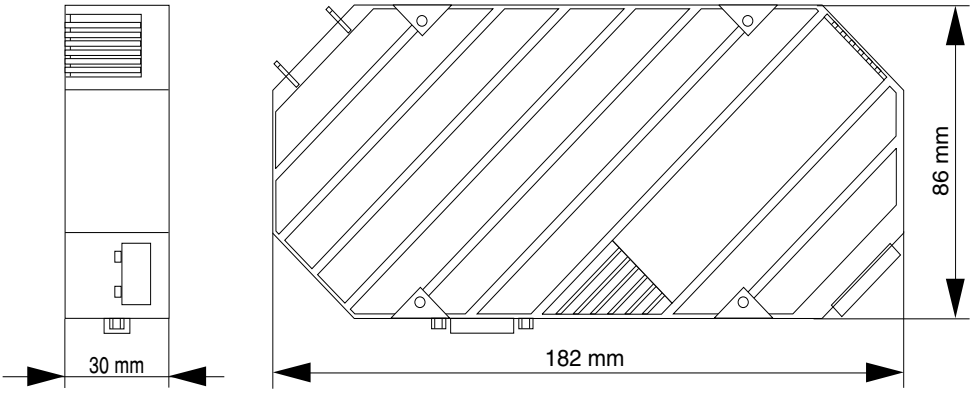
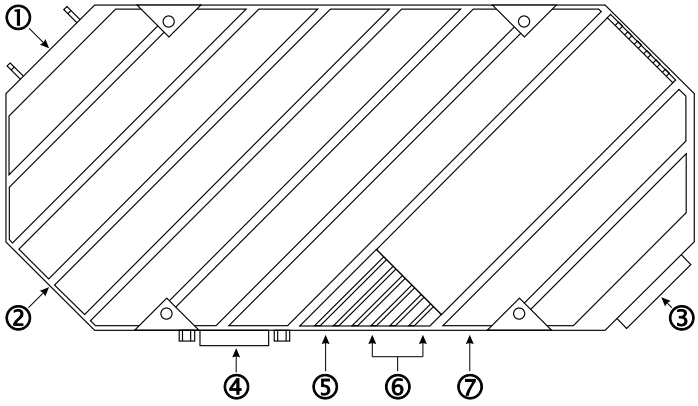
4 Panel Controller C130



Technical Data	
Interface	CAN
Control	VT100 Command Set (CAN expansions)
Supply	24 VDC (min. 18 VDC, max. 30 VDC)
Connection of	
Display Modules	1
Keypad Modules	max. 7
Temperature	
Operating	0 to 50 °C (32 to 122 °F)
Storage	-20 to 60 °C (-4 to 140 °F)
Relative Humidity	
Operating	10 to 95 % (non-condensing)
Storage	10 to 95 % (non-condensing)
Shock	Conforms to IEC 60068-2-27 15g equivalent, 150 m/sec^2, 11 msec, 3 axes (positive and negative)
Vibration	Conforms to IEC 60068-2-6 1g equivalent, 10-58 Hz; 0.075 mm 58-150 Hz; 9.8m/sec^2 20 Cycles per axis
Current Requirements	95 mA at 24 VDC

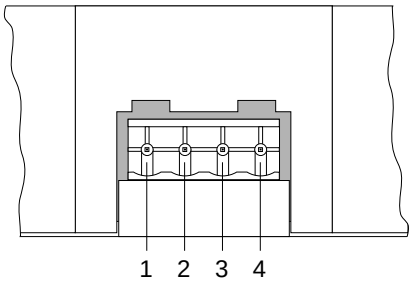
4.1 Overview of Connections and Operational Elements



1 Display Module Connector
2 Keypad Module Connector
3 24 V Supply Voltage Connector
4 CAN interface, 9 pin D-Type (M)
for connection to a PC (PCS) or a PLC

5 - 7 Number Switch
5 Not used
6 Baudrate / CAN Node
7 Not used

4.1.1 Supply Voltage (24 VDC)



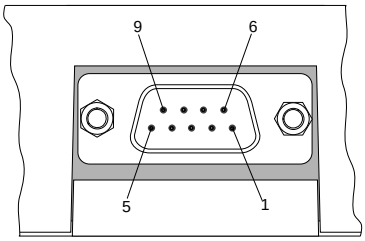
Pin		Description
1	+	+24 VDC
2	-	GND
3	⏚	Ground
4	⏚	Ground

All components must be properly grounded. (If in a rack, the ground cable length must not exceed 15 cm.). This is particularly important for the reasons listed below.

- A low resistance path from all parts of a system to earth minimizes exposure to shock in the event of short circuits or equipment malfunction.
- PANELWARE operator panels require proper grounding for correct operation.

The importance of a properly grounded system cannot be over emphasized.

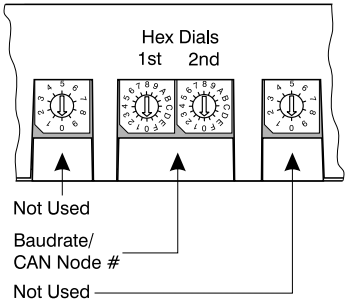
4.1.2 CAN Interface

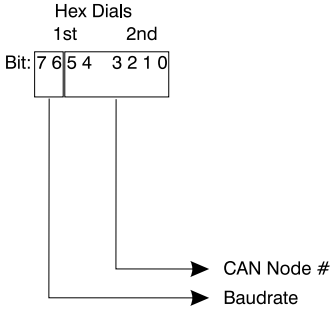


Pin	Signal	Description
1	NC	not connected
2	**CAN L**	CAN Low
3	**CAN GND**	Can Ground
4	NC	not connected
5	NC	not connected
6	NC	not connected
7	**CAN H**	CAN High
8	NC	not connected
9	NC	not connected

4.1.3 Number Dials

The hex dials are used to set the baudrate and the CAN node number. The two other dials are presently not being used. Each hex dial has a 4 bit value range. The first 2 bits of the first hex dial set the baudrate. The second 2 bits of the first hex dial along with all 4 bits of the second hex dial set the CAN node number. 1 - 32 are valid CAN node numbers, 0 and 33 - 63 are invalid. Baudrates are set as follows;
(00 - 250 KBaud, 01 - 125 KBaud, 10 - 20 KBaud and 11 - 500 KBaud).





Hex Dials

1st	2nd	Baudrate	CAN Node#
0	0	N/A	Invalid
0	1 - F	250 KBaud	1 -15
1	0 - F	250 KBaud	16 - 31
2	0	250 KBaud	32
2	1 - F	N/A	Invalid
3	0 - F	N/A	Invalid

Hex Dials

1st	2nd	Baudrate	CAN Node#
8	0	N/A	Invalid
8	1 - F	20 KBaud	1 -15
9	0 - F	20 KBaud	16 - 31
A	0	20 KBaud	32
A	1 - F	N/A	Invalid
B	0 - F	N/A	Invalid

Hex Dials

1st	2nd	Baudrate	CAN Node#
4	0	N/A	Invalid
4	1 - F	125 KBaud	1 -15
5	0 - F	125 KBaud	16 - 31
6	0	125 KBaud	32
6	1 - F	N/A	Invalid
7	0 - F	N/A	Invalid

Hex Dials

1st	2nd	Baudrate	CAN Node#
C	0	N/A	Invalid
C	1 - F	500 KBaud	1 -15
D	0 - F	500 KBaud	16 - 31
E	0	500 KBaud	32
E	1 - F	N/A	Invalid
F	0 - F	N/A	Invalid

4.1.4 CAN Identifier

The CAN send and receive identifiers are calculated as follows using the CAN node number:

sendID = 1054 + (CAN node number - 1) x 16
[sending from PCC to control panel]

receiveID = 1054 + (CAN node number - 1) x 16 **+ 1**
or receiveID = sendID **+ 1**
[receiving from the control panel]

CAN ID collisions are not possible if all CAN bus participants have a different node number from 1 to 32.

4.1.5 Data Transfer

On the C130 CAN Controller, data is transferred to and from the control panel using CAN frames. A maximum of 8 bytes of data can be transferred with a CAN frame. If the data is longer than 8 bytes, it must be sent or received in blocks. The minimum delay is the time between individual CAN frames when sending information from the control panel to the PCC. The PCC must be able to receive CAN frames containing 8 bytes of data from the control panel at the following intervals when the minimum delay is set to 0 msec, otherwise the the delay must be set higher:

Baudrate	**Interval**
500 KBaud	1 msec
250 KBaud	2 msec
125 KBaud	2 msec
20 KBaud	7 msec

The C130 CAN Controller can receive and process CAN frames with 8 bytes of data from the PCC every 6 msec. Therefore, the PCC should not continually send frames at a higher speed. A higher short-term data rate is possible because the C130 has a 256 byte receive buffer.

Note:
Additional VT100 commands are available for the C130 controller. A description of these commands can be found in Appendix B "VT100 Command Set".