



The BradControl™ IP67 I/O modules provide a reliable solution for connecting industrial controllers to I/O devices in harsh environments.

## Ethernet Discrete I/O Module

### IP67 Classic Module

#### Features

- Supports Modbus TCP (TCP/IP & UDP)
- Accepts M12 threaded connectors or BradConnectivity™ Ultra-Lock™ connection system
- Standard hole pattern allows for interchangeability with popular I/O modules
- Supports PNP & NPN input devices
- Several I/O configurations to choose from
  - TCDEM-8YYX-DIU offers 16 points of configurable I/O where the user can configure each point as either an input or output
- Ability to control I/O through the use of sockets
- Visible LEDs provide maintenance personnel with the ability to easily determine I/O, module & network status
- Rated IP67 for harsh environments
- Designed for direct machine mount applications
- IP addressing via Bootp, DHCP or static (through web interface, push button & Modbus commands)
- Scrolling 4 characters status display for IP addressing and module status
- Built-in 2-port Ethernet switch
  - 10/100 Mbps auto-sensing and crossover capability
- Built-in web server for remote monitoring, configuration and diagnostics
- Configurable I/O capability (through web interface & Modbus commands)
- Watchdog

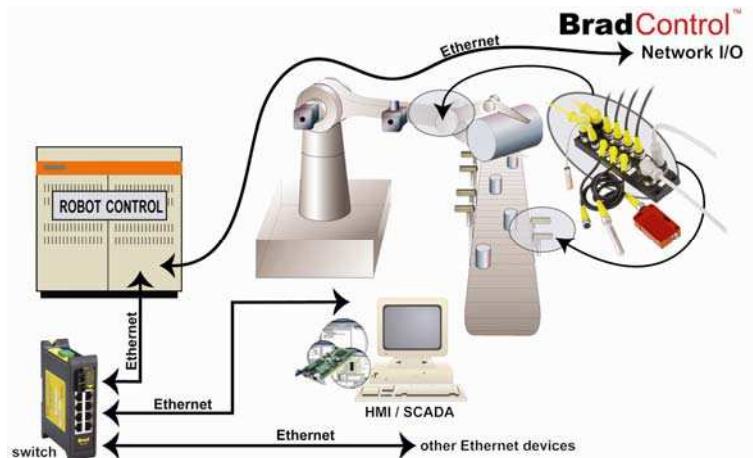
#### Typical Applications

- Machine tool industry
- Material handling systems
- Filling & packaging
- Steel industry



### I/O Systems for Harsh Duty Environments

BradControl™ Ethernet I/O modules provide a reliable solution for connecting industrial controllers to I/O devices in harsh duty environments.



Contained in an IP67 rated housing, BradControl I/O modules can be machine mounted and are able to withstand areas where liquids, dust or vibration may be present. This makes them ideally suited for many applications including material handling equipment and automated assembly machinery.

Advanced network features such as 10/100 Mbps auto-sensing, web server capabilities and a flexible IP address setup method, make configuration and operation simple. Following traditional industrial fieldbus practices, standard M12 connectors from sensing devices or actuators plug directly into the I/O module. An environmentally sealed IP67 connection between the I/O module and the Ethernet network is created using the Ultra-Lock™ connection system built into the BradControl Ethernet I/O module.

## Ethernet I/O Module



## LED Indicators

## Module &amp; Input Power (I):

Green –power present  
Off –power not connected

## Output Power (O):

Green –power present  
Off –power not connected

## Display Box:

Inform about Ethernet address, IO  
and Watchdog status

## Input / Output (Ix / Ox):

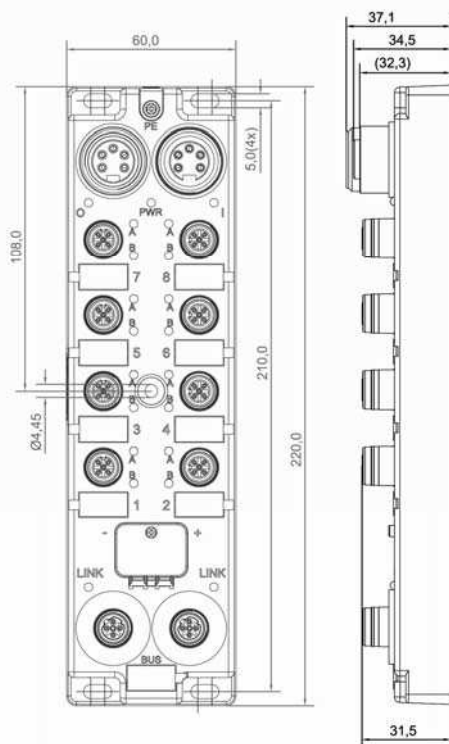
Green – input/output on  
Red – input/output fault  
Off – input/output off

## Ethernet Link (LNK 1/2):

Solid Green– Ethernet link at 100 Mbit/s  
without activity.  
Flashing Green– Ethernet link at 100 Mbit/s  
with activity.

Solid Yellow– Ethernet link at 10 Mbit/s  
without activity.

Flashing Yellow – Ethernet link at 10 Mbit/s  
with activity.



## Technical Information

I/O Configurations	16 inputs 14 inputs / 2 outputs 12 inputs / 4 outputs 8 inputs / 8 outputs Universal & user configurable input / output channels
I/O Connectors	Micro-Change <sup>®</sup> 5-pole M12 female BradConnectivity <sup>™</sup> Ultra-Lock <sup>™</sup> , internally threaded
Ethernet Connectors	2 connectors 4-pole female M12 D-Coded Ultra-Lock Acting as a switch. Crossover capability
Power Connectors	Power in : male Mini-Change <sup>®</sup> 5-pole Power out : female Mini-Change 5-pole
Power Requirements	Module & input power : 24 Vdc, Module output power : 24 Vdc (13 to 28 V), 8A max per module
Communications Rate	10/100 Mbps auto-sensing, auto-detecting, full duplex
IP Address Capabilities	BOOTP (default), DHCP, static address
Fieldbus specification	Modbus (TCP & UDP)
Input Type	Compatible with dry contact and PNP or NPN 3-wire switches. Electronic short circuit protection
Input Delay	2.5 ms default or Configurable through Modbus messaging
Input Device Supply	200 mA per port at 25°C
Output Load Current	Maximum 2.0 A per channel Electronic short circuit protection
Maximum Switching Frequency	200 Hz
Housing Dimensions	60mm x 220mm x 20mm (2.36 x 8.66 x .78 inches)
Mounting Dimensions	37.5 mm (1.48 inches) horizontal on centers 210 mm (8.27 inches) vertical on centers Center hole
Operating Temperature	-20°C to 70°C (-4°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Protection	IP67 according to IEC 60529, NEMA 6P
Vibration	MIL-STD-202F, method 204D, condition A
Mechanical Shock	MIL-STD-202F, method 213B, condition B
Thermal Shock	MIL-STD-1344A
Approvals	CE, UL, CUL

## Ordering Information

Part Number	Product Description
TCDEM-8D0N-D1U	Digital 8 port, 16 in NPN
TCDEM-8C2N-D1U	Digital 8 port, 14 in & 2 out NPN
TCDEM-8B4N-D1U	Digital 8 port, 12 in & 4 out NPN
TCDEM-888N-D1U	Digital 8 port, 8 in & 8 out NPN
TCDEM-8D0P-D1U	Digital 8 port, 16 in PNP
TCDEM-8C2P-D1U	Digital 8 port, 14 in & 2 out PNP
TCDEM-8B4P-D1U	Digital 8 port, 12 in & 4 out PNP
TCDEM-888P-D1U	Digital 8 port, 8 in & 8 out PNP
TCDEM-8YYX-D1U	Digital 8 port, 16 I/O universal & user configurable input / output channels

To contact us: [www.woodhead.com](http://www.woodhead.com)

Reference Number: DW2007208 Date Published: July 2007

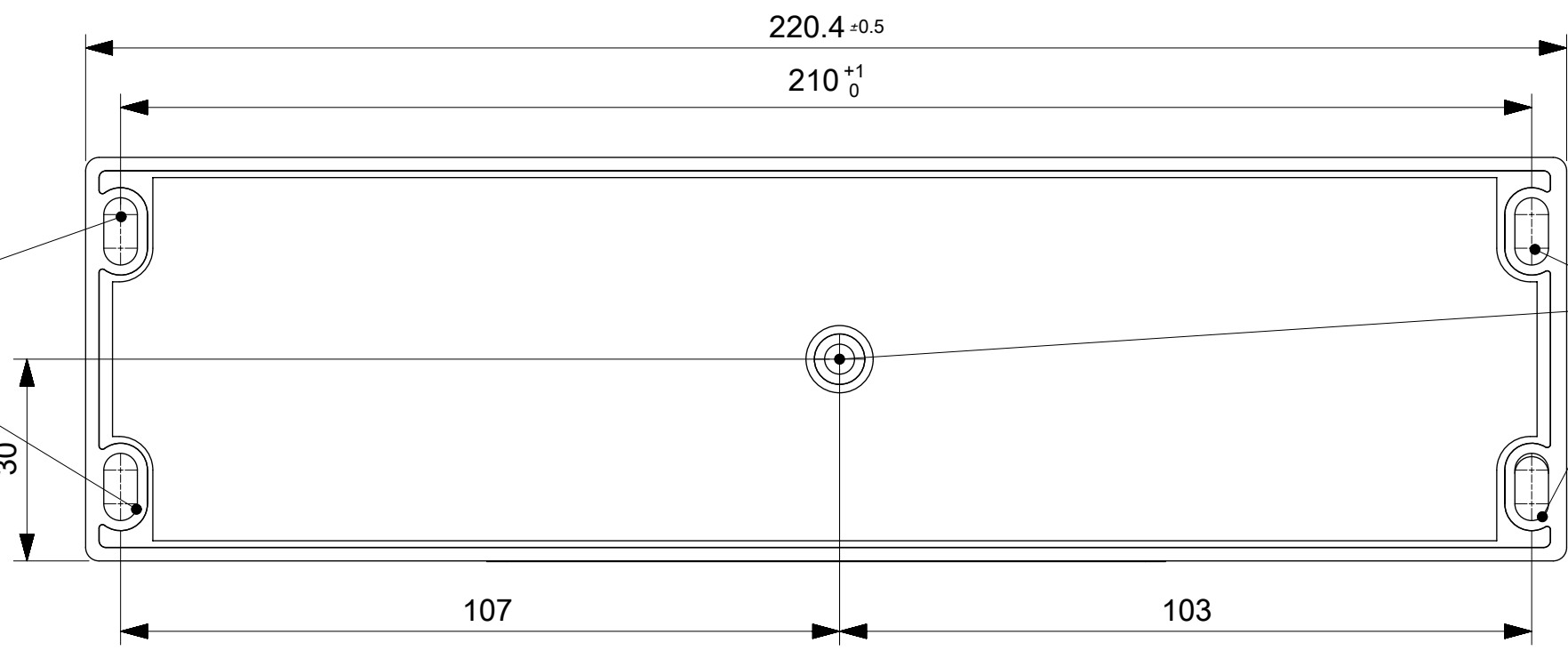
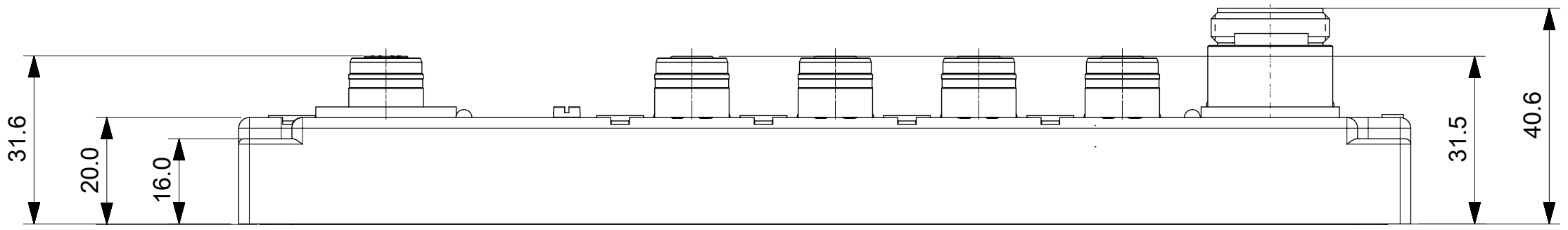
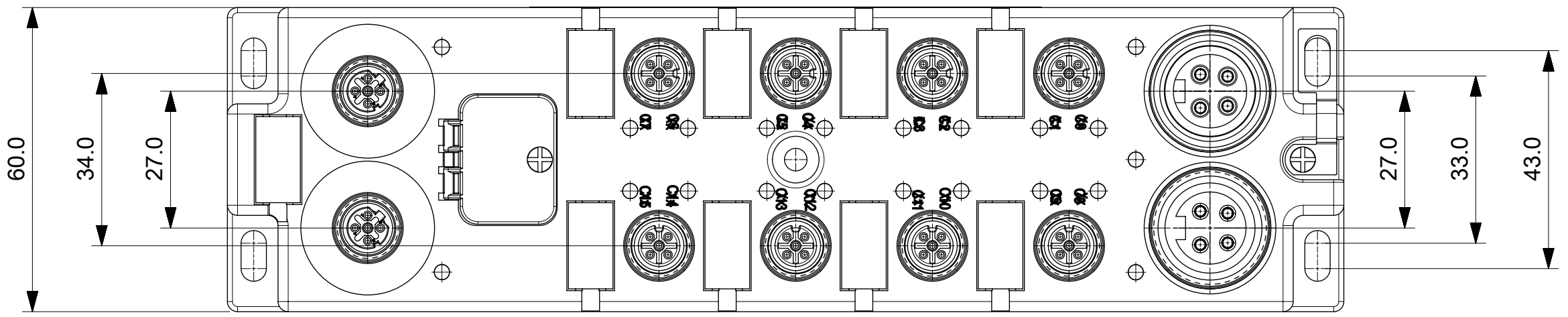
North America: US: +1-800-225-7724 – Canada: +1 (905) 624-6518

Europe: France: +33 (0)1 64 30 91 36 – Germany: +49 7252/94 96-0 – Italy: +39 026-6400321  
United Kingdom: +44 1495 356300

Asia: Shanghai, China: +86 21-5835-9885 – Tianjin, China: +86 22-23321717

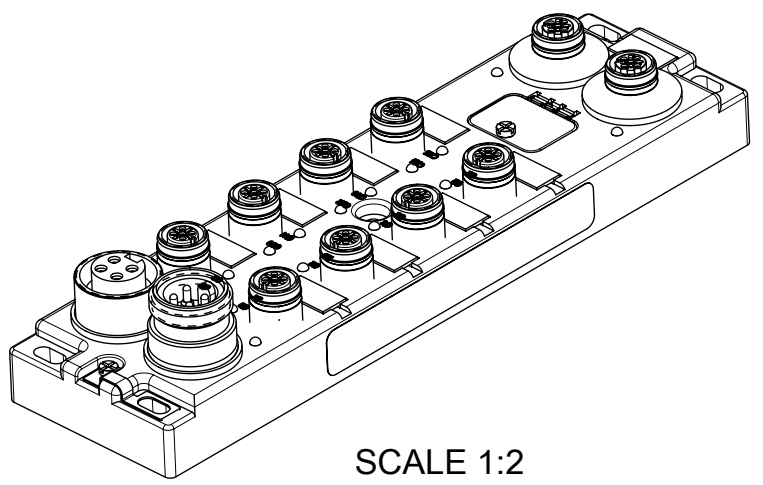
Singapore: +65 6268-6868 – Yamato, Japan: +81 46-265-2428 – Nagoya, Japan: +81 52-221-5950

**BradControl**<sup>™</sup>



FIXING HOLES  
SUITABLE FOR M5  
SCREWS

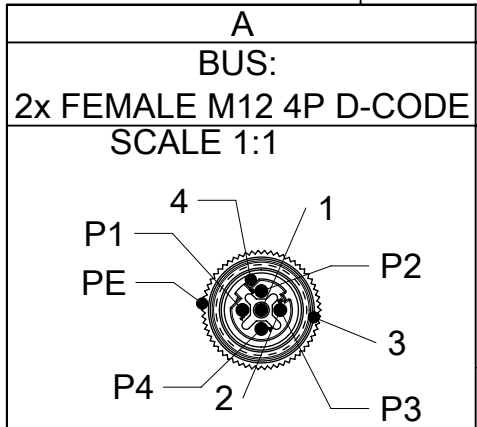
FIXING HOLES  
SUITABLE FOR M5  
SCREWS



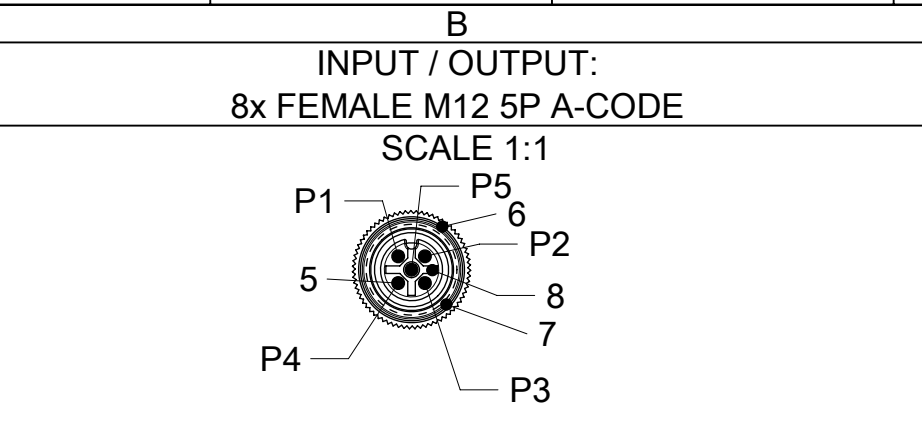
SCALE 1:2

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	PRODUCT CUSTOMER DRAWING							
	SERIES	MATERIAL NUMBER	CUSTOMER					
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DOCUMENT NUMBER			DOC TYPE	DOC PART	SHEET NUMBER			
1120950007			PSD	000	1 OF 8			

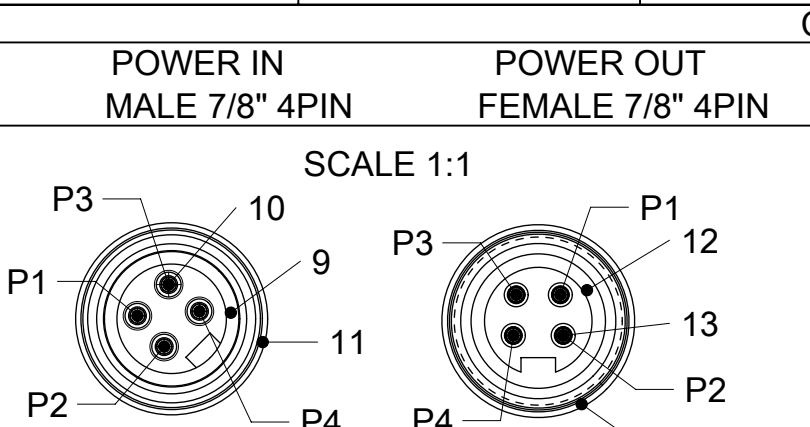


**WIRING INFORMATION**  
P1 TX+  
P2 RX+  
P3 TX-  
P4 RX-

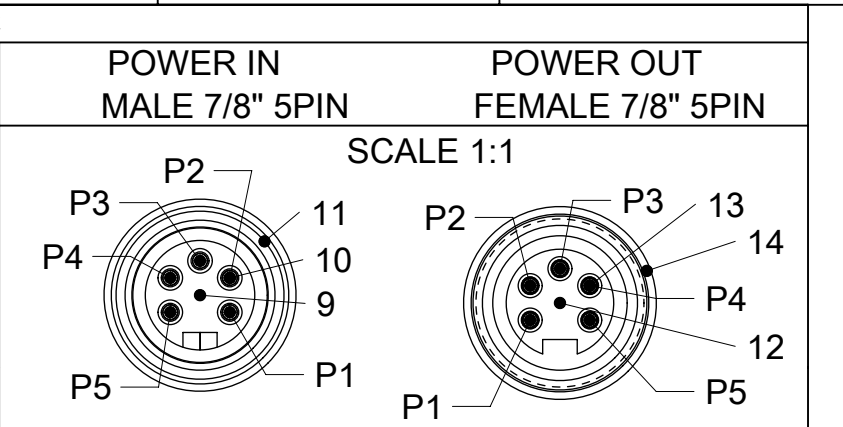


**WIRING INFORMATION INPUT**  
P1 - +24 VDC  
P2 - Input (even)  
P3 - 0 V (Ground)  
P4 - Input (odd)  
P5 - PE (Protected Earth)

**WIRING INFORMATION OUTPUT**  
P1 - N/C  
P2 - Output (even)  
P3 - 0 V (Ground)  
P4 - Output (odd)  
P5 - PE (Protected Earth)



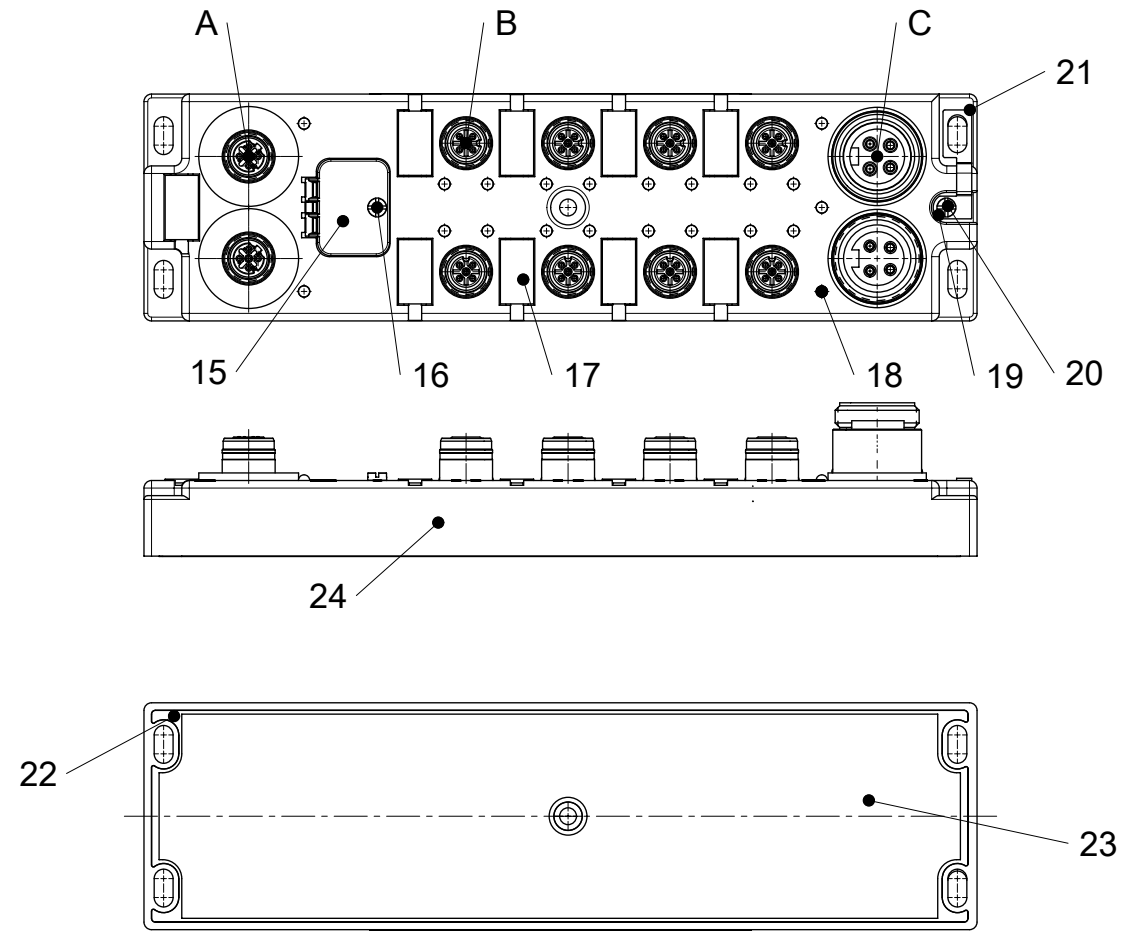
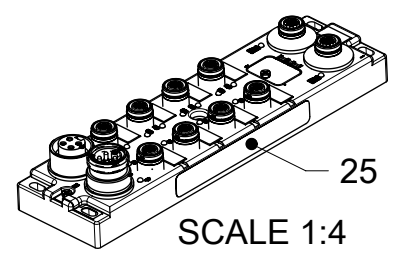
**WIRING INFORMATION**  
P1 - +24 VDC (Outputs Power)  
P2 - +24 VDC (Module & Inputs Power)  
P3 - 0 V (Module & Inputs Power)  
P4 - 0 V (Outputs Power)



**WIRING INFORMATION**  
P1 - 0 V (Outputs Power)  
P2 - 0 V (Module & Inputs Power)  
P3 - PE (Protected Earth)  
P4 - +24 VDC (Module and Inputs Power)  
P5 - +24 VDC (Outputs Power)

**BILL OF MATERIAL**

ITEM	DESCRIPTION	MATERIAL	FINISH
1	INSERT	TPU	BLACK
2	CONTACT	COPPER ALLOY	GOLD OVERNICKEL
3	SHELL	BRASS	NICKEL PLATET
4	GASKET	FPM	RED
5	CONTACT	COPPER ALLOY	GOLD OVER NICKEL
6	GASKET	FPM	RED
7	SHELL	BRASS	NICKEL PLATET
8	INSERT	TPU	BLACK
9	INSERT	TPE	YELLOW
10	CONTACT	COPPER ALLOY	GOLD OVERNICKEL
11	SHELL	BRASS	NICKEL PLATET
12	INSERT	TPE	YELLOW
13	CONTACT	COPPER ALLOY	GOLD OVER NICKEL
14	SHELL	BRASS	NICKEL PLATET
15	WINDOW	PC	TRANSPARENT
16	SCREW	V2A	-
17	LABEL	PC	WHITE
18	FIBER OPTIC	PA	TRANSPARENT
19	WASHER	BRASS	NICKEL PLATET
20	SCREW	V2A	-
21	SHIELD PLATE	STAINLESS STEEL	-
22	RESIN	EPOXY	TRANSPARENT
23	LABEL	PVC	WHITE
24	HOUSING	PBT	BLACK
25	LABEL	PVC	YELLOW

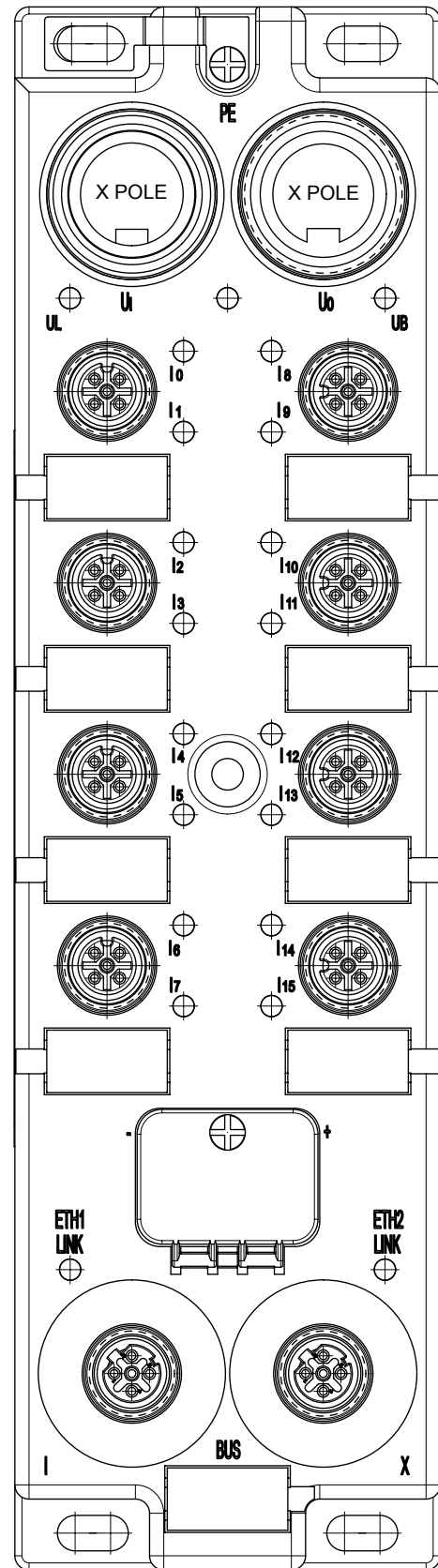


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	APPR BY RSILLER	DATE 2015/06/25	DRAWING SIZE A3	THIRD ANGLE PROJECTION	
PRODUCT CUSTOMER DRAWING					SERIES: 112095 MATERIAL NUMBER: SEE TABLE 1,2,3,4,5,6 CUSTOMER: GENERAL MARKET
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16 IN PRINTING

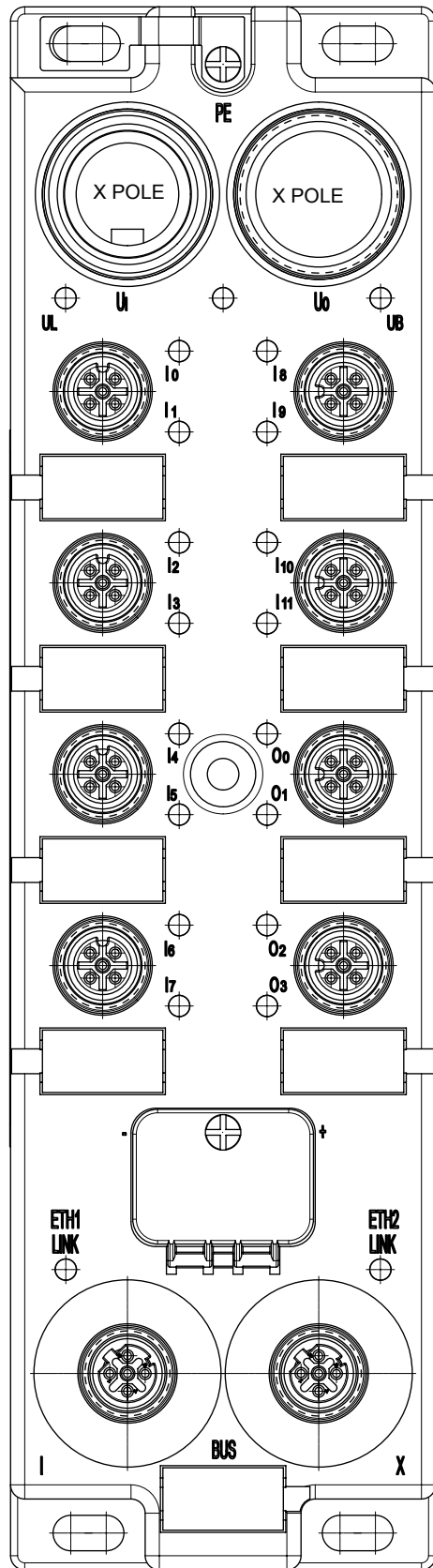
TABLE 2 16 IN PRINTING

POWER TYPE	INPUT/OUTPUT	EtherNet/IP		PROFINET		3D MODEL NO.	
		ENG. NO	MOLEX P/N	ENG. NO	MOLEX P/N		
7/8" 5 POLE	PNP	16I	TCDEI-8D0P-D1U-G	1120955060	TCDEP-8D0P-D1U-G	1120955048	1120950007 (PDM)
7/8" 4 POLE		16I	TCDEI-8D0P-DYU-G	1120955040	TCDEP-8D0P-DYU-G	1120955052	1120950007 (PDM)
		16I	TCDEI-8DOP-DYU-G01	1120955002			
		16I	TCDEI-8D0P-DYU-G02	1120955137			

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	DRWN BY ULETTENMEIER	DATE 2015/01/19	CHK'D BY	DATE	PRODUCT CUSTOMER DRAWING			
	APPR BY RSILLER	DATE 2015/06/25	DRAWING SIZE A3	THIRD ANGLE PROJECTION				
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12I/4O PRINTING

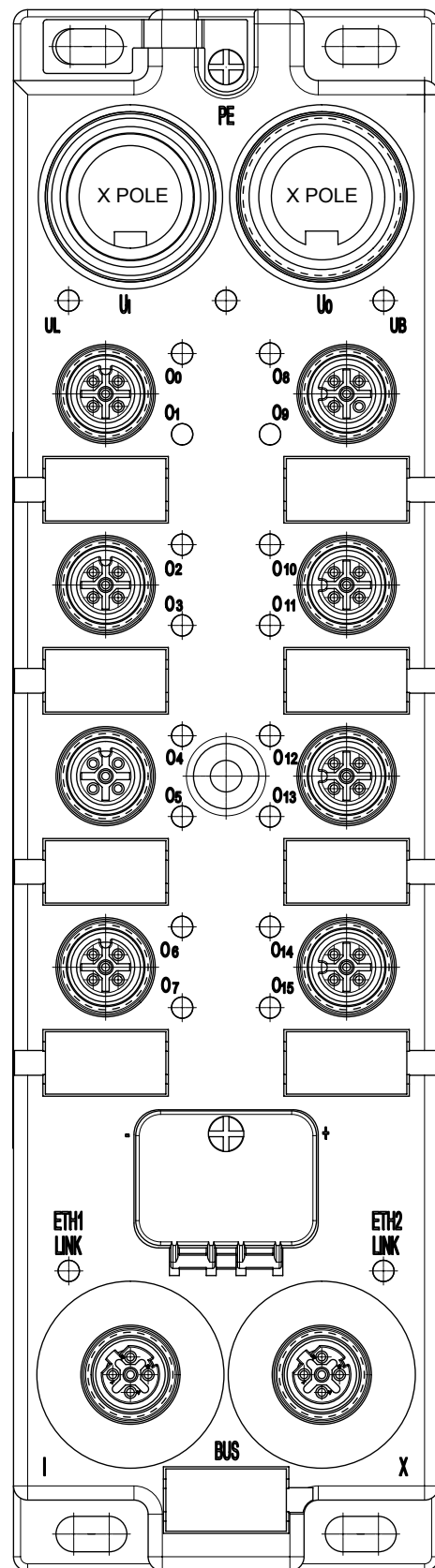
TABLE 4 12I/4O PRINTING

POWER TYPE	INPUT/OUTPUT	EtherNet/IP		PROFINET		3D MODEL NO.	
		ENG. NO	MOLEX P/N	ENG. NO	MOLEX P/N		
7/8" 5 POLE		12I/4O	TCDEI-8B4P-D1U-G	1120955063	TCDEP-8B4P-D1U-G	1120955051	1120950007 (PDM)
7/8" 4 POLE	PNP	12I/4O	TCDEI-8B4P-DYU-G	1120955043	TCDEP-8B4P-DYU-G	1120955054	1120950007 (PDM)
		12I/4O	TCDEI-8B4P-DYU-G01	1120955073			

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	REV	DRWN BY ULETTENMEIER DATE 2015/01/19	CHK'D BY DATE APPR BY RSILLER DATE 2015/06/25	DRAWING SIZE A3 THIRD ANGLE PROJECTION	DBO ETH 60 MM 7/8" 4P/5P AC MA FE U12 5P U12 4P 2PT DC FE			
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	112095 SEE TABLE 1,2,3,4,5,6 GENERAL MARKET			DOCUMENT NUMBER	DOC TYPE	DOC PART	SHEET NUMBER	
	1120950007 PSD 000 6 OF 8							





160 PRINTING

TABLE 5 160 PRINTING

POWER TYPE	INPUT/OUTPUT	EtherNet/IP		PROFINET		3D MODEL NO.	
		ENG. NO	MOLEX P/N	ENG. NO	MOLEX P/N		
7/8" 5 POLE	PNP	160	TCDEI-80DP-D1U-G	1120955062	TCDEP-80DP-D1U-G	1120955049	1120950007 (PDM)
7/8" 4 POLE		160	TCDEI-80DP-DYU-G	1120955042	TCDEP-80DP-DYU-G	1120955055	1120950007 (PDM)
		160	TCDEI-80D8-DYU-G01	1120955074			

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	REV	DRWN BY ULETTENMEIER DATE 2015/01/19	CHK'D BY DATE APPR BY RSILLER DATE 2015/06/25	DRAWING SIZE A3 THIRD ANGLE PROJECTION	DBO ETH 60 MM 7/8" 4P/5P AC MA FE U12 5P U12 4P 2PT DC FE			
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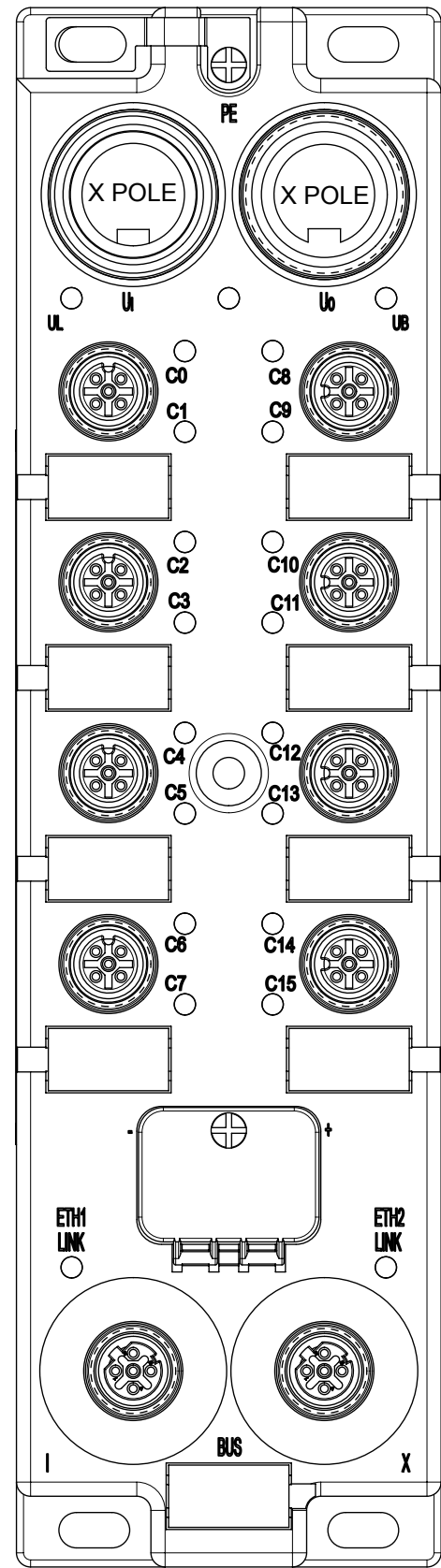


TABLE 6 16 USER CONFIG PRINTING

		PROFINET		3D MODEL NO.
POWER TYPE	INPUT/OUTPUT	ENG. NO	MOLEX P/N	
7/8" 5 POLE	USER CONFIG	TCDEP-8YYX-D1U-01	1120955115	1120950007 (PDM)
7/8" 4 POLE		TCDEP-8YYX-DYU-01	1120955114	

<b>QUALITY SYMBOLS</b> 	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION											
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		3 PLACES ±		3 PLACES ±		CHK'D BY:		DATE:				
		2 PLACES ±		2 PLACES ±		APPR BY: RSILLER		DATE: 2015/06/25				
		1 PLACE ± 0.3		1 PLACE ± 0.3		DRAWING SIZE: A3		THIRD ANGLE PROJECTION				
	0 PLACES ± 0.5		0 PLACES ± 0.5		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS				PRODUCT CUSTOMER DRAWING SERIES: 112095 MATERIAL NUMBER: CUSTOMER: GENERAL MARKET			
	A1		REV APPR:		DOCUMENT NUMBER: 1120950007		DOC TYPE: PSD		DOC PART: 000		SHEET NUMBER: 8 OF 8	