

# I/A Series<sup>®</sup> Hardware Fieldbus Cluster I/O Metal Enclosures



The I/A Series Metal Enclosures for Fieldbus Cluster I/O extend the design of the system by providing a range of mounting options to match the application requirements. The innovative design of the packaging allows the control and input/output modules to be distributed closer to the process without the need for special environmentally conditioned control or equipment rooms.

# FEATURES

Key features include:

- Rugged protection to permit mounting into harsh environments
- · Compact size to minimize use of floor space
- Front and rear access allowing maximum density of enclosures in a control room environment
- Generous amount of space for customer wiring, intrinsic safety barriers, individual loop fuses, and loop disconnects
- Standard 19-inch mounting rails
- · Simultaneous top and bottom cable entry
- Key or tool operated door locks.

# **ENVIRONMENTAL PROTECTION**

The metal enclosures provide the outer layer of protection for the control electronics. Other layers are provided by the module covers and protection within the module. This approach to protection allows a minimum of contaminants in the plant environment to reach the control components, greatly extending the life of the equipment.

At installations with only moderate levels of airborne contaminants, enclosure interiors can be exposed to allow plant air to circulate and remove the heat generated within the modules. Ventilation fans are installed along with vented doors to induce forced air convection for heat removal.



# Metal Enclosure 12 (ME12)

The ME12 (refer to Figure 1) is a 1600 mm (63-inch) high, NEMA 12, IP52 metal enclosure. It contains the Fieldbus Cluster I/O logic, chassis, and power supplies. One ICH12 chassis may contain: one or two FBP10s, one to 12 FBCs, and one to two IMP28s. The number of power modules is dependant upon logic module load. Each IPM28 accepts a wide input voltage range (85 V ac to 264 V ac) to meet international requirements. One PM20B Power Monitor Module is optionally available. One fan chassis is available (120 V ac or 230 to 240 V ac nominal), depending on the configuration. The fan chassis houses three fans.

One optional SCB16 mounting panel for FBC10 signal conditioners is allowed. One Power Distribution Unit (PDU) is required. The PDU contains ac line filters. It also contains a circuit breaker if there is no ac Power Transfer Switch in the configuration. For main power dual feed configurations, one ac Power Transfer Switch may be installed in the enclosure.

An Over-Temperature Sensor is provided. The overtemperature sensor is located in the upper part of the enclosure. It contains a pair of normally open contacts which close when the temperature inside the enclosure exceeds normal operating levels. Connections from the sensor may be made to an FBC (or FBM) for monitoring and alarming within the I/A Series system or to an external alarm device. All power cabling and field I/O wiring can be routed through the top and/or bottom of the enclosure. The ME12 has two full height DIN rails for accepting TCAs and one horizontal DIN rail for Fieldbus TCA cables. Field wire connections can be made using discrete wire block assemblies, plug connector block assemblies, or ring-lug connector blocks for all FBCs, except FBC10. FBC10 uses discrete wire block assemblies located on the SCB16 to accept field wires.

# Metal Enclosure 19 (ME19)

The ME19 (refer to Figure ) is a 2000 mm (79-inch) high, NEMA 12, IP52 metal enclosure. It contains the Fieldbus Cluster I/O logic, chassis, and power supplies. One ICH19 chassis may contain: one or two FBP10s, one to 19 FBCs. The PCH06 power chassis accepts two to six IPM28s. The number of power modules is dependant upon logic module load. Each IPM28 accepts a wide input voltage range (85 V ac to 264 V ac) to meet international requirements. One PM20B Power Monitor Module is optionally available. Two fan chassis are available (120 V ac or 230 to 240 V ac nominal), depending on the configuration.



Figure 2. Metal Enclosure 19



Figure 1. Metal Enclosure 12

The fan chassis houses three fans. Also available is one air deflector unit. One optional SCB16 mounting panel for FBC10 signal conditioners is allowed. One Power Distribution Unit (PDU) contains ac line filters. It also contains a circuit breaker if there is no ac Power Transfer Switch in the configuration. One ac Power Transfer Switch for main power dual feed configurations is allowed.

An Over-Temperature Sensor is provided. The overtemperature sensor is located in the upper part of the enclosure. It contains a pair of normally open contacts which close when the temperature inside the enclosure exceeds normal operating levels. Connections from the sensor may be made to an FBC or FBM for monitoring and alarming within the I/A Series system or to an external alarm device.

All power cabling and field I/O wiring can be routed through the top and/or bottom of the enclosure. The ME19 has two full height DIN rails for accepting TCAs and one horizontal DIN rail for Fieldbus TCA cables. Field wire connections can be made using discrete wire block assemblies, plug connector block assemblies, or ring-lug connector blocks for all FBCs, except FBC10. FBC10 uses discrete wire block assemblies located on the SCB16 to accept field wires.

### **Termination Enclosure**

When more than one ICH19 chassis or when more than one FBC10 is mounted in the ME19, a second enclosure, the termination enclosure, is required to accommodate the increased number of termination cable assemblies or SBC16 mounting panels. The right side panel of the enclosure housing the FBCs and the left side panel of the termination enclosure are removed and discarded. The enclosures are then bolted together. Refer to Figure 3.



Figure 3. Metal Enclosure 19x (ME19x)

# SCB16 Mounting Panels

Each Signal Conditioner Board Assembly (refer to Figure 4) contains up to 16 Input/Output Signal Conditioners which plug into the SCB16 assemblies and provide per channel electrical isolation that allows the user to mix different digital I/O signal ranges associated with a single FBC10.

Four SCB16 assemblies, with I/O Signal Conditioners, mount on an SCB16 mounting panel in a metal enclosure.



Figure 4. Signal Conditioner Mounting Panel

The metal enclosures house one SCB16 mounting panel which may contain four Signal Conditioner Boards (SCB16). Refer to Figure 5.



Figure 5. SCB16 Mounting Panel Located in ME12 or ME19

# Metal Enclosure 19x (ME19x)

The ME19x houses up to ten SCB16 mounting panels each containing up to four Signal Conditioner Boards (SCB16). Therefore, the ICH19 chassis in an ME19x may use up to ten FBC10s for up to 640 digital inputs/outputs. One mounting panel can be located at the bottom-rear of the ME19 and up to nine (9) mounting panels can be located in the termination enclosure.



Figure 6. ME19x SCB16 Mounting Panel Areas

## FUNCTIONAL SPECIFICATIONS

#### Enclosures

Input Power 120/230/240 V ac, 50/60 Hz

If peripheral devices are installed, temperature range of the enclosures reflects the specifications for those devices.

All enclosures are NEMA 12/IEC IP52 rated.

#### ENVIRONMENTAL SPECIFICATIONS

#### **Contamination Class**

Vented enclosures are Class G1 (mild) and sealed enclosures are Class G2 (moderate) as defined in ISA Standard, S71.04

#### Storage Temperature -40 to 70°C (40 to 158°F)

**Operating Temperatures** 

0 to 40°C (32 to 104°F)

(External Ambient, Fully Loaded)

**Relative Humidity** 5 to 95% (noncondensing)

#### **Agency Certification**

Canadian Standards Association (CSA) certified to C22.2 No. 142

# PHYSICAL SPECIFICATIONS

#### Mass (Unpopulated)

ME12 168 kg (370 lb) ME19 209 kg (460 lb) ME19x 412 kg (908 lb) TERMINATION ENCLOSURE 176 kg (388 lb)

## Construction

Sheet steel, electrophoresis dip bath primer, modified alkyd enamel paint, textured finish.

#### Field Wire Termination (Maximum)

(Front/Rear Access) 64 termination assemblies for 32 slots 32 termination assemblies for 16 slots (two 1x8 MS configured with two MMS or two 1x8 MS configured with one 2XMMS) METAL TERMINATION ENCLOSURE Large internal panel available. Wiring content per discretion of customer.

## **Field Termination Connections**

Discrete wire block or 34-pin plug connector mates with Burndy MSD34 PM118 or equivalent.





# **DIMENSIONS-NOMINAL (Cont.)**



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