To install the Bus Module follow the following instructions:

**CAUTION:** Ensure that the power has been removed from all equipment currently in the enclosure before installing the Bus Module.

### 1. INSTALLATION - MECHANICAL

#### 1.1 GENERAL DESCRIPTION

The Chromalox 1040 System - comprising one or more Bus Module each with up to eight Loop Modules - is designed for installation in an enclosure which is sealed against the ingress of dust and moisture. The enclosure must contain sufficient length of 1.3” (33mm) Top-Hat DIN mounting rail to accommodate the system modules (see below) plus an extra 1.97” (50mm) of rail to permit modules to be separated for removal/replacement.

The space required by the 1040 modules is shown below.

#### 1.2 VENTILATION

Under normal circumstances, no forced ventilation is required and the enclosure need not contain ventilation slots, but temperatures within the enclosure must be within specification.

#### 1.3 INSTALLING THE BUS MODULE

The 1040 system is installed in the following order:

1. Bus Communications Module (refer to Bus Module installation instructions)
2. Interconnect Module(s)
3. First Loop Controller Module
4. Second Loop Controller Module
5. Third Loop Controller Module etc……

### 1.4 REMOVING A LOOP MODULE

**CAUTION:** Ensure that the power has been removed from all equipment currently in the enclosure before uninstalling the Bus Module.

### 2. INSTALLATION - ELECTRICAL (GENERAL)

#### 2.1 POWER INPUT

The system requires a power input of 18 - 30V DC and has a maximum power consumption of 30W. It is recommended that the power supply is connected via a two-pole isolating switch (preferably situated near the System) and a 2A slow-blow fuse or a 2A Type C MCB (see Fig. 5).

**CAUTION:** The system is designed for installation in an enclosure, which provides adequate protection against electric shock. Local regulations regarding electrical installation and safety should be rigidly observed. Consideration should be given to prevention of access to the power terminations by unauthorized personnel.

#### 2.1 CONFIGURATION PORT

This connects the Bus Module to a local PC for configuration. The configuration port uses the point to point connection specification RS232. Pin connections are shown on the right. This port can only be used for configuration purposes only using the 1040 configuration software.
3. INSTALLATION - ELECTRICAL (FIELDBUS PORT)

3.1 MODBUS – 1040 MB Bus Module Only
This connects the Bus Module to a MODBUS master device (local operator interface/display or multi-drop PC operator and configuration network). The Modbus Fieldbus port uses the multi-drop connection standard RS485. Pin connections are shown on the right. The Common connection is provided for termination of screened (shielded) cable.

3.2 DEVICE NET – 1040 DN Bus Modules only
When installed with the DeviceNet firmware (1040-DN) the Bus Module can be connected to a DeviceNet enabled master device. DeviceNet compliant cables and connectors must be used when connecting to the network. DeviceNet network must be terminated with 121 ohm resistors between CAN_L and CAN_H at each physical end of the CAN network. A separate 24V power supply should be used to power the network between V+ and V-. Terminal connections are shown on the right. The SHIELD connection is provided for termination of screened (shielded) cable.

Note: Most DeviceNet communication problems are caused by incorrect wiring and power supply selection if any problems are encountered the DeviceNet website has guidelines on wiring a DeviceNet system. (www.odva.org)

3.3 PROFIBUS – 1040 PB Bus Module only
This enables the Bus Module to be connected to a PROFIBUS-DP master device (local operator interface/display, PLC or multi-drop PC operator and configuration network). PROFIBUS compliant cables and connectors must be used when connecting to a network. Pin connections are shown on the right. For more information on PROFIBUS consult the PROFIBUS website (www.profibus.com).

3.4 MODBUS TCP/IP – 1040 MT Bus Modules only
This connects the Bus Module to a MODBUS TCP/IP enabled master device (local operator interface/display, PLC or multi-drop PC operator and configuration network). The connection is via RJ45 connector that conforms to CAT 5 cabling and 568A, 568B wiring sequences. The 1040 supports 10BaseT and 100BaseT cabling. The connection is via RJ45 connector that conforms to CAT 5 cabling and 568A, 568B wiring sequences. The 1040 supports 10BaseT and 100BaseT network). The connection is via RJ45 connector that conforms to CAT 5 cabling and 568A, 568B wiring sequences. The 1040 supports 10BaseT and 100BaseT network).

### Pin No. | 568A | 568B
--- | --- | ---
1 | WHITE/green | WHITE/orange
2 | GREEN/white | ORANGE/white
3 | WHITE/orange | WHITE/green
4 | BLUE/white | BLUE/white
5 | WHITE/blue | WHITE/blue
6 | ORANGE/white | GREEN/white
7 | WHITE/brown | WHITE/brown
8 | BROWN/white | BROWN/white

For full information on configuration of the communication interface consult the 1040 User Manual PK515.

### Configuration Port:
This is a local port for connection to an RS232 port on a PC for local operator configuration. It has EIA-232-E (RS232) compatible inputs and outputs for TXD and RXD and provides facilities via the 1040 Workshop Software to configure the 1040 system.

### MODBUS Port:
(All Bus Modules)
This is an optional RS485 port for connection to a MODBUS master device. Data rate and format are configurable via the RS232 port. MODBUS RTU protocol is supported, using an RS485 physical layer. The baud is not greater than one-quarter unit load. The data rate is selectable from 4800, 9600 or 19200 baud. It is factory-set to 38400 baud. Parity is selectable from none, even or odd. The baud rate can be set in the range 1 - 247 (default = 96). Node address, date rate and character format are selectable via the 1040 Workshop Software running on the PC connected to the RS232 Port.

### DeviceNet Port:
(1040-DN only)
This is a port for connection to a DeviceNet master device. Data rate and MAC ID are configurable via the configuration port.

### PROFIBUS Port:
(1040-PB only)
This is a port for connection to a PROFIBUS DP network. The PROFIBUS data rate is automatically detected and set by the bus module.”

### MODBUS/TCP Port:
(1040-MT)
This port is for connection to an MODBUS/TCP network 10/100BaseT, user definable IP address Configured using the 1040 Workshop software, via the configuration port.

### Supply Voltage
18 to 30V DC (including ripple) 30W maximum

### General
- **Configuration Port:** (All Bus Modules)
- **MODBUS Port:** (1040-MB only)
- **DeviceNet Port:** (1040-DN only)
- **PROFIBUS Port:** (1040-PB only)
- **MODBUS/TCP Port:** (1040-MT)

### Environmental
- **Operating Conditions:** Ambient Temperature: 0°F to 131°F (0°C to 55°C)
  Relative Humidity: 30% to 90% non-condensing
- **Storage Conditions:** Ambient Temperature: -4°F to 176°F (-20°C to 80°C)
  Relative Humidity: 30% to 90% non-condensing

### Physical
- **Dimensions:** Height: 3.93” (100 mm)
  Width: 1.81” (40 mm)
  Depth: 4.72” (120 mm)

### Certifications
- **Safety:** Complies with EN61010-1 and UL 3121-1
- **Certification:** Vendor ID: 1377

### Approvals
- **Modbus:** EN61326-1
- **DeviceNet:** EN61326-1
- **Protibus:** EMC EN61326:1998
- **Modbus:** EMC EN61326:1998

### Mounting
- **Top Hat DIN rail (EN50022, DIN46277-3)
- **Power input:** 2-way 0.2” (5.08 mm) Combinable type RS232 port: 6-way RJ11 Type
  1040-MB port: 3-way 0.2” (5.08 mm) Combinable type
  1040-DN port: 5-way 0.2” (5.08 mm) Combinable type
  1040-PB port: 9-way D-type
  1040-MT port: RJ45 Type

### Weight
- 0.46 lb (0.21 kg)