molex®

Brad HarshIO IP67 Modules for EtherNet/IP featuring CIP Safety technology deliver significant operational advantages of protection and versatility for industrial safety applications

Brad® HarshIO Ethernet modules provide a reliable solution for connecting industrial safety controllers to sensors and actuators 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.

More particularly, the HarshIO modules are designed for use in safety applications. It communicates on EtherNet/IP using the CIP Safety protocol with sensors and actuators like: emergency stop, light curtain, area scanner, muting lamp… The combination of EtherNet/IP and CIP safety protocols allow exchanging safety and standard control data and diagnostics information over a single Ethernet network. The compact footprint offers **12 safe inputs** and **4 safe outputs**. This combination is ideal for automotive applications running robots into cells. The on-board memory key allows the module replacement in a minute without any special tool or re-commissioning.

Advanced features such as built-in 2-port Ethernet switch with DLR, diagnostic leds, 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 visit: www.molex.com/link/harshio.html

Features and Benefits

IP67-rated	• Suitable for harsh environments and direct on-machine mounting without need for protective cabinet • Dust and water resistant. • Tested to withstand shock, high-vibration and high temperatures • Module is potted with resin and use metallic connectors
TÜV and ODVA certified	• Conform EN 61508 SIL3, Cat4 Ple according to ISO 13849-1 • Safe design with self-monitoring and diagnostics leds • Mission time > 20 years
Versatile	• 5-pin and 4-pin Mini-Change power connectors versions • 12 safe Inputs + 4 safe Outputs • Supports connection of single and dual channel safety devices • Digital Bipolar Outputs to driver up to 2A per dual channel • Can connect to both standard and safety rated sensors • Use test pulses for connected standard outputs: diagnostics, panel lamps, buzzer, standard actuators • Memory key for configuration saving and easy replacement
Rockwell Automation ready	• Compatible with all Rockwell GuardLogix™ controllers • Easy commissioning thanks to Molex SNCT software and RA RSLogix™ 5000 • Upload EDS file from module using RSLinx
Compact Design	• Save space on your machine • M12 cable connection to dual-channel devices on inputs and outputs using Ultra-Lock push-to-lock connection
Integrated 2-port switch	• Daisy-chain wiring possible; wire entire application without switches; achieve cost savings • DLR support for Ethernet redundancy

Brad® HarshIO 600 Safety Digital I/O

112095
IP67 Ethernet I/O Modules

EtherNet/IP™

CIP Safety™

Brad IP67 EtherNet/IP
CIP Safety Module

12x safe Inputs + 4x Safe Outputs

For use in safety applications,
up to **SIL3, Cat4/Ple**

molex®

Applications

Factory automation
- Automotive assembly lines
- Automotive body shop
- Material handling

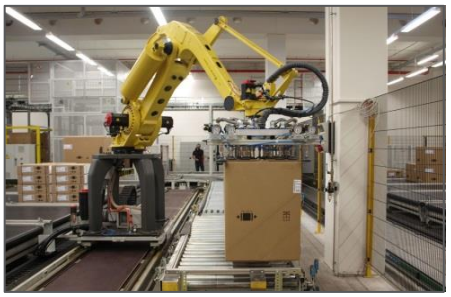
Machine builders
- Complex machines
- CNC machines
- Robotics

Process control
- Agro food industry
- Oil & Gas
- Pharmaceutical

Automotive Assembly Line

Brad® HarshIO 600 Safety Digital I/O

112095
IP67 Ethernet I/O Modules



Material Handling

Food and Beverage processing

Specifications

Digital Inputs
- 12 safety inputs (PNP)
- 12 test pulses
- Diagnostic leds
- Short Circuit Protection and Overcurrent Protection
- Sensor Power Supply: 700mA per
- Input delay (ON – OFF and OFF – ON)
- Connector: M12, 5-pin, female, stainless steel

Digital Outputs
- 4 safety outputs or 2 bipolar safety outputs
- Output Current:
  - Sourcing PNP version: max. 1A per channel
  - Bipolar version: max. 2A per dual channel (current sourcing/current sinking pair)
- Pulse test configurable
- Diagnostic leds
- Short Circuit Protection and Overcurrent Protection
- Output delay (ON – OFF and OFF – ON)

Standard and Pulse Test Outputs
- 12 pulse test
- Pulse Test Output Current
- Pulse Test Output Leakage Current
- Short Circuit Protection
- Overcurrent Protection

Fieldbus:
- EtherNet/IP CIP Safety Adapter
- Support ODVA CIP Safety I/O generic profiles
- I/O update rate up to 10ms (RPI)
- Data access:
  - Implicit messages (for I/O data)
  - Explicit messages (for read/write module configuration and diagnostic)
- ACD: Yes
- IP Address Capabilities: DHCP, Static Address, EtherNet/IP 0xF5/0xF6 objects

General
- IP67 housing
- Dimensions: 238 x 60 x 48mm
- Operating temperature: -25° ... +70°C
- Storage temperature: -40° ... +70°C
- Relative Humidity: 10...95%, non-condensing
- Firmware upgradable
- Overmolded Memory key: Internal or M8

Shock and Vibration
- MIL-STD-202F, method 204D, condition A (Vibration)
- MIL-STD-202F, method 213B, condition B (Mechanical Shock)
- MIL-STD-1344A (Thermal Shock)

Power Connectors
- Power In: Male Mini-Change, 4- or 5-pole
- Power Out: Female, Mini-Change, 4- or 5-pole
- Protected against power crossing

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

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

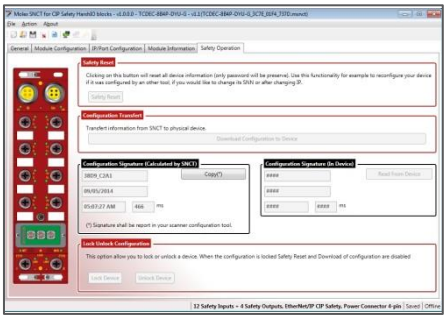
Certifications / Regulatory Approvals
- TÜV certified
- ODVA conformance
- CE, RoHS, REACH, UL/cUL
- Korean CC, China (CCC)

Brad® HarshIO 600 Safety Digital I/O

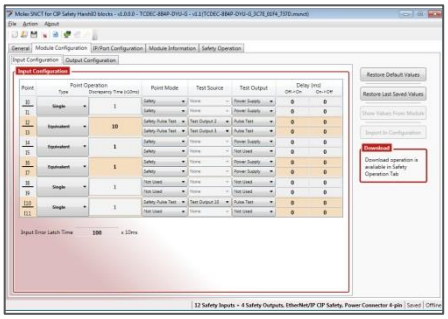
112095
IP67 Ethernet I/O Modules

SNCT - Configuration Software

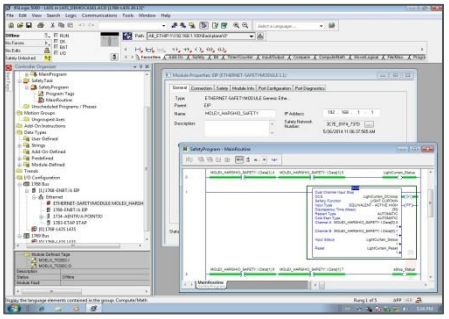
Molex SNCT software allows configuring and diagnosing HarshIO Safety module. Nice features like HarshIO online discovery, copy and paste to and from RSLogix 5000 (SNN, Signature), safety lock, password protection provide a simple and fast solution for your commissioning. SNCT is free and available on Molex web site.



HarshIO SNCT –
Software Network Configuration Tool

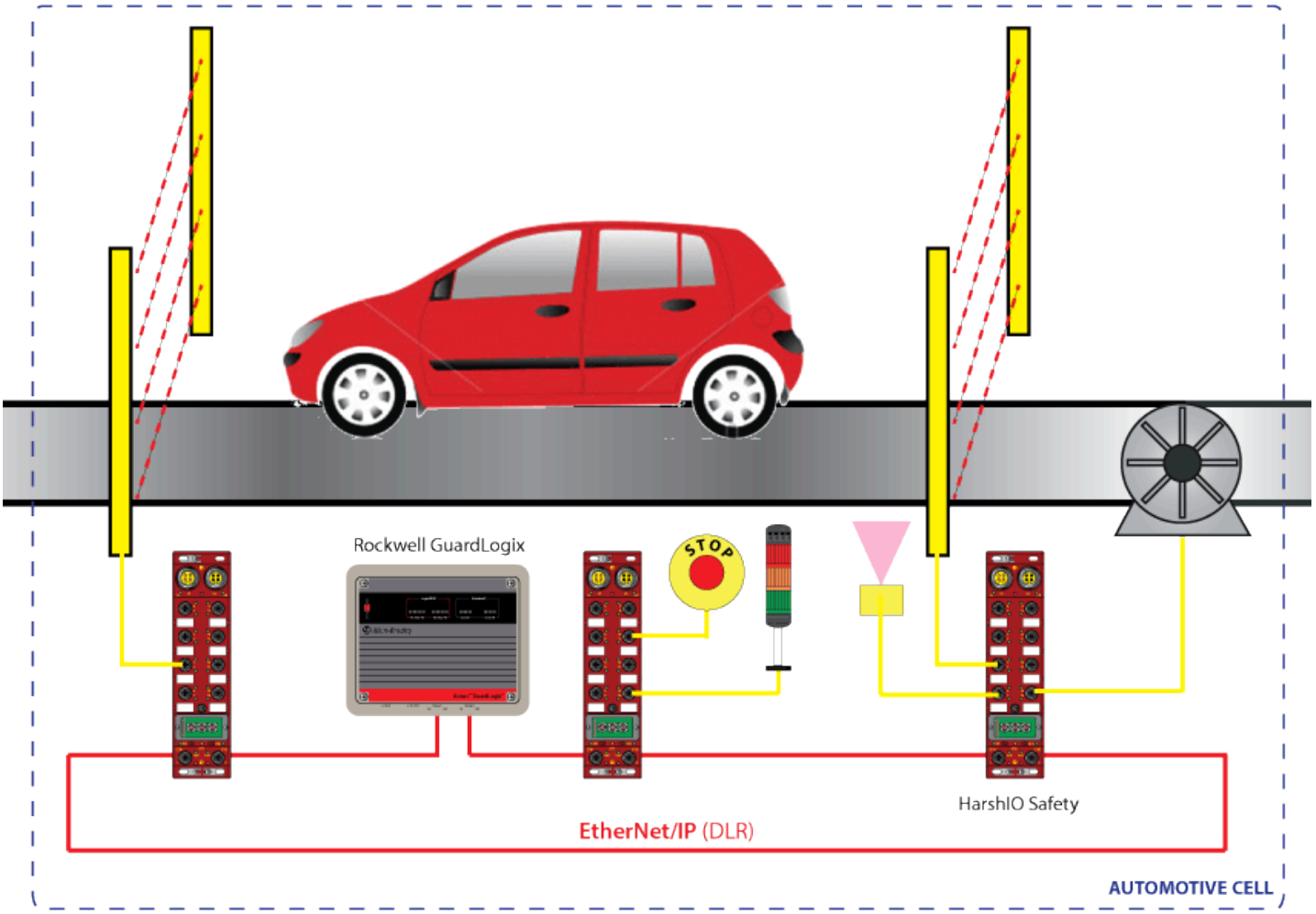


HarshIO SNCT –
Safe Inputs configuration



Commissioning in RA RSLogix 5000

Typical System Architecture



molex®

Brad® HarshIO 600 Safety Digital I/O

112095
IP67 Ethernet I/O Modules

Ordering Information

Industrial grade versions (operating temperature: -25° to +70°C)

Order No.	Power Connector	Engineering No.	Description	Memory Key	I/O	
					Inputs	Outputs
112095-5107	7/8" 4-pin	TCDEC-8B4P-DYU-GW	HarshIO EtherNet/IP CIP Safety digital module	Internal Window Key	12 (PNP)	4 (PNP)
112095-5108		TCDEC-8B4B-DYU-GW			12 (PNP)	2 (BIPOLAR)
112095-5127		TCDEC-8B4P-DYU-G8		M8 Key	12 (PNP)	4 (PNP)
112095-5128		TCDEC-8B4B-DYU-G8			12 (PNP)	2 (BIPOLAR)
112095-5111	7/8" 5-pin	TCDEC-8B4P-D1U-GW		Internal Window Key	12 (PNP)	4 (PNP)
112095-5112		TCDEC-8B4B-D1U-GW			12 (PNP)	2 (BIPOLAR)
112095-5129		TCDEC-8B4P-D1U-G8		M8 Key	12 (PNP)	4 (PNP)
112095-5130		TCDEC-8B4B-D1U-G8			12 (PNP)	2 (BIPOLAR)

Commercial grade versions (operating temperature: 0° to +60°C)

Order No.	Power Connector	Engineering No.	Description	Memory Key	I/O	
					Inputs	Outputs
112095-5105	7/8" 4-pin	TCDEC-8B4P-DYU-GWC	HarshIO EtherNet/IP CIP Safety digital module	Internal Window Key	12 (PNP)	4 (PNP)
112095-5110		TCDEC-8B4B-DYU-GWC			12 (PNP)	2 (BIPOLAR)
112095-5104		TCDEC-8B4P-DYU-G8C		M8 Key	12 (PNP)	4 (PNP)
112095-5109		TCDEC-8B4B-DYU-G8C			12 (PNP)	2 (BIPOLAR)