BIU/2

**BUS INTERFACE UNIT
FOR NEMA CABINETS**

The BIU/2 is a rack module that interfaces 24 V logic I/O signals to the SDLC serial bus of TS2 cabinets.

FEATURES

- Designed for use in the Reno A&E Model M-6D detector rack
- Half-width (1.12" wide) faceplate
- Exceeds NEMA TS2-2003 requirements for Bus Interface Units

HIGHLIGHTS

- High current output drive
- Fully hot-swappable
- Separate power, transmit, and receive LED indicators for DC power and port status

MEETS MUTCD STANDARDS

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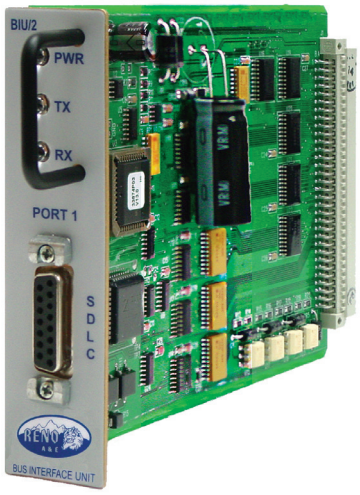
ISO 9001 CERTIFIED

2 YEAR LIMITED WARRANTY



NEMA CABINET COMPATIBLE

Overview

All TS2 Type 1 cabinets and TS2 Type 2 cabinets require a BIU when controller I/O is via the SDLC bus instead of connectors via A, B, and C. A 64-pin, male, DIN 41612 type B series connector provides the connection to the rack backplane. A 15-pin, female, metal shell, D-subminiature connector with latching blocks provides the connection to the SDLC cable. A separate TS2 cabinet power supply provides the required 24 VDC power plus a 60 Hz line timing reference.

Design

The front panel has separate LED indicator lights for Power, Transmit, and Receive. It also has a handle to facilitate removal of the unit from the rack. The only difference between the Reno A&E Model BIU/2 and a standard BIU is that the face plate is half the width, allowing for a more compact installation.

Specification

The BIU/2 is designed in full compliance with all applicable sections of the NEMA TS2-2003 Standard. Since the BIU function is fully specified by the TS2 Standard, the BIU/2 can be used in any TS2 cabinet built by any manufacturer.

General Description

The BIU/2 measures 1.12" wide x 4.50" high x 6.60" deep. An aluminum handle on the front panel faciltates insertion and removal of the BIU/2 into and from a card rack. The card rack connector on back of the BIU/2 is a 64-pin, male,

DIN 41612 type B series. The Port 1 SDLC Bus connector on the front panel of the BIU/2 is a female, 15-pin, metal shell, Dsubminiature type with gold plated contacts. The front panel is made of 0.062" thick aluminum. Two indicator lamps are provided on the front panel (as specified by the TS2 Standard) for Power and Transmit. In addition, the front panel has a Receive indicator lamp which lights whenever a valid data frame is received. The circuit board is made of NEMA FR-4 glass epoxy. Exposed circuit traces are plated with solder. Circuit board components are conformal coated with polyurethane.

TS2 Compatibility

The Bus Interface Unit (BIU) complies with Section 8 and all other applicable sections of the NEMA TS2-2003 Standard. It performs its specified functions under the environmental conditions set forth in Section 2 of the standard, which include operating from -30°F (34°C) to +165°F (+74°C). The BIU/2 can be used in any TS2 cabinet that is built by any manufacturer, provided that the cabinet fully complies with the TS2 Standard.

Card Rack Connector

The card rack connector on back of the BIU/2 is a 64-pin, male, DIN 41612 type B series. The connector is centered at the edge of the circuit board and oriented with Pin 1 located on top. The circuit board edges align with the connector per DIN 41612.

Port 1 SDLC Bus Connector

The Port 1 SDLC Bus connector on the front panel of the BIU/2 is a female, 15-pin, metal shell, D-subminiature type with gold plated contacts. The connector is equipped with latching blocks and mates with a male, 15-pin, D-subminiature type cable connector that is equipped with spring latches (Amp part number 745012-1 or equivalent). When the BIU/2 is used in a TS2 Type 1 cabinet, the full-duplex SDLC serial data bus provides high speed, bidirectional data exchange between the controller, the Malfunction Management Unit (MMU), the Detector Rack(s), and the Terminals and Facilities. The bus operates at 153,600 bits per second (bps) and uses four sets of RS-485 balanced lines: Rx Data, Rx Clock, Tx Data, and Tx Clock. When the BIU/2 is used in a TS2 Type 2 cabinet, the A, B, and C connectors of TS1 are also available and allow point-to-point wiring to the controller without a BIU. The SDLC bus overcomes the pin limitations of TS1, simplifies cabinet wiring, enhances reliability, allows virtually unlimited cabinet expansion, and provides a standardized interface to, as yet, unspecified future devices. It also allows the controller to serve as a backup for the MMU and allows it to receive diagnostic data from the detector(s).

LED Indicators

Three super-bright LEDs light to indicate Power (PWR), Transmit (TX), and Receive (RX).

Signal I/O

The TS2 Standard specifies 24 V logic pin assignments for the rear connector of the BIU as follows: eight inputs, four opto-isolated inputs, 24 remappable input / outputs, 15 outputs, and four address-select inputs. The isolated inputs are intended to be used with pedestrian detectors and remote interconnect signals.

I/O Mapping

The 4 address-select inputs provide 16 BIU addresses, which are normally set by jumpers on the backplane. The TS2 Standard specifies the I/O mapping for 8 of the addresses. Once 1 of the 8 addresses has been set, all I/O pins of the backplane and the BIU are fully defined, thus allowing standardized cabinet wiring and simple menu-driven programming of the controller. Operation of the SDLC bus is completely transparent to the user. BIU's 1 through 4 are designated for Terminals and Facilities; BIU's 9 through 12 are for Detector Racks.

Isolated Inputs

The BIU has four optically isolated inputs for use with pedestrian pushbuttons and remote interconnect. These inputs provide minimum electrical isolation of 10 MOhm, minimum electrical breakdown of 1000 VAC, and a nominal input impedance of 5 kOhm.

Power

16 to 30 VDC. 1.25 Amps maximum (initial power application), 200 milliamps maximum (steady state operation).

Ruggedized Construction

The printed circuit board is 0.062 inch thick FR4 material with 2 oz. copper on both sides and plated through holes. Circuit board components are conformal coated with polyurethane.

Operating Temperature

-30º F to +165º F (-34º C to +74º C).

Size

4.50 inches (11.43 cm.) high x 1.12 inches (2.84 cm.) wide x 6.78 inches (17.22 cm.) deep (including connector, excluding handle). Handle adds 1.00 (2.54 cm.) to depth measurement.

Weight

5.4 oz. (153 gm.)

Card Rack Connector

Pin	Function	Pin	Function
1a	+24 VDC	1b	+24 VDC
2a	Output 1	2b	Output 2
3a	Output 3	3b	Output 4
4a	Output 5	4b	Output 6
5a	Output 7	5b	Output 8
6a	Output 9	6b	Output 10
7a	Output 11	7b	Output 12
8a	Output 13	8b	Output 14
9a	Output 15	9b	Input/Output 1
10a	Input/Output 2	10b	Input/Output 3
11a	Input/Output 4	11b	Input/Output 5
12a	Input/Output 6	12b	Input/Output 7
13a	Input/Output 8	13b	Input/Output 9
14a	Input/Output 10	14b	Input/Output 11
15a	Input/Output 12	15b	Input/Output 13
16a	Input/Output 14	16b	Input/Output 15
17a	Input/Output 16	17b	Input/Output 17
18a	Input/Output 18	18b	Input/Output 19
19a	Input/Output 20	19b	Input/Output 21
20a	Input/Output 22	20b	Input/Output 23
21a	Input/Output 24	21b	Input 1
22a	Input 2	22b	Input 3
23a	Input 4	23b	Input 5
24a	Input 6	24b	Input 7
25a	Input 8	25b	Opto Input 1
26a	Opto Input 2	26b	Opto Input 3
27a	Opto Input 4	27b	Opto Common
28a	Address Select 1	28b	Address Select 2
29a	Address Select 3	29b	Address Select 4
30a	Data Transmit (reserved)	30b	Data Receive (reserved)
31a	Earth Ground	31b	Line Frequency Reference
32a	Logic Ground	32b	Logic Ground

Pin Assignments

Port 1 SDLC Bus Connector

Pin	Function
1	Rx Data
2	Logic Ground
3	Rx Clock +
4	Logic Ground
5	Tx Data
6	Logic Ground
7	Tx Clock +
8	Logic Ground
9	Rx Data -
10	Not Used
11	Rx .Clock -
12	Earth Ground
13	Tx Data -
14	Reserved
15	Tx Clock -