Brad® HarshIO IP67 Ethernet Modules for EtherNet/IP featuring QuickConnect technology deliver significant operational advantages of speed and versatility for industrial robotic tool-change applications

Brad® HarshIO Ethernet modules provide a reliable solution for connecting industrial controllers to I/O devices in harsh duty environments. Machine mountable in an IP67 rated housing, HarshIO modules are ideally suited for industrial applications in harsh environments where liquids, dust or vibration may be present.

Modern industrial robots, with automatic tool change (ATC) capabilities increase the flexibility of production lines and reduce the number of robots required per cell. Achieving shorter production cycles is possible through minimising ATC time. The Brad HarshIO modules for EtherNet/IP feature QuickConnect (QC) technology. Meeting requirements from automobile manufacturers and conforming to QC Class A device requirements, the Brad HarshIO module for EtherNet/IP can power-up and operate in less than 500ms.

Advanced features such as built-in 2-port Ethernet switch, scrolling 4 character display and a flexible IP address-setup method make configuration and operation simple. Using the patented Ultra-Lock™ push-to-lock connection system, standard M12 connectors from sensing devices or actuators plug directly into the I/O module creating an IP67 environmentally sealed, Ethernet connection. For more information on Brad HarshIO modules visit www.molex.com/link/harshio.html

FEATURES AND BENEFITS

- Rated IP67 for harsh environments
- Designed for direct machine-mount applications
- Shock and vibration tested
- Overmolded module electronics
- Metallic connectors
- 4-pole or 5-pole 7/8 power connectors
- Accepts standard M12 threaded or Brad Ultra-Lock connectors
- Standard hole housing pattern allows for interchangeability with popular I/O modules
- Choice of fixed I/O module versions
- Visible diagnostic LEDs provide maintenance personnel with the ability to easily determine I/O, module and network status
- Advanced diagnostics
- Short-circuit diagnostics per I/O channel
- Supports EtherNet/IP Adapter
- Complete module and channel diagnostics supported via EtherNet/IP
- Scrolling 4 characters status display for IP addressing and modules status
- IP addressing: DHCP or static (push button or EtherNet/IP 0xF5/0xF6 objects)
- Built-in 2-port Ethernet switch, 10/100 Mbps auto-sensing and crossover capability
- NEW! QuickConnect capability to start and operate the module in less than 500ms
- NEW! Grounding isolation between input/logic ground and output ground for application using safety relays

MARKETS AND APPLICATIONS

- Factory Automation
  - All industries using robots for repetitive tasks with precision
  - Machine tool industry
  - Automotive
  - Material handling systems
  - Filling and packaging machines
  - Steel industry

1. Cabinet with EtherNet/IP PLC
2. Robot
3. HarshIO eIP modules
4. Tool Changer
5. 24V power supply
6. Ethernet Switch
7. RJ45 to M12 adapter
SPECIFICATIONS

I/O Configurations:
- 16x inputs
- 12x inputs / 4x outputs
- 8x inputs / 8x outputs
- 16x outputs

I/O Connectors:
- Female, Ultra-Lock™ M12, A-Coded, 5-pole

Bus Connectors:
- Male, Brad Ultra-Lock™ M12, D-Coded, 4-pole

Power Connectors:
- Power In: Male Mini-Change®, 4- or 5-pole
- Power Out: Female, Mini-Change®, 4- or 5-pole

Power Requirements:
- Module Input power: 24V DC (-15/+20%)
- Module Output power: 24V DC (-15/+20%)
- 8.0 A max per module

Ethernet Switch:
- 2-port
- 10/100 Mbps (auto-negotiation), full duplex

Storm Protection:
- EtherNet/IP Adapter
- I/O update rate up to 1ms (RPI)
- Implicit messages (for I/O data)
- Explicit messages (for reading module configuration and diagnostic)
- Quick Connect: Yes (Class A)
- ACD: Yes
- Upload EDS file from Device object: Yes
- IP Address Capabilities:
  - DHCP
  - Static address
  - EtherNet/IP 0xF5/0xF6 objects

Fieldbus:
- EtherNet/IP Adapter
- I/O update rate up to 1ms (RPI)
- Implicit messages (for I/O data)
- Explicit messages (for reading module configuration and diagnostic)
- Quick Connect: Yes (Class A)
- ACD: Yes
- Upload EDS file from Device object: Yes
- IP Address Capabilities:
  - DHCP
  - Static address
  - EtherNet/IP 0xF5/0xF6 objects

Input Type:
- Compatible with dry contact, PNP,
- 2/3-wire sensors
- Electronic short circuit protection

Input Delay: 5ms

Input Device Supply:
- 140mA per port at 25°C

Output Load Current:
- Maximum 2.0A per channel
- Electronic short circuit protection

Maximum Switching Frequency: 200 Hz

Housing Dimensions:
- 600 x 220 x 20mm

Mounting Dimensions:
- 37.50mm horizontal on centers
- 210mm vertical on centers
- Center hole

Operating Temperature: -25 to +70°C

Storage Temperature: -40 to +90°C

EMC: IEC 61000-6-2

Protection:
- IP67 according to IEC 60529, NEMA 6P
- Vibration: 7g (15.7Hz to 500Hz), 3 axis
- Mechanical Shock: 10g, 11ms, 3 axis
- Thermal Shock: MIL-STD-1344A

Approvals:
- CE, UL, cUL, RoHS, REACH
- ODVA conformance tested (pending)

LED INDICATORS

Module and Input Power (UB):
- Green – power present
- Off – power not connected

Output Power (UL):
- Green – power present
- Off – power not connected

4-Digit Display:
- Provides information about EtherNet IP address, I/O Status, Scanner connection, etc.

ORDERING INFORMATION

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EtherNet/IP is a trademark of Open DeviceNet Vendor Association (ODVA)