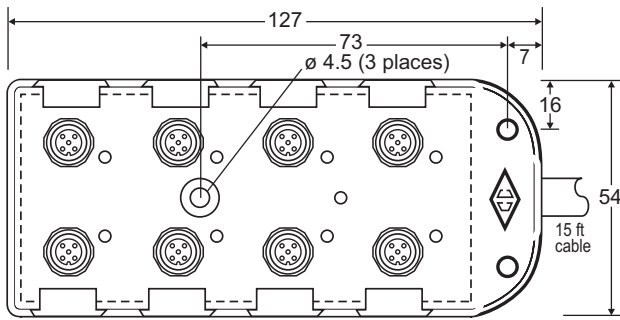
Technical Data

- Temperature Range: -20° C to +80° C
- Voltage Maximum: 120V
- Maximum Current: 12 Amp max. unit / 4 Amp I/O
- Environmental protection: NEMA type 4 and IP 65 dust tight and water resistant

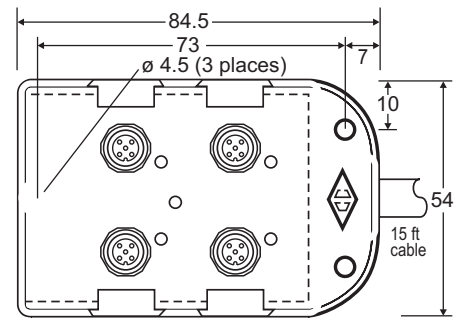
D-BOX

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

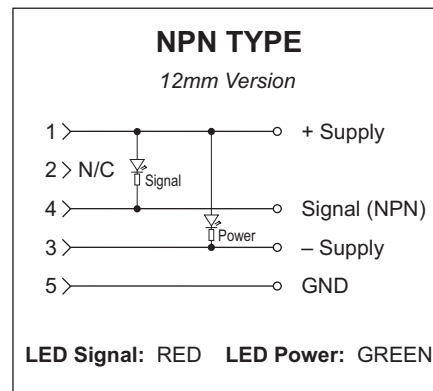
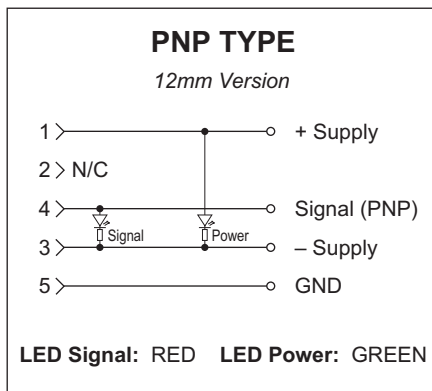


**D-Box shown with
8-12mm Connectors**



**D-Box shown with
4-12mm Connectors**

Circuit Types



Ordering Information

DB10-2 F 0-1 0

I/O Quantities

4 - 4 I/O's
6 - 6 I/O's
8 - 8 I/O's

Circuit Type

0 - PNP
1 - NPN

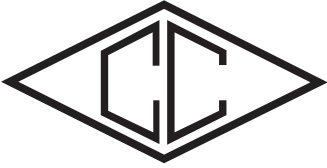
Lighting Options

0 - unlighted
1 - 6 - 48V AC/DC
2 - 48 - 120V AC/DC

OPTIONAL
DIN Rail Mounting Adapter
DRM - 1000

Custom wire lengths are
available consult factory
for details

D-BOX



canfield connector

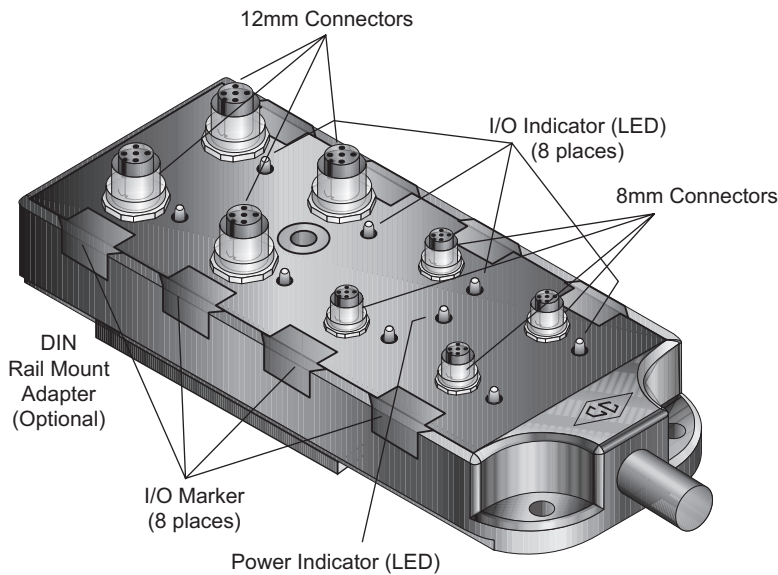
8510 Foxwood Court
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www.canfieldconnector.com

D-BOX

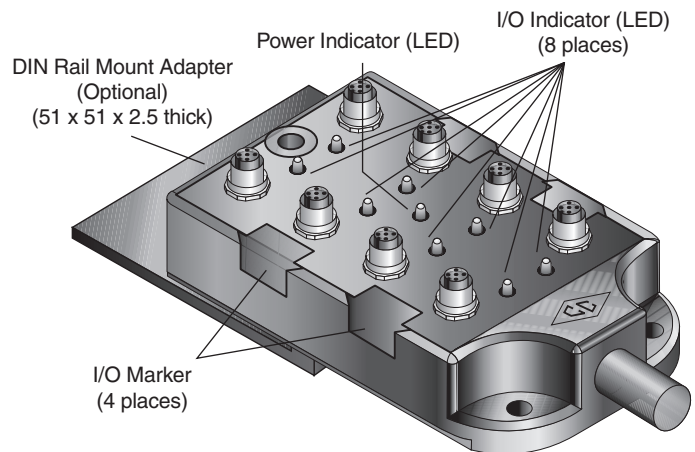
DISTRIBUTION BOX FOR USE WITH CANFIELD 8mm or 8mm/12mm COMBINATION ROUND CONNECTORS

General Description

This electrical Distributor Box (D-Box) is designed to reduce installation and troubleshooting time. Using 8mm or 8mm/12mm quick connect cables, the D-Box is epoxy encapsulated for harsh environments. Computerized controls can be quickly and efficiently connected to sensors and actuators at the machine level using the features of the D-Box.



**Hybrid D-Box shown with
 4-12mm and 4-8mm Connectors**



**D-Box shown with
 8-8mm Connectors**

Features

- Power / I/O LED Indicator Lights
- Built-in Input Surge Suppression
- PNP (sinking) / NPN (sourcing) options
- DIN Rail Mounting Option
- 15 ft Cable Length standard

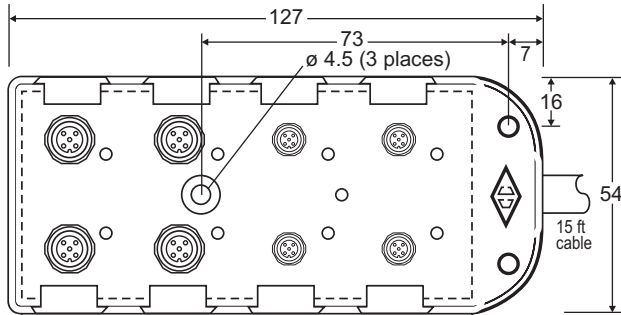
Technical Data

- Temperature Range: -20° C to +80° C
- Voltage Maximum: 120V
- Maximum Current: 12 Amp max. unit / 4 Amp I/O
- Environmental protection: NEMA type 4 and IP 65 dust tight and water resistant

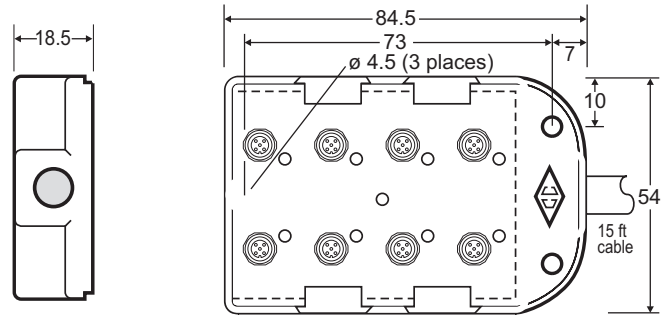
D-BOX

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

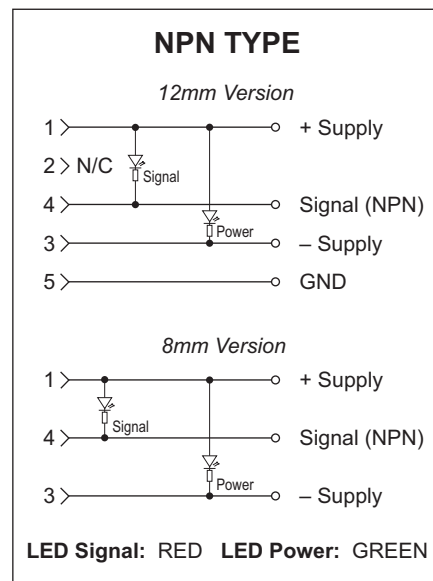
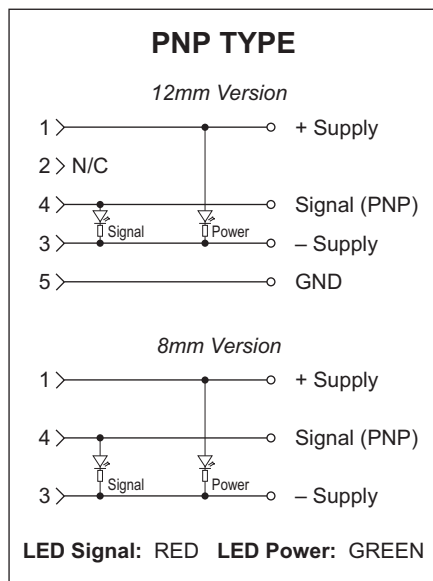


**Hybrid D-Box shown with
12mm and 8mm Connectors**

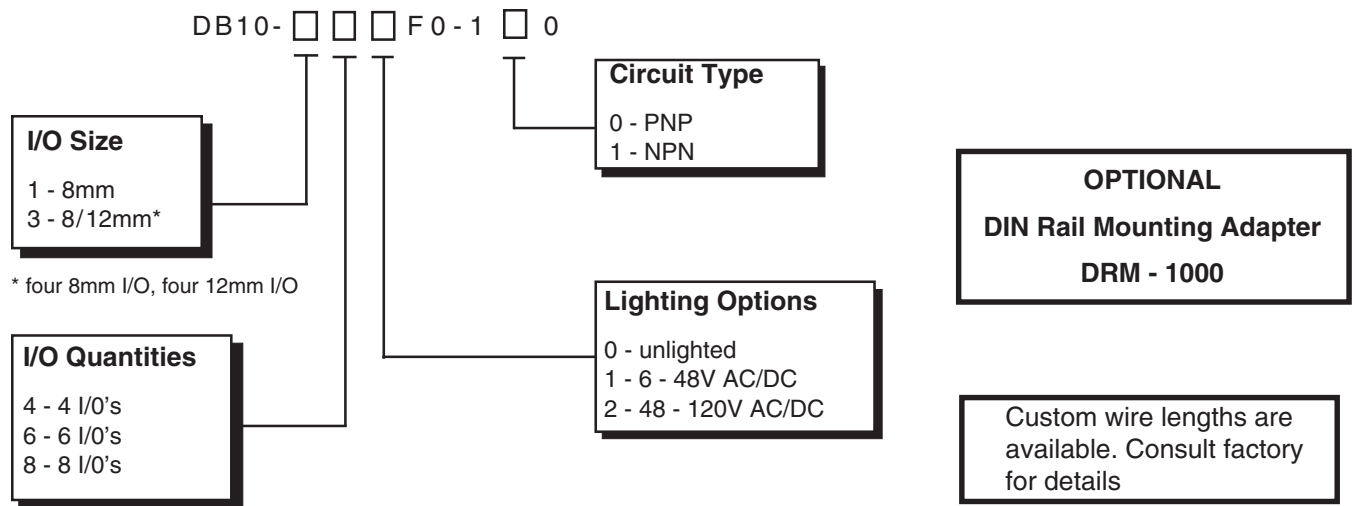


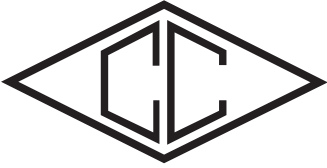
**D-Box shown with
8 - 8mm Connectors**

Circuit Types



Ordering Information





canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
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MODEL MBT

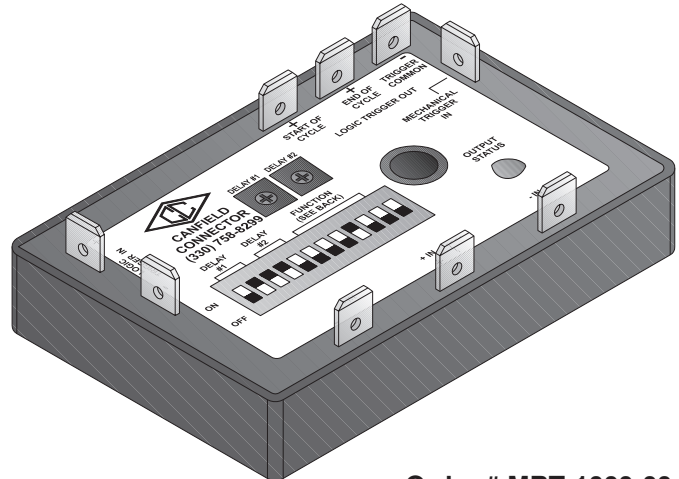
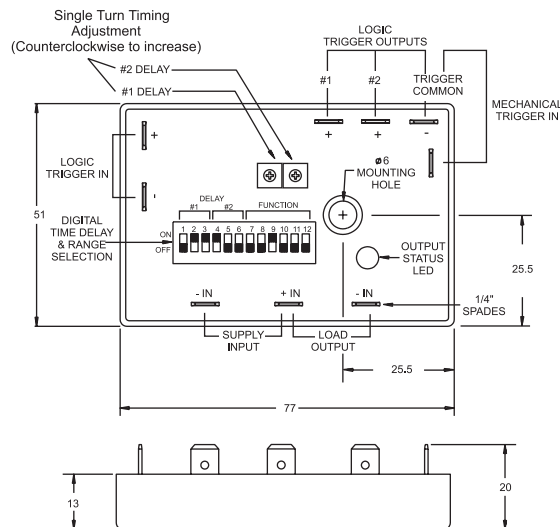
MULTIFUNCTION BLOCK TIMER 12 FUNCTIONS IN 1 TIMER

General Description

The Canfield Connector model MBT Multifunction Block Timer is designed as a full featured multiple mode of operation, multiple voltage, all-in-one timer. The unit is offered in a small epoxy encapsulated housing with on board mode switches and adjustments. The unit has a time range adjustable from 0.1 seconds to 33.3 hours. Features include twelve modes of operation including a multitude of logic function possibilities and an indicator light for fast troubleshooting. The unit can be used to trigger another MBT in a cascade type arrangement, to meet complex functions or longer time ranges. With a voltage range of 12-240 VDC / 24-240 VAC 50/60 Hz, the MBT can instantly handle all mobile, industrial and automation applications right off the shelf. Each timer is 100% tested for function and quality and is resistant to dust, vibration and humidity. Mounting is accomplished by use of a through hole able to accommodate up to a 6mm diameter screw. Electrical connections are .250" AMP Faston posts for crimp type push-on connectors.

Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



Order # MBT-1000-00

Features

- All solid state
- 12-240 Volts in one unit
- Time range .1 sec. to 33.3 hours
- Indicator light
- Transient protection
- Stock one timer for all functions
- Faston connections
- Cascade trigger
- 12 timing modes in one unit
- On board adjustment

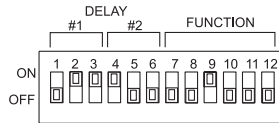


Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.

Technical Data

- Maximum timer current draw: 2 mA (No Load)
- Absolute max. input voltage: 240V AC/DC
- Input voltage range: 24-240 VAC (50/60Hz)
12-240 VDC
- Maximum output current: 1 Amp
- Logic trigger in: 5-48 VDC (10k input impedance)
- Logic trigger out: 5.5 V @ .55 mA max.
- Mechanical trigger in: 80 mA max. current draw
- Ambient temp. range: -20° to +60° C
- Max. reset time: 50 ms
- Repeat accuracy: ± 0.1% or 10 ms. (whichever is greater)
- Time delay variable over ambient temp. range: +/- 2%
- Enclosure material: ABS
- Potting: Epoxy

MBT



Switch Symbols

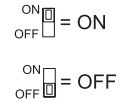


Chart 1

#1 Delay Range (seconds) Switch All Functions	Settings
0.10 - 4.70	ON <input type="checkbox"/> 1 <input type="checkbox"/> 2 OFF <input type="checkbox"/> 1 <input type="checkbox"/> 2
0.36 - 18.0	ON <input type="checkbox"/> 1 <input type="checkbox"/> 2 OFF <input type="checkbox"/> 1 <input type="checkbox"/> 2
2.80 - 150	ON <input type="checkbox"/> 1 <input type="checkbox"/> 2 OFF <input type="checkbox"/> 1 <input type="checkbox"/> 2
23.0 - 1200	ON <input type="checkbox"/> 1 <input type="checkbox"/> 2 OFF <input type="checkbox"/> 1 <input type="checkbox"/> 2
Delay = range X 1	ON <input type="checkbox"/> 3 OFF <input type="checkbox"/> 3
Delay = range X 100	ON <input type="checkbox"/> 3 OFF <input type="checkbox"/> 3

Chart 2

#2 Delay Range (seconds) Switch Cycle Function Only	Settings
0.10 - 4.70	ON <input type="checkbox"/> 4 <input type="checkbox"/> 5 OFF <input type="checkbox"/> 4 <input type="checkbox"/> 5
0.36 - 18.0	ON <input type="checkbox"/> 4 <input type="checkbox"/> 5 OFF <input type="checkbox"/> 4 <input type="checkbox"/> 5
2.80 - 150	ON <input type="checkbox"/> 4 <input type="checkbox"/> 5 OFF <input type="checkbox"/> 4 <input type="checkbox"/> 5
23.0 - 1200	ON <input type="checkbox"/> 4 <input type="checkbox"/> 5 OFF <input type="checkbox"/> 4 <input type="checkbox"/> 5
Delay = range X 1	ON <input type="checkbox"/> 6 OFF <input type="checkbox"/> 6
Delay = range X 100	ON <input type="checkbox"/> 6 OFF <input type="checkbox"/> 6

Chart 3

Function	Switch Settings
#1 Off Delay (Retriggerable)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#2 On Delay (Retriggerable)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#3a Cycle (On First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#3b Cycle (Off First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#4a Square Wave (On First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#4b Square Wave (Off First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#5 Delay on Break (Normally Off)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#6 Delay on Break (Normally On)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#7 Delay on Make (Normally Off)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#8 Delay on Make (Normally On)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#9a Toggle (On First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
#9b Toggle (Off First)	ON <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 OFF <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12

Operation

General Description - The MBT is a solid state timer/toggle latch, programmable in 12 modes of operation (refer to chart 3). It can be operated individually or cascaded to perform virtually any timing sequence desired.

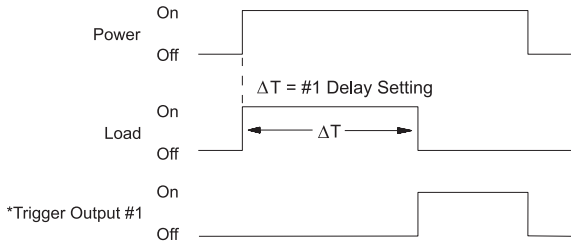
Mechanical Trigger Input - A switch closure at this input begins or resets the timing period of any non-cycling MBT function. Refer to pages 78-79 for timing diagrams.

Logic Trigger Input - A sourcing or sinking voltage signal (5 - 48 volts) at this input begins or resets the timing period of any non-cycling MBT function. Refer to pages 78-79 for timing diagrams.

Logic Trigger Outputs - The logic output produces a voltage signal in sync with the timing cycle (see timing diagrams, pages 78-79). Timers can be cascaded when the logic output of one timer is connected to the logic input of other timers. The logic signal output is inactive when power is initially applied to the timer. The #1 logic output produces a voltage level opposite the #2 logic output.

Cascading Multiple Timers - There is no limit to the number of MBTs that can be cascaded in series (the logic output of one MBT connected to the logic input of another MBT). However the number of parallel MBTs (the same logic output connected to the logic input of more than one other MBT) should be limited to 10 MBTs.

**Off Delay (Retriggerable)
Function #1**

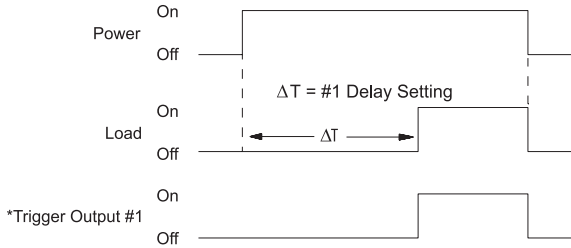


Load is energized for ΔT upon application of power. Reset occurs when power is removed or trigger is applied.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**On Delay (Retriggerable)
Function #2**

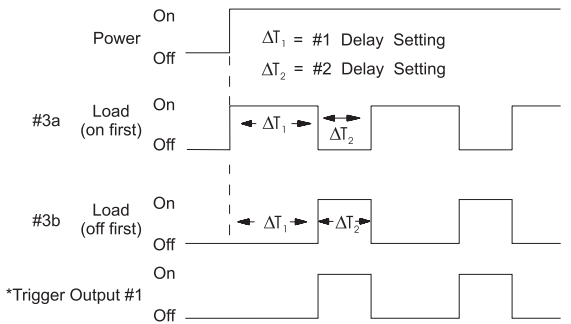


Load remains Off for ΔT upon application of power. Reset occurs when power is removed or trigger is applied.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Cycle
Function #3a / 3b**

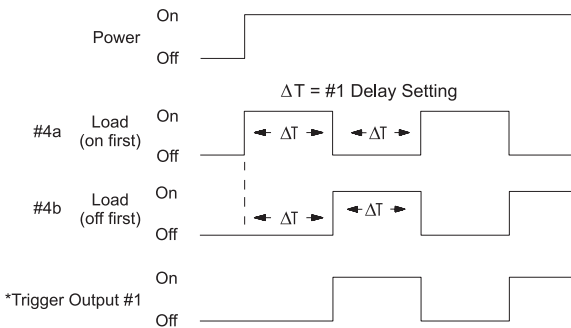


Load cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.

Refer to charts 1, 2 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Square Wave
Function #4a / 4b**

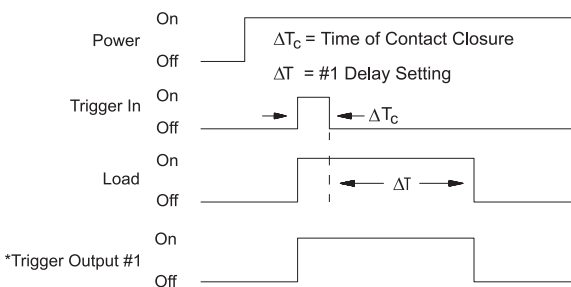


Load cycles with equal On and Off times when power is applied. Reset occurs when power is removed.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Delay On Break (Normally Off)
Function #5**

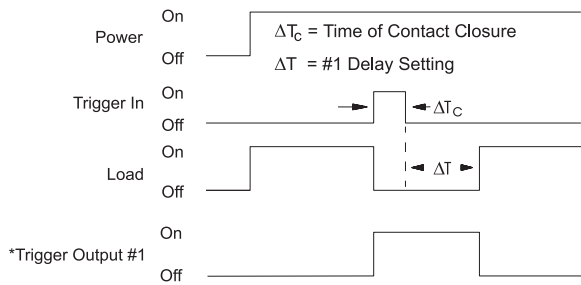


When power is applied, load remains Off. Load is energized when trigger switch is closed. When trigger switch is opened, ΔT begins. The load de-energizes at completion of ΔT . Reset occurs when load is Off and trigger is re-applied.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Delay On Break (Normally On)
Function #6**

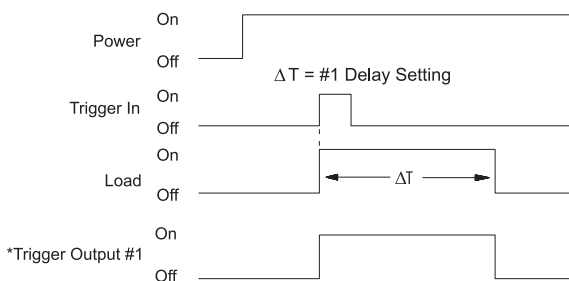


When power is applied, load is energized and remains energized until the trigger switch is closed. Load is then Off for $\Delta T_c + \Delta T$. Reset occurs when load is On and the trigger is re-applied.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Delay On Make (Normally Off)
Function #7**

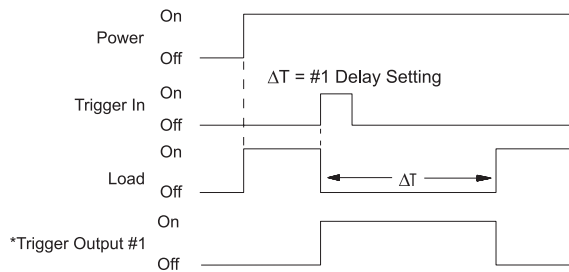


When power is applied, load remains Off. Load is energized for ΔT only upon closure of a normally open momentary contact switch (trigger). Reset occurs when load is Off and the trigger switch is closed.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Delay On Make (Normally On)
Function #8**

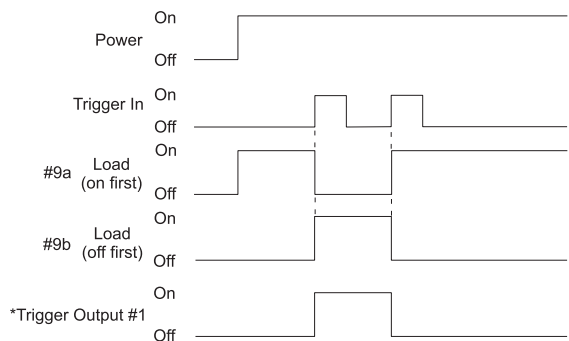


When power is applied, load is energized. Load de-energizes for ΔT only upon closure of a normally open momentary contact switch (trigger). Reset occurs when load is On and the trigger switch is closed.

Refer to charts 1 and 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

**Toggle
Function #9a / 9b**

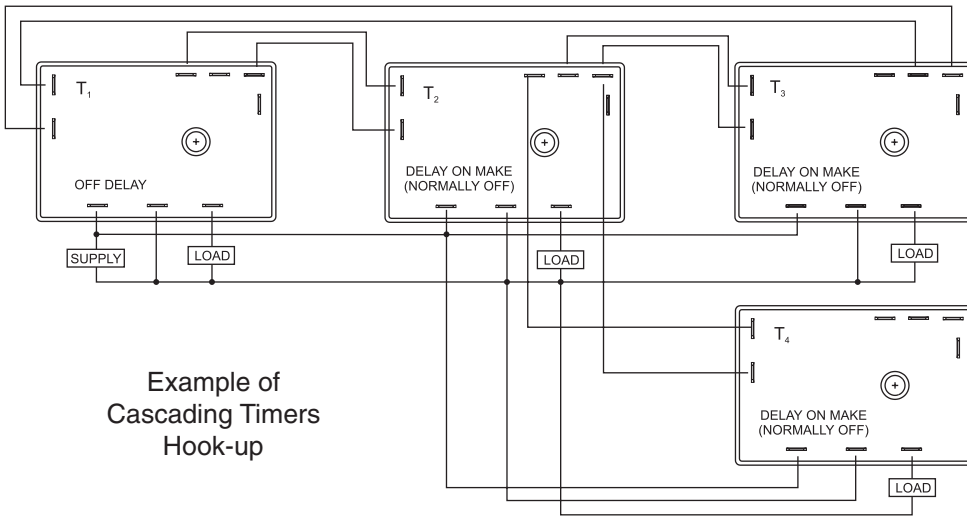


When power is applied, load is On. Load switches state (On/Off) with each application of trigger

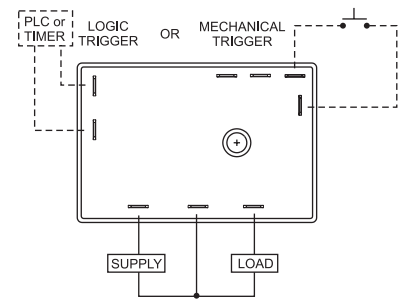
Refer to chart 3 on page 77 for switch settings.

*Trigger Output #2 level is always opposite of Trigger Output #1.

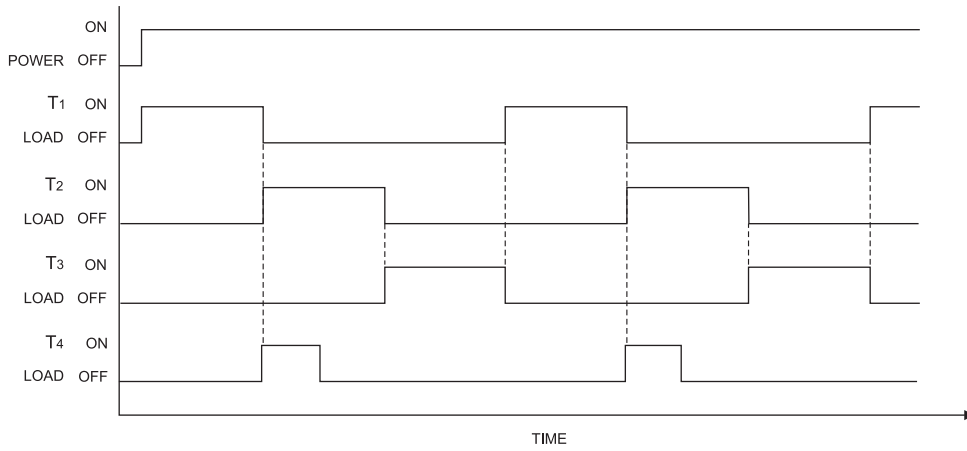
Hook-Up



Example of Cascading Timers Hook-up

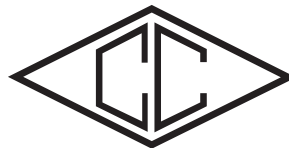


Single Timer Hook-up



Ordering Information

Model # MBT-1000-00



canfield connector
 8510 Foxwood Court
 Youngstown, Ohio 44514
 (330) 758-8299 ■ Fax: (330) 758-8912
 www.canfieldconnector.com

MBT

Appendix A for Series 5000, L5000, R5000 & P5600

example: 5 -

WIRE LENGTH

WIRE TYPES

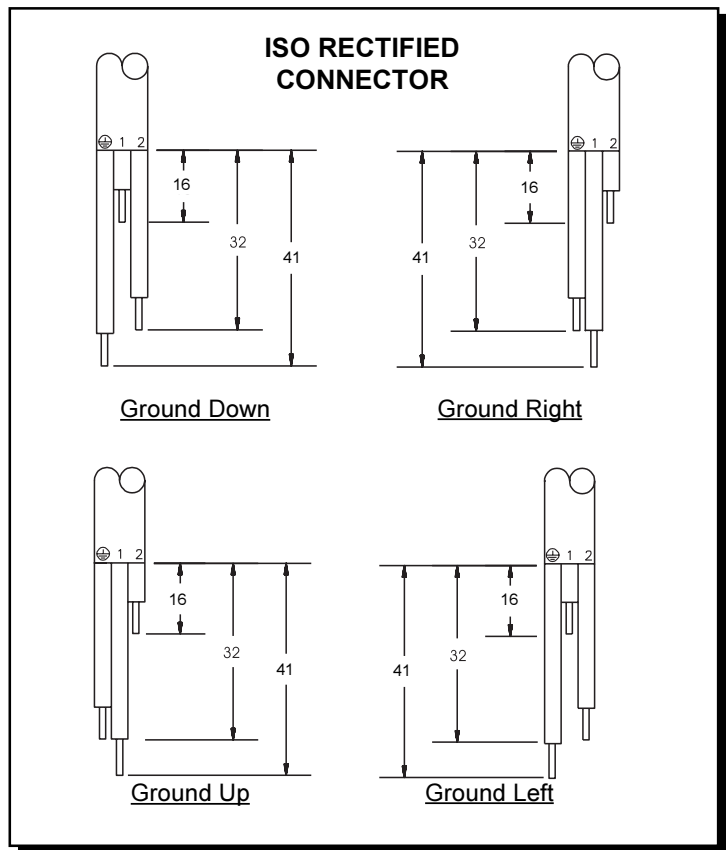
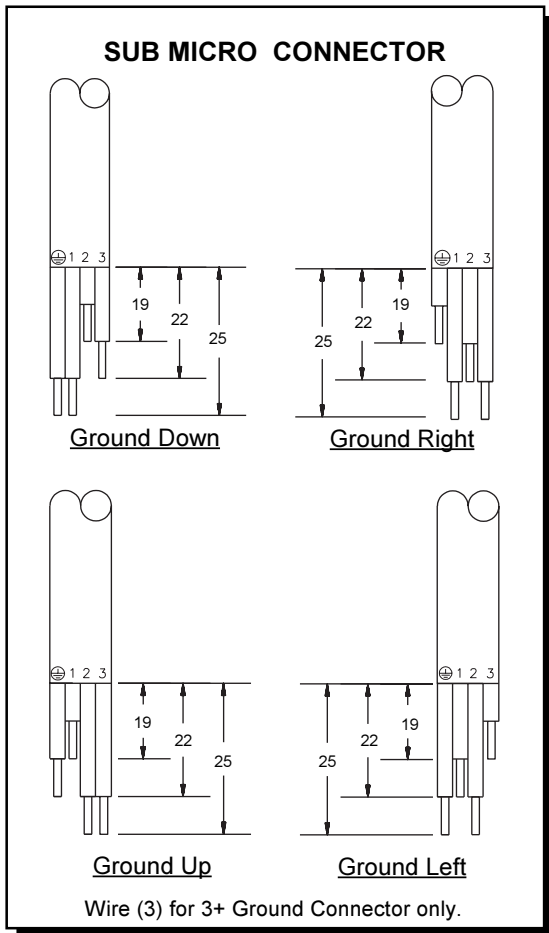
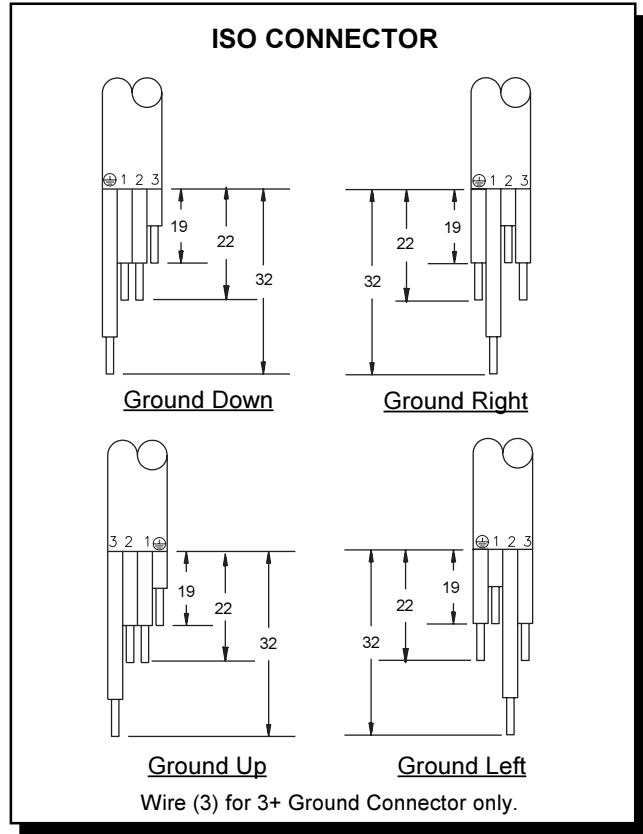
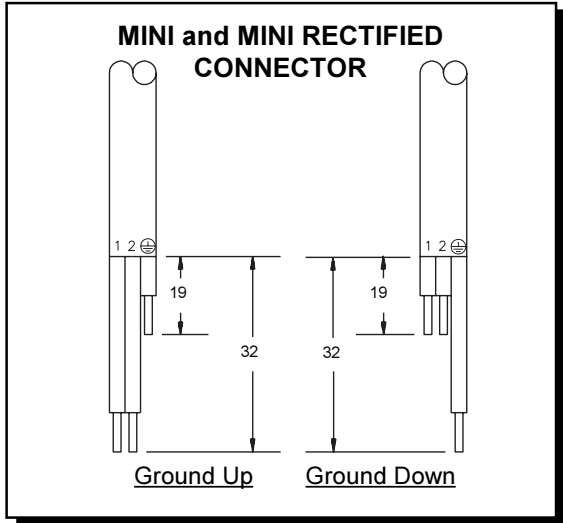
WIRE

CODE	LENGTH IN FEET	CODE	DESCRIPTION / TYPE	AWG	NO. OF CONDUCTORS	MAX VOLTS	CONDUCTOR COLOR (PIN)	RECOMMENDED FOR
0	NO WIRE	*	00	GRAY PVC CABLE	18	3	BLK(1),WHT(2), GRN⊕	STANDARD FOR PG 9
1	1		01	YELLOW STO CABLE	18	3	BLK(1),WHT(2), GRN⊕	PG 11
2	2		02	BLACK SJO CABLE	18	3	BLK(1),WHT(2), GRN⊕	PG 9
3	3		03	YELLOW THERMOSET SOO CABLE	18	3	BLK(1), WHT(2), GRN⊕	PG 11
4	4		04	YELLOW NEOPRENE SOWA CABLE	18	3	BLK(1), WHT(2), GRN⊕	PG 11
5	5		05	BLACK NEOPRENE SO CABLE	16	3	BLK(1), WHT(2), GRN⊕	PG 11
6	6		06	BLACK RUBBER SV CABLE	18	3	BLK(1), WHT(2), GRN⊕	PG 9
7	7	*	07	BLACK/WHITE/GREEN TEW HOOK-UP	18	3	BLK(1), WHT(2), GRN⊕	ANY MINI / ISO CONDUIT
8	8		08	BLACK/WHITE TEW HOOK-UP	18	2	BLK(1),WHT(2)	ANY MINI / ISO CONDUIT
9	9	*	09	GRAY PVC CABLE	18	3	BLK(1), WHT(2), GRN⊕	STANDARD FOR PG11
A	10		10	GRAY PVC SJTO CABLE	16	3	BLK(1), WHT(2), GRN⊕	PG 11
B	11	*	11	GRAY PVC CABLE	22	3	BRN(1), WHT(2), GRN⊕	STANDARD FOR PG 7
C	12		12	BLACK/RED TEW HOOK-UP	18	2	RED(1), BLK(2)	ANY MINI / ISO CONDUIT
D	13		13	BLACK PVC PARALLEL BLADE CORDSET (6Ft.)	18	3	BLK(1), WHT(2), GRN/YEL⊕	PG 9
E	14		15	BLACK SJT TANDEM BLADE CORDSET (6Ft)	18	3	BLK(1),WHT(2), GRN/YEL⊕	PG 9
F	15		16	GRAY PVC CABLE	22	2	RED(1), BLK(2)	PG 7
G	16		17	GRAY PVC CABLE	22	2	BLK(1), WHT(2)	PG 7
H	17		19	GRAY PVC CABLE	22	2	RED(1), BLK(2)	PG 7
I	18		22	BLACK/WHITE TEW HOOK-UP	18	2	WHT(1), BLK(2)	ANY MINI / ISO CONDUIT
J	19		24	YELLOW PVC STO CABLE	16	3	BLK(1), WHT(2), GRN⊕	PG 11
K	20		25	BLACK RUBBER SJ / SJO CABLE	18	4	BLK(1), WHT(2), RED(3), GRN⊕	PG 11
L	25		28	BLACK PVC SVT PARALLEL BLADE CORDSET (2Ft)	18	3	BLK(1), WHT(2), GRN/YEL⊕	PG 9
M	30		29	BLACK PVC CABLE	18	3	BLU(1),BRN(2), GRN/YEL⊕	PG 9
N	35		33	RED/BLACK TEW	22	2	RED(1), BLK(2)	SUB-MICRO CONDUIT
O	N/A	*	36	BLK/WHT/GRN TEW	22	3	BLK(1), WHT(2), GRN⊕	SUB-MICRO CONDUIT
P	40		75	GRAY PVC CABLE	18	4	BLK(1), WHT(2), RED (3), GRN⊕	PG9
Q	45		76	BLK/WHT/RED/GRN TEW	18	4	BLK(1), WHT(2), RED (3), GRN⊕	ISO CONDUIT
R	50		77	BLK/WHT/RED/GRN TEW	22	4	BLK(1), WHT(2), RED (3), GRN⊕	SUB-MICRO CONDUIT

* Standard wire normally stocked, no cost added

Appendix B Wiring Installation

ALL WIRING DIMENSIONS ARE IN MILLIMETERS
ALL WIRE ENDS SHOULD BE STRIPPED TO 6.35 MILLIMETERS IN LENGTH



$$\text{Volts} = \sqrt{\text{Watts} \times \text{Ohms}}$$

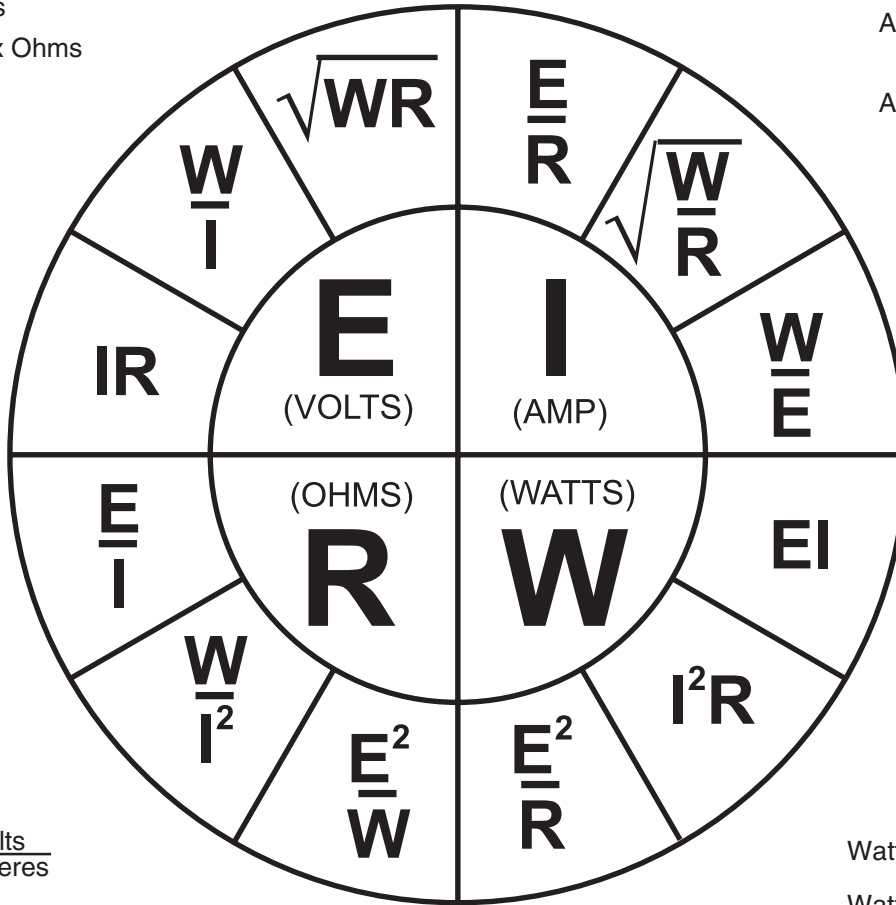
$$\text{Volts} = \frac{\text{Watts}}{\text{Amperes}}$$

$$\text{Volts} = \text{Amperes} \times \text{Ohms}$$

$$\text{Amperes} = \sqrt{\frac{\text{Watts}}{\text{Ohms}}}$$

$$\text{Amperes} = \frac{\text{Watts}}{\text{Volts}}$$

$$\text{Amperes} = \frac{\text{Volts}}{\text{Ohms}}$$



$$\text{Ohms} = \frac{\text{Volts}}{\text{Amperes}}$$

$$\text{Ohms} = \frac{\text{Volts}^2}{\text{Watts}}$$

$$\text{Ohms} = \frac{\text{Watts}}{\text{Amperes}^2}$$

$$\text{Watts} = \frac{\text{Volts}^2}{\text{Ohms}}$$

$$\text{Watts} = \text{Amperes}^2 \times \text{Ohms}$$

$$\text{Watts} = \text{Volts} \times \text{Amperes}$$

AC - Acronym for Alternating Current.

AMP (A) - Abbreviation of Ampere, a unit of measure for electrical current

AWG - American Wire Gage is a numerical standard used to refer to the diameter cross sectional area of a wire. Smaller numbers refer to larger cross sectional areas.

Bridge Rectifier - This is an electrical device made up of four diodes, which perform the function of full wave rectification (converts the full AC sine wave to DC).

Capacitor - This is an electronic device used to store an electric charge or to allow varying current to flow. The ideal capacitor will not allow steady state or DC current to flow. The capacitor is used in many applications including transient suppression, electrical noise filtering, timing circuits, etc.

Conductor - This is a material that can easily conduct (flow) electrical current. Metals are considered to be good conductors of electricity.

Current Surge - This is a short term (transient) condition causing a larger than normal amount of current to flow through a conductor. A current surge can often cause damage to an electrical device that is not properly protected.

DC - Acronym for Direct Current.

DIN - This is an acronym used for the Deutsches Institut fur Normung (German Standardization Institute).

DIN 43650 - A German standard stating the characteristics and requirements of connectors for magnetic valves used in hydraulics and pneumatics.

Diode - This is a solid state electronic component that allows current to flow in only one direction, similar to a check valve used in hydraulic or pneumatic applications. The diode is used in applications including transient suppression, power supply circuits etc.

Electronic Magnetic Sensor - This is a solid state device used to sense a magnetic field. Canfield Connector uses magneto-resistive sensors on all electronic magnetic sensors.

Gauss (Ga) - Unit of measure for magnetic flux density.

Ground - This term is used to define an electrical connection normally common to the chassis of a device or earth ground.

Hertz (Hz) - The unit of measure for frequency in cycles per second.

IP65 - An environmental protection rating of enclosures according to the German Standard DIN 40050.

ISO - This is an acronym used for the International Standards Organization.

LED - An acronym for Light Emitting Diode. A solid state diode which emits light when current passes through it in the proper direction.

MOV - An acronym for Metal Oxide Varistor. A solid state device used to suppress voltage surges/spikes.

NEMA - An acronym for National Electric Manufacturers Association.

Nitrile (Buna) - This is a rubber-like man-made material used extensively in gasket and sealing applications.

Normally Closed - The state of the output or switch is ON with no external influence.

Normally Open - The state of the output or switch is OFF with no external influence.

NPN (Sinking) - Acronym used to describe the polarization of bipolar junction transistors (BJTs). Also associated with a sinking output.

Opto-Coupled - Refers to a technique used to optically activate (turn on) an electronic device, usually a transistor or triac, and physically separate two sides of a circuit. This action is similar to a solenoid relay. The typical opto-coupler incorporates an LED (light emitting diode) as the actuating device.

Parallel Magnet Polarity - The term used to describe the polar orientation of the piston magnet with respect to the cylinder stroke. In this case, the north and south poles are oriented in the same direction parallel to the cylinder stroke.

Perpendicular Magnet Polarity - The term used to describe the polar orientation of the piston magnet with respect to the cylinder stroke. In this case, the north and south poles are oriented perpendicular to the cylinder stroke.

PNP (Sourcing) - Acronym used to describe the polarization of bipolar junction transistors (BJTs). Also associated with a sourcing output.

Rectification - This is a term used to describe an electrical process which converts AC (alternating current) to DC (direct current).

Reed Switch - This is a miniature mechanical switch that changes state when a magnetic field is applied.

Resistor - This is an electronic device that resists the flow of current. Higher resistor Ohm values offer more resistance to the flow of current.

Silicone - This is a rubber-like man-made material used extensively in gasket and sealing applications. It is very resistant to a wide range of chemicals including oils and solvents, and has a very wide temperature range.

Sinking - The term is used here to describe the way a switch is connected in the circuit. If the switch completes the electrical circuit by connecting the load to ground/(-), it is considered to be sinking the load. In a solid state device this is equivalent to a NPN output.

Solid State - This is a term often used to describe an electronic device made up of solid components (no moving parts).

Sourcing - The term is used here to describe the way a switch is connected in the circuit. If the switch completes the electrical circuit by connecting the load to the positive/(+), it is considered to be sourcing the load. In a solid state device this is equivalent to a PNP output.

SPST - Acronym used for **Single Pole Single Throw** switches.

SPDT - Acronym used for **Single Pole Double Throw** switches.

Transistor - This is a solid state device used in electronic circuits. It is often used in switching or amplifier applications.

Triac - This is a solid state device often used to switch AC voltage/current.

Volt (V) - The unit of measure for electrical potential.

Voltage Spike - This is a short term (transient) condition causing a larger than normal amount of voltage to be applied to a circuit. Voltage spikes can often cause damage to an electric device that is not properly protected.

Watt (W) - The unit of measure for electrical power.

A Case for Round Connectors

Canfield Connector makes a case for the best selection of Round Connectors for your sensor and automation needs.

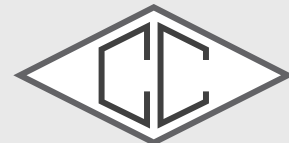
Canfield Connector's wide array of Round Connectors are designed to meet or surpass industry standards. Many of these NEMA rated connectors have UR approval. The molded assemblies have soldered connections. Field wireable versions include the industry's best strain relief design. Exclusive brass, machined terminal blocks and screws with cup points for a robust wire hold down are Canfield designs.



Canfield Connectors offer key features and first-class service.

Round Connectors offer a choice of configurations. ■ **M8 Series** is designed in screw-lock or push-in. ■ **M12 Single, Dual and Inverted Keyway Series** are polarized and offered as straight or 90° screw-lock designs. ■ **M12 Shielded Single Keyway Series** prevents stray electrical signals. **Connector options** include: ■ Panel Mount, ■ PCB Mount, ■ Custom cable lengths on molded units, ■ Various cable types and lengths on pre-wired units, ■ Integrated modified circuitry and ■ Y-Connectors linking two sensors on one IO Port.

Canfield Connector is ready to provide flexibility, selection and service, whether you need connectors by the unit or by the case. Call today to get connected.



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Timing is Everything Just Plug & POWER POWER POWER

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Canfield Connector's Solid State Timers are engineered to interface with numerous valve timing applications. These timers meet or surpass rigid industry standards, such as NEMA or CSA NRTL ratings. They boast built-in surge suppression, a repeat accuracy of +/- .1-5%, voltage range of 12-240 VAC/DC, compactness and durability that make them popular for limited spaces and rugged installations.

Timers that keep time with your production



Canfield Connector's Timers have DIN interfaces and provide LED light(s) for trouble shooting. These modular timer series include:

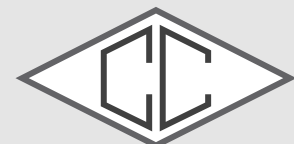
- **MLT**, with eight logic functions and 13 time ranges from .1 second to 33.3 minutes, and
- the ■ **CRT** and ■ **Sandwich CRT** having the same 1 minute to 45 minute time ranges. The Sandwich CRT features easy to use dials to control time ranges.

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NOTES

Can-Pak, Quick-Ship Program

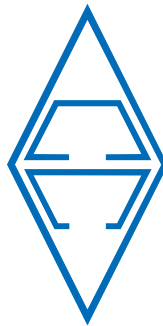


Look for the Can-Pak logo throughout this catalog for extra-value prepackaged parts, exclusively from Canfield Connector.

The Can-Pak, Quick-Ship Program enables customers to purchase select groups of prepackaged popular Canfield Connector products for fast delivery at lower costs. Depending on the product and specific requirements listed, these prepackaged units components can be ordered in quantities of 10, 25, 50 or 100 per Can-Pak.

Check page 4 through 7 for a complete list of fully warranted Can-Pak products. For further Can-Pak data, contact your Canfield Connector Representative.

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Canfield Connector assures built-in quality, so you can concentrate on your customers.

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Assures you of the industry's best selection and service

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