BALDOR®
MOTORS AND DRIVES

HMI Operator Panel

Installation & Operating Manual

Table of Contents

Section 1
Product Overview

Limited Warranty

PRECAUTIONS: Classifications of cautionary statements.

△! **WARNING:**   **Indicates a potentially hazardous situation which, if not avoided, could result in injury or death.**

△! **Caution:**   **Indicates a potentially hazardous situation which, if not avoided, could result in damage to property.**

△! **WARNING:**   **Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.**

△! **WARNING:**   **Do not touch any circuit board, power device or electrical connection before you first ensure that power has been disconnected and there is no voltage present from this equipment or other equipment to which it is connected. Electrical shock can cause serious or fatal injury.**

△! **WARNING:**   **Be sure that you are completely familiar with the safe operation of this equipment. This equipment may be connected to other machines that have rotating parts or parts that are controlled by this equipment. Improper use can cause serious or fatal injury.**

△! **WARNING:**   **Be sure all wiring complies with the National Electrical Code and all regional and local codes or CE Compliance. Improper wiring may cause a hazardous condition.**

△! **WARNING:**   **Be sure the system is properly grounded before applying power. Do not apply AC power before you ensure that grounds are connected. Electrical shock can cause serious or fatal injury.**

△! **Caution:**   **The safe integration of the drive into a machine system is the responsibility of the machine designer. Be sure to comply with the local safety requirements at the place where the machine is to be used. In Europe this is the Machinery Directive, the ElectroMagnetic Compatibility Directive and the Low Voltage Directive. In the United States this is the National Electrical code and local codes.**

△! **Caution:**   **Electrical components can be damaged by static electricity. Use ESD (electro-static discharge) procedures when handling this control.**

Section 2
Receiving and Installation

Receiving & Inspection   Baldor products are thoroughly tested at the factory and carefully packaged for shipment. When you receive your shipment, there are several things you should do immediately.

1. Observe the condition of the shipping container and report any damage immediately to the commercial carrier.
2. Remove the product(s) from the shipping container and remove all packing materials. The container and packing materials may be retained for future shipment.
3. Verify that the part number(s) are the same as the part number(s) listed on your purchase order.
4. Inspect for external physical damage that may have been sustained during shipment and report any damage immediately to the commercial carrier.
5. If the product is to be stored for several weeks before use, be sure that it is stored in a location that conforms to published storage humidity and temperature specifications stated in Section 6.

Location Considerations The location of the control is important. Installation should be in an area that is protected from direct sunlight, corrosives, harmful gases or liquids, dust, metallic particles, and vibration. Exposure to these can reduce the operating life.

Mechanical Installation

The HMI Panel is designed to be installed in an enclosure opening. The opening size requirements are specified in Section 6 of this manual.

1. Determine the correct hole size for your panel.
2. Locate and cut the "Cutout" in your enclosure. Be sure the edges of the cutout are straight and debur any sharp edges.
3. **Apply Thin gasket:** (Figure 2-1 and Figure 2-2). The gasket should be applied around the cutout. The gasket should be applied starting at the middle of the lower side being careful to keep it straight. The two ends of the gasket should meet without overlap.

Note: Each time the panel is removed, the gasket should be replaced.

Figure 2-1 Application of Gaskets
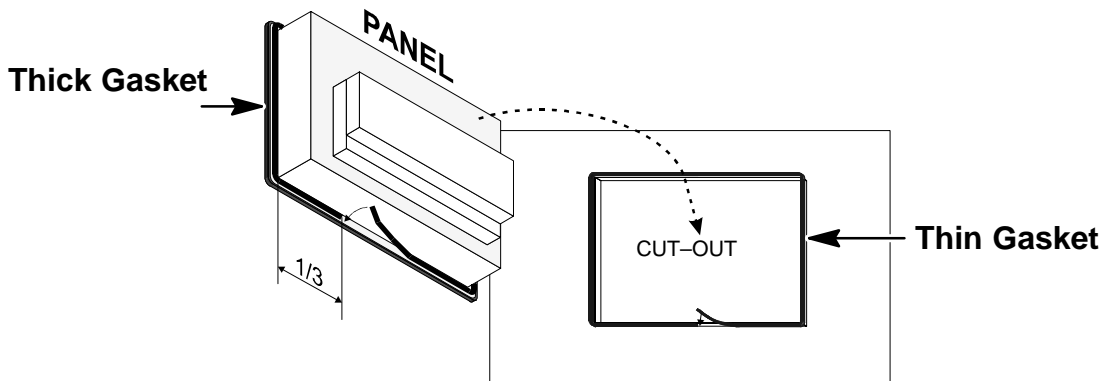
4. **Apply Thick gasket:** (Figure 2-1 and Figure 2-2). The gasket should be applied on the operator panel just behind the bezel. The gasket should be applied starting from the 1/3 of the lower side being careful to keep it straight. The two ends of the gasket should meet without overlap.

Note: Each time the panel is removed, the gasket should be replaced.

Figure 2-2 Mounting the Panel
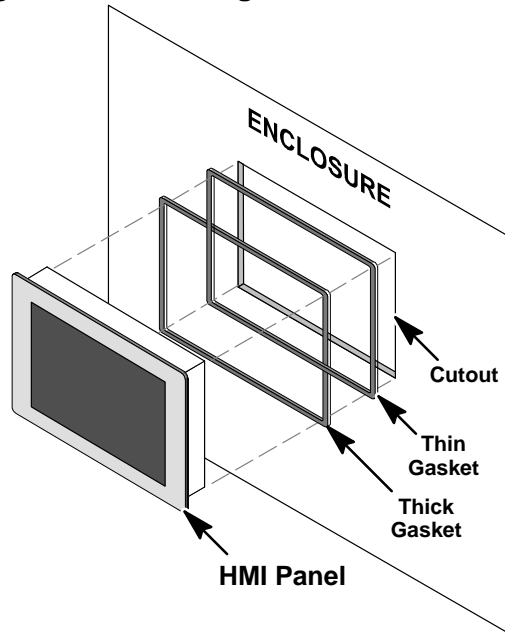
5. Secure the panel to the enclosure using the mounting hardware provided Finger tighten each clamp until all clamps are installed. See Figure 2-3.

Figure 2-3 Panel Hardware
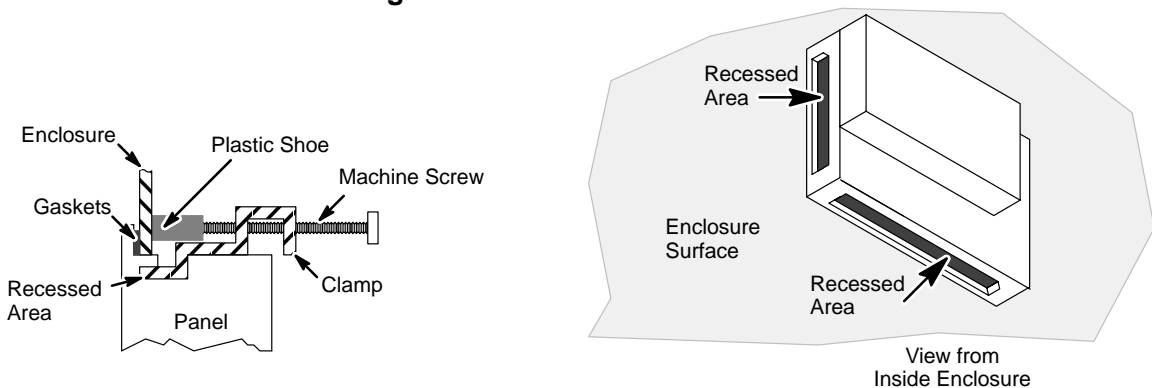
6. Carefully tighten each clamp until the gaskets are slightly compressed. Do not overtighten (do not flatten the gaskets).

+24VDC Power Connections All interconnection wires between the control, AC power source, motor, host control and any operator interface stations should be in metal conduits. Use listed push on connectors that are of appropriate size for wire gauge being used. Connectors are to be installed using crimp tool specified by the manufacturer of the connector. Only class 1 wiring should be used.

The power supply connections are shown in the Figure 2-4.

Figure 2-4 Power supply terminal block

1 – L+ (+24VDC Input)
2 – M (Common L–)
3 – ⏚ Chassis Ground

Torque modular connector screws to 0.5lb–in (0.6Nm).

Note: Ensure that the power supply has enough power capacity for panel operation.

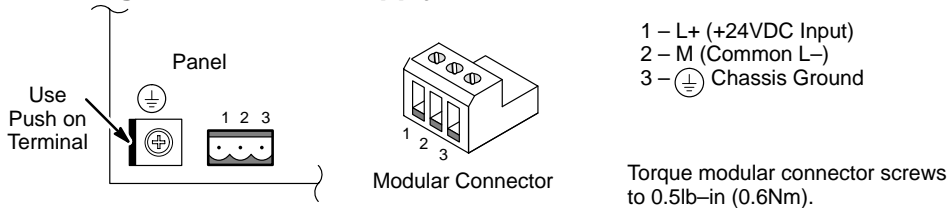The panel must always be grounded to protection earth (PE). Grounding helps limit the effects of noise due to electromagnetic interference on the control system.

Earth connection is made using a push on crimp terminal (Figure 2-4). The terminal is located near the power supply terminal block. Also connect terminal 3 (Chassis Ground) on the power supply terminal block to ground.

Printer Port A serial printer can be attached to the Printer Port, Figure 2-8 if port is installed (not available for KPD007). The communication parameters for the printer are defined by the application program (project file). The printer port connector is a 15 pin D sub type. Use Baldor RS232 cable, CBL034–501 (9.8 ft, 3m); Gender Changer, OPT033–501.

Figure 2-5 Printer Connections

Null Modem Cable Connections
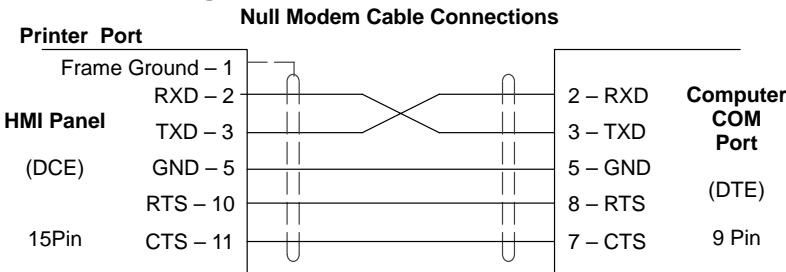
RS232/485 Port The RS232/485 Port (Figure 2-8) is used to communicate with the COM port of the PC during setup and programming. The Port is used to communicate with the controller using RS–232, RS–422, RS–485 or Current Loop (20 mA) operation. The connection method determines the communication mode, Figures 2-6 and 2-7. The RS232/485 Port connector is a 15 pin D sub type. Use Baldor RS232 cable, CBL034–501 (9.8 ft, 3m); Gender Changer, OPT033–501.

Table 2-1 Port connector and pin assignment

Pin	Description
1	Frame Ground
2	RXD
3	TXD
4	+5 V output (Max 100mA)
5	GND
6	CHA–
7	CHB–
8	TX+ 20 mA
9	TX– 20 mA
10	RTS
11	CTS
12	RX+ 20 mA
13	RX– 20 mA
14	CHA+
15	CHB+

Use a null modem cable to connect the panel to a PC for programming, Figure 2-6. The COM port connector is a DB 9 pin female.

Figure 2-6 RS232 Connections
Null Modem Cable Connections

232/485 Port

HMI Panel (DCE)		Computer COM Port (DTE)
Frame Ground – 1		
RXD – 2		2 – RXD
TXD – 3		3 – TXD
GND – 5		5 – GND
RTS – 10		8 – RTS
CTS – 11		7 – CTS

Figure 2-7 RS485 Connections
Twisted Pair Cable Connections

232/485 Port

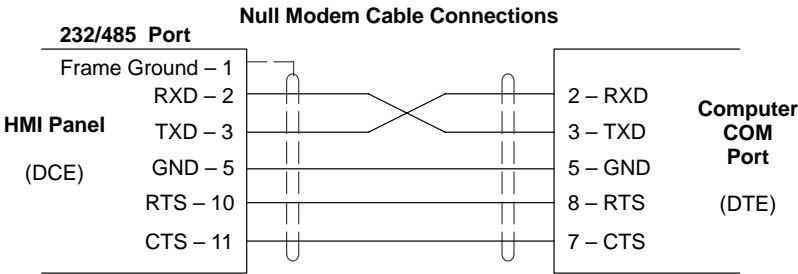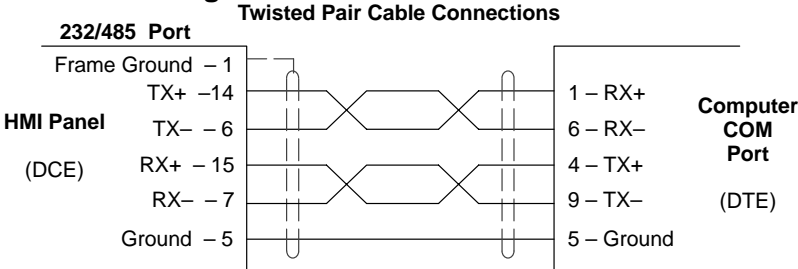| HMI Panel (DCE)		Computer COM Port (DTE)
Frame Ground – 1		
TX+ –14		1 – RX+
TX– – 6		6 – RX–
RX+ – 15		4 – TX+
RX– – 7		9 – TX–
Ground – 5		5 – Ground

CANopen Port The CANopen Port is a communication port specially designed for CANopen communication. The CANopen Port connector is a 9 pin D sub type.

The procedure to mount the communication modules is the following:

1. Turn off the unit and disconnect input power cable.
2. Remove the 2 screws ('A' in Figure 2-8) holding the rear cover.
3. Remove the cover.
4. Plug the module into the red connectors ('C' in Figure 2-8). Be sure the connectors are locked.
5. Install the cover and the 2 screws 'A'.
6. Install the label shipped with the module in the area 'B' in Figure 2-8.

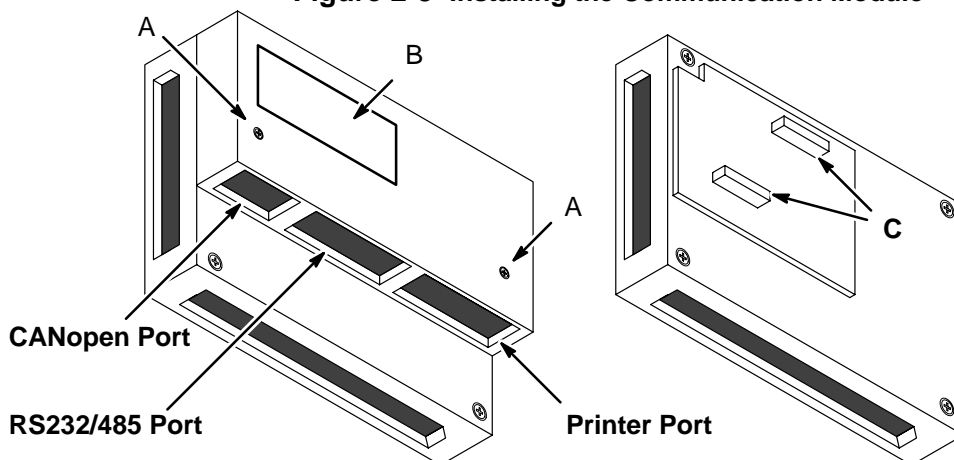**Figure 2-8 Installing the Communication Module**

CANopen Port

RS232/485 Port

Printer Port

Table 2-2 CANopen Port connector and pin assignment

Pin	Description
1	Reserved
2	CAN–
3	Reserved
4	Reserved
5	Shield (RC)
6	Ground
7	CAN+
8	Reserved
9	+5VDC

Battery Protector For panels with a battery, be sure to remove the red plastic insulator labeled "Remove, Battery Protection". This is an insulator that prevents battery depletion during shipment and storage.

Installing Software on your PC

The setup software is Windows–based. The HMI panel connects to a serial port of your PC using a null modem cable for RS232 communications.

Minimum system requirements

Hardware requirements (minimum):

Processor: Intel 80486 / 33 MHz

RAM: 16 MB

Free Hard Disk Space: 13 MB

3.5 inch floppy diskette drive

Screen: 600 x 480 (minimum)

Recommended: Intel Pentium, 64 MB RAM, 133 MHz, 100 MB Free Space

Software requirements:

Operating system: Windows 3.1x (minimum)

Recommended: Win98 or Windows NT/2000

Installation   The following procedure will install the setup software on your computer's hard disk:

1. Start Windows. Make sure that no other programs are running during this installation.
2. Place installation **Disk #1** in your computer's floppy drive.
3. Run A:\Setup.exe (if A:\ is your floppy drive) or double click the file **Setup.exe** from My computer, 3.5 inch Floppy (A:).
4. Follow the instructions and insert the other installation disks as required.

Host Communications Setup

Be sure the communications port of the PC (Host) is correctly set for communications with the HMI panel. The following examples assume COM1 of the PC is used. If you are using COM2 – 4, substitute the correct COM port number in the example.

### Windows 3.1 Terminal Emulation

1. Power up the PC and start Windows software.
2. In the "Windows Accessories Group" select "Terminal" ICON.
3. Select "Communications" from the Settings pull down menu within Terminal program.
4. Set the communications settings for:
   9600 Baud rate
   8 Data Bits
   1 Stop Bit
   No Parity
   Xon/Xoff Flow Control
   COM1

5. Select "Binary Transfers" from the Settings pull down menu within Terminal program.
6. Set the Binary Transfer protocol to XModem/CRC.
7. Close menu and save the settings.
8. Terminal Communications settings are now complete.

Windows 98
1. Power up the Host and start Windows software.
2. In "Control Panel" select and open "System".
3. Open "Ports", select the COM port you are using then click "properties".
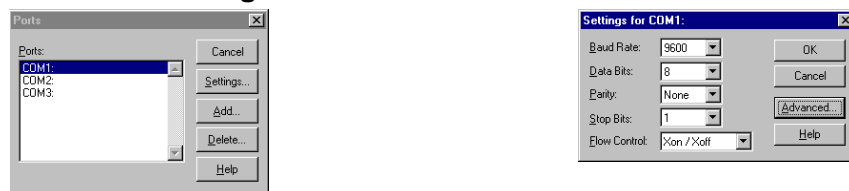
Figure 2-9
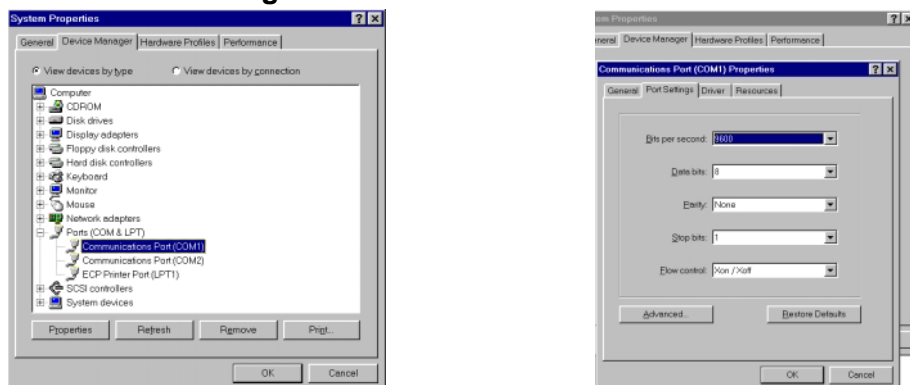
4. Be sure the port settings are as: Bits per second=9600, Data bits=8, Parity=none, Stop bits=1 and Flow control=Xon/Xoff.

Windows NT/2000
1. Power up the Host and start Windows software.
2. In "Control Panel", select and open "Ports" then click "Settings".

Figure 2-10

3. Be sure the port settings are as: Bits per second=9600, Data bits=8, Parity=none, Stop bits=1 and Flow control=Xon/Xoff.
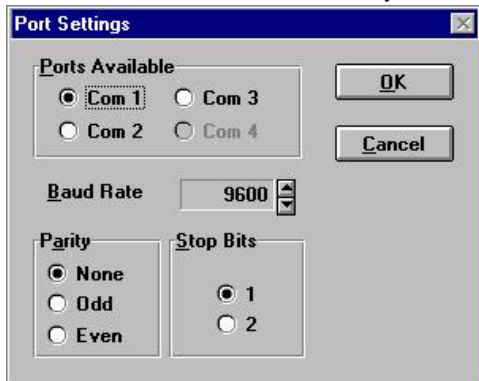
When software and hardware installations are complete, refer to MN1271 HMI Software manual for instructions on how to program the panel.

Software Settings

Start the Designer program. At the main menu, select
Options→Communications

Choose the COM port you will be using and be sure the settings are 9600, 1 Stop bit, No Parity. Click OK when done.

At the main menu, select Project→Change Controller Driver
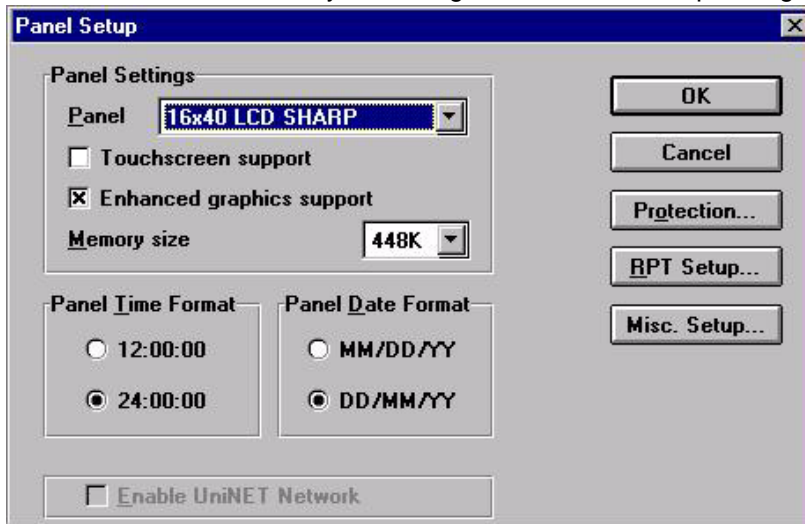

Select the control you are using.

Panel Setup   At the main menu, select Project→Panel Setup

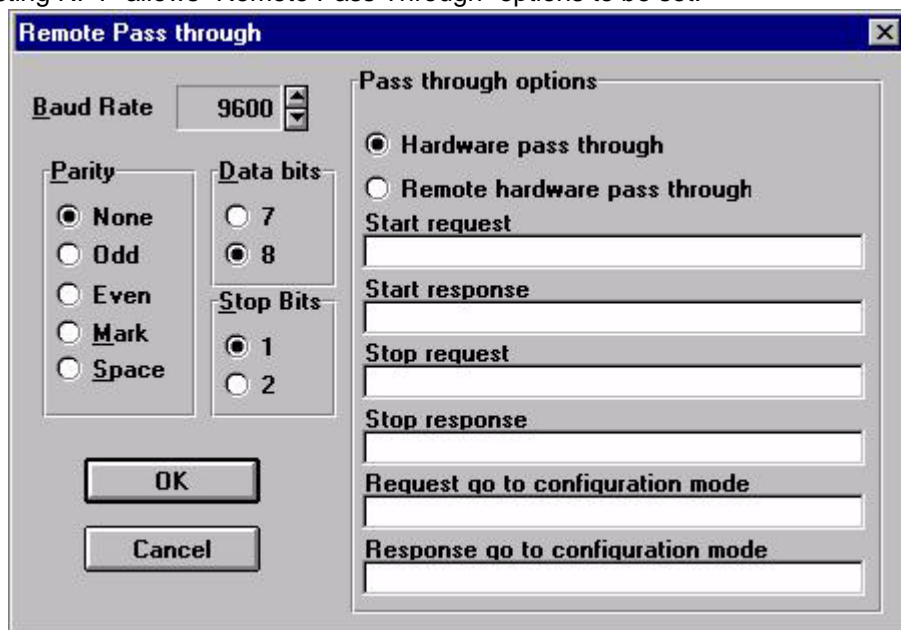

Select your settings on the Panel Setup Dialog box.
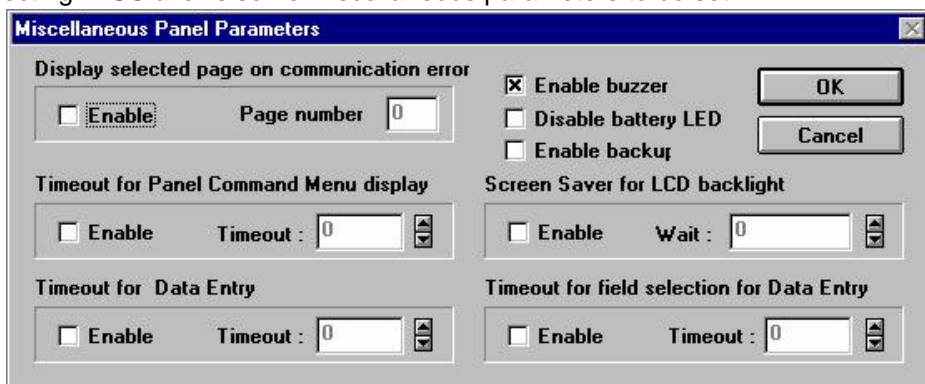

Selecting "Protection allows you to enter a password:

Note: Another quick way to do this is to retreive panel resources. To do this,
        connect and power up the panel. Press F4 to retrieve panel resources to the
        active project file then save the project.

Selecting RPT allows "Remote Pass Through" options to be set.

Selecting MISC allows some miscellaneous parameters to be set.

At the main menu, select Project→Controller Setup

Select the control model being used and set the communications for the control.
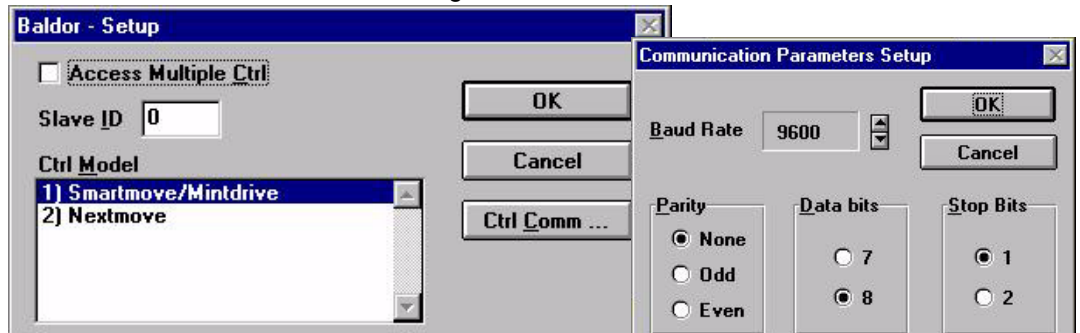
The system is now ready for programming. Refer to MN1271 for information on how to program the panel for operation.
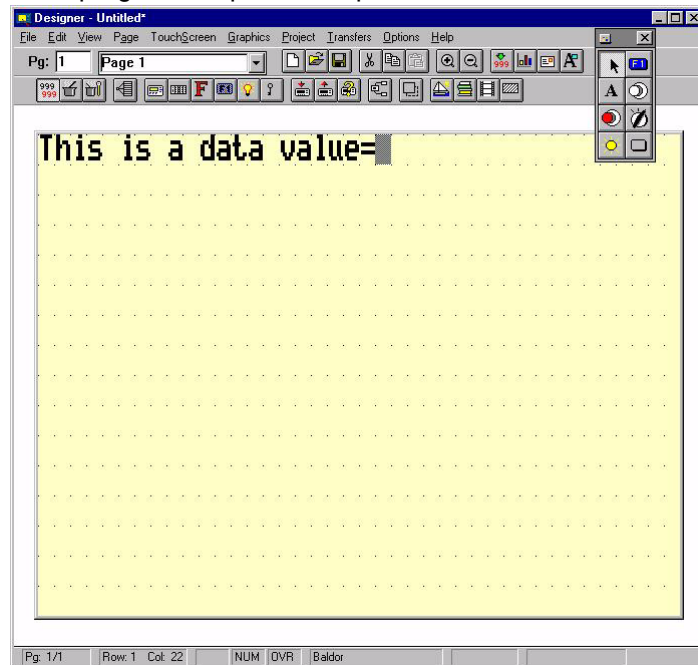
Quick Start   If you are an experienced user, you are probably already familiar with the operation and programming methods. If so, this quick start guide has been prepared for you. This procedure will help get your system up and running in the quickly and will operation to be verified. This procedure assumes that the panel is correctly installed (see Section 2 for procedures), the software is installed on your PC and that you have an understanding of the programming & operation procedures.   The quick start procedure is as follows:

1. Read the Safety Notice and Precautions in Section 1 of this manual.
2. Mount the Panel. Refer to Section 2.
3. Connect power. Refer to Section 2.
4. Connect the PC using cable CA2. Refer to Section 2.
5. Connect the controller's communication cable to the panel.
6. Start the PC and Click the icon for Designer.
7. Select Options→Communications. Set up the communications port.
8. Select Project→Change Controller Driver. Select the appropriate driver.
9. Select Project→Panel Setup. Press F4 to retrieve panel resources to the active project file.
10. Select Project→Controller Setup. Select the controller being used.

You are now ready to begin designing the project page. Create your own or do the following example.

Example:

1. Use the PC keyboard, type the words "This is a data value =" on the first page of the project.
2. Place the cursor after the equals sign and press ENTER.
   (The Define Field dialog box will appear on the screen).
3. Fill in the controller reference portion of the define field dialog box.
   (The data reference MUST already exist in the controller).
4. Click on the OK button to confirm the operation and create the field.
5. Select File→Save to save the project to disk.
6. Power up the panel and be sure it is in Configuration Mode (the words CONFIGURATION MODE will appear on the panel).
   If it is not in Configuration mode, hold down the ENTER key until the command menu appears. Use the arrow keys to highlight CONFIG or CFG and press ENTER again.
7. Select Transfers→Download from the main menu to send the project file to the panel. (If the default setup of the Designer software has not been changed, the project will start automatically after being downloaded).
8. After a short pause, check the display:
   a. The text that was typed in step 1 should be visible, along with the data value read from the controller.
   b. The Fault light should be off.
   c. The Com and Run lights (if present) should be ON. A blinking Com light indicates a communications error.

Section 3
Start-Up

Power Off Checks

Before you apply power, it is very important to verify the following:
1. Verify the panel is securely mounted to the enclosure opening.
2. Verify the gaskets are in place and slightly compressed but not flattened.
3. Verify the power supply voltage matches the panel's rated voltage.
4. Inspect all connections for accuracy, workmanship and tightness.
5. Verify that all wiring conforms to applicable codes.
6. Verify that the panel is properly grounded to earth ground.

Power On Checks
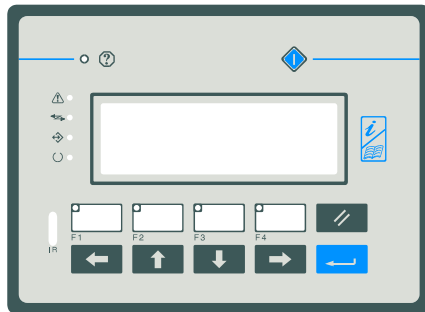
This procedure applies to the all panels.
1. Apply power to the panel.
2. Verify that all LED's are ON briefly during self test at power up. After self test is complete, only the ○ Run LED and ⇆ Communication LED remain ON.

Figure 3-1 Panel Layout Description (see Table 3-1)

KPD007 Panel

KPD008 Panel

KPD009 Panel

Table 3-1 Key and LED Description (see Figure 3-1)

Symbol	Name	LED Color	Definition
	Fault	Red	OFF – No failure. Battery OK. (Some panels do not have batteires.) Blink – Battery Low. ON – Hardware Failure detected.
		Green	OFF – No keys are pressed. ON – Visual feedback, ON while key is pressed.
	Servin		Pressing the SERVIN key while the unit is turned off, the FAULT led will blink for a short time if the battery is good. Refer to Section 4 for more information.
	Help		Same as HELP Key. Programmable with the Macro Editor.
	Fault	Red	OFF – No failure. Battery OK. Blink – Battery Low. ON – Hardware Failure detected.
		Green	OFF – No keys are pressed. ON – Visual feedback, ON while key is pressed.
	Alarm	Red	OFF – No alarms. Blink – Alarm requires acknowledgement. ON – Alarm active.
	Com	Green	Blink – Communications error. ON – Communications OK.
	Data Store	Green	Programmable with the Macro Editor.
	Run	Green	OFF – Hardware Fault. ON – Normal Operation.
	IR Port		Not Used.
	Function Keys		Programmable with the Macro Editor.
	Clear		Clear
	Enter		Enter
	Left		Scroll left.
	Up		Scroll up.
	Home		Use with the Macro Editor.
	Down		Scroll down.
	Right		Scroll right.

Table 3-1 Key and LED Description Continued

Symbol	Name	LED Color	Definition
Shift	Shift		Changes case (upper/lower) while in Data Entry Mode.
+/− F( )	Polartiy		Changes between positive and negative numbers in Data Entry Mode.
• //	Decimal Point & Delete		Decimal Point and Delete key.
0	Digit 0		Digit 0 in Data Entry Mode. INSERT in Page Mode, changes between insert and type over.
7	Digit 7		Digit 7 in Data Entry Mode.
4	Digit 4		Digit 4 in Data Entry Mode.
1	Digit 1		Digit 1 in Data Entry Mode.
8	Digit 8		Digit 8 in Data Entry Mode.
5	Digit 5		Digit 5 in Data Entry Mode.
2	Digit 2		Digit 2 in Data Entry Mode.
9	Digit 9		Digit 9 in Data Entry Mode. PRINT command in Page and Alarm Mode.
6	Digit 6		Digit 6 in Data Entry Mode. If pressed in Page Mode and a password is defined, recalls the Password Mode.
3	Digit 3		Digit 3 in Data Entry Mode. In Page Mode recalls the Time & Date Set Mode.
⏎ ▸	Escape		Returns to Page Mode from any menu. In Page Mode, available for use with the Macro Editor.
⩓	PG_UP		Available for use with the Macro Editor.
⩔	PG_DOWN		Available for use with the Macro Editor.

Communications Module

The CANopen module provides some diagnostic information during operation. To access the information, do the following:

- Connect a PC to the RS232/485 port.
- Start the Designer program.
- Select Page→Special Pages and Page Modes→System.
- Scroll to the bottom of the display.
- An example of the diagnostic information displayed is as follows:

```
OPT032-501 0 H100 X030 OK
```

Where:

`OPT032-501`	Communication module type (CANopen)
`0 H100 X030`	Internal codes
`OK`	Module Operation status

Error Codes

Code	Description
0	**No errors**
5	**Timeout error** – The controller has stopped sending NodeGuarding messages after initiating the NodeGuarding procedure.
6	**Response error** – Error in response from controller.
7	**General Communications error** – Internal software error.

Section 4
Operation

Battery Replacement Replace the battery when one of the following are observed:

- The ⊘ LED is blinking (FAULT or FLT indicator)
- The 'Battery' field in System Menu (BATTERY OK or LOW)
- The value of the S6 bit in the RDA is 1.

Model KPD008 requires a lithium battery for memory backup to prevent loss of data, real time clock, event list, and recipe data.

Note: Replacing the battery will cause the loss of the data maintained by the battery.

Replace the battery as follows:

1. Turn off the panel, disconnect input power cable and the push on ground terminal.
2. Remove the 2 screws labeled 'A' holding the rear cover, Figure 4-1.
3. Remove the cover.
4. Remove the 4 screws labeled 'B'.
5. Remove the cover.
6. Remove the battery.
7. Install a new battery.
8. Install the cover removed in step 5 and install the 4 screws labeled 'B'.
9. Install the cover removed in step 3 and install the 2 screws labeled 'A'.
10. Install the power connector and the push on ground terminal.
11. Apply power to the panel and check for good battery status.

Figure 4-1 Battery Replacement
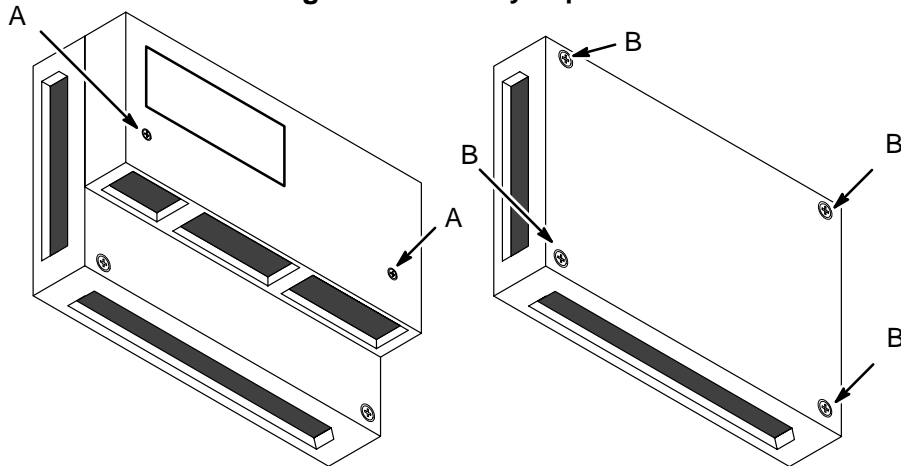
Battery Check at Power OFF

It is possible to check the battery status when the unit is turned off.

Press the SERVIN key while the unit is turned off, the FAULT led will blink for a short time if the battery is good. If the LED doesn't blink, it means that battery level is low.

Note: After a battery check, wait at least 20 seconds before rechecking the battery.

Touchscreen Calibration

Standard calibration:

1. Recall Configuration Mode.
2. Touch the CLEAR key until a small round symbol appears at the top right corner of the screen.
3. Touch and hold the symbol until it moves to the lower left corner of the screen.
4. Touch and hold the symbol until the indication to touch the ← key is displayed on the screen.
5. Touch and hold the key → until the indication to touch the ↑ key is displayed on the screen.
6. Touch and hold the key ↓ until the indication to touch the Enter key is displayed on the screen.
7. Touch and hold the Enter key until the panel changes to the Operation Mode (if a valid project is loaded in the memory).

Emergency calibration:

This procedure can be used when it is not possible to recall Configuration Mode.

1. Turn the unit OFF.
2. Turn the unit ON.
3. Press the middle of the touchscreen once per second until the panel changes to the Calibration Mode.
4. Perform the standard calibration procedure.

Section 5
Troubleshooting

Change Modes   When it is difficult to change to Configuration Mode, do the following:

KPD007 and KPD008 Panels
1. Turn the unit OFF.
2. Press and hold any 3 keys.
3. Turn the unit ON.
4. Hold the pressed keys until the Configuration Mode is displayed.

OR

KPD009 Panels
1. Turn the unit OFF.
2. Touch the middle of the left side of the display with one hand.
3. Turn the unit ON.
4. With the other hand, press the middle of the right side of the display about once per second.
5. Continue until the Configuration Mode is displayed.

CANopen Module

The CANopen module provides some diagnostic information during operation. To access the information, do the following:

- Connect a PC to the RS232/485 port.
- Start the Designer program.
- Select Page→Special Pages and Page Modes→System.
- Scroll to the bottom of the display.
- An example of the diagnostic information displayed is as follows:

```
OPT032-501 0 H100 X030 OK
```

Where:

OPT032-501	Communication module type (CANopen)
0 H100 X030	Internal codes
OK	Module Operation status

Error Codes

Code	Description
0	**No errors**
5	**Timeout error** – The controller has stopped sending NodeGuarding messages after initiating the NodeGuarding procedure.
6	**Response error** – Error in response from controller.
7	**General error** – Internal software error.

Section 6
Specifications & Product Data

Identification   The product may be identified through a plate attached to the rear cover. You will have to know the type of unit you are using for correct usage of the information contained in the guide. An example of this plate is shown in Figure 6-1.

Figure 6-1 Example Nameplate Identification

KPD007–501	product model name
01/02	month/year of production
20234 31623	serial number
H/W V	hardware version of the product
S/W V	software version of the product

Specifications

Power supply voltage	DC 18 – 30 V
Back–up battery	3V Lithium, non rechargeable, Duracell DL2430
Fuse	2A T user replaceable (KPD009 only)

Environmental conditions

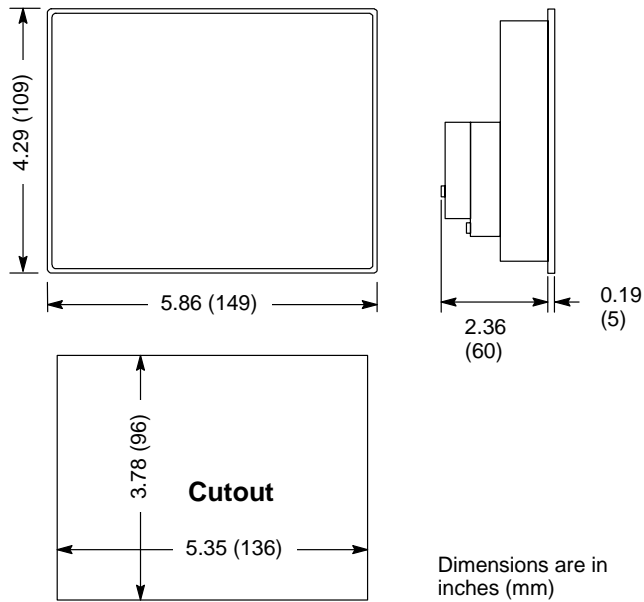|		
Operating temperature	0 +50 $^\circ$C	IEC 68–2–14
Storage temperature	–20 +70 $^\circ$C	IEC 68–2–14
Operating and storage humidity	5–95% RH non–condensing	IEC 68–2–3
Vibration	10–57 Hz, 0,075 mm peak 57–500 Hz, 1 g	IEC 68–2–6
Shock	50 g, 11 ms, 3 pulses per axis	IEC 68–2–27
Keyboard reliability	> 3 million operations	
Touch screen technology	Resistive	
Touch screen reliability	> 1 million operations	

Electromagnetic Compatibility (EMC)

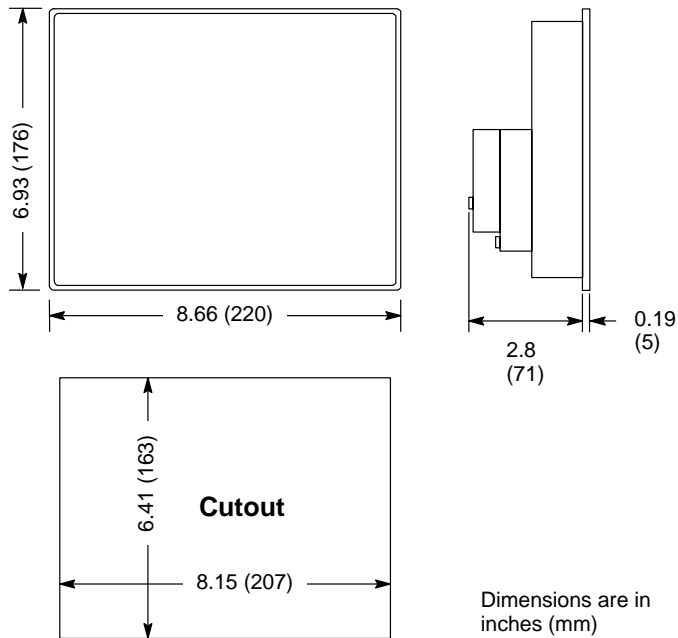|		
Emitted interference	Class A	EN 55011
Immunity to radiated radiofrequency electromagnetic field	80 MHz –1 GHz, 10 V/m 900 MHz, 10V/m	ENV 50140 ENV 50204
Immunity to conducted disturbances inducted by radiofrequency field	0.15 –80 MHz, 10 V	ENV 50141
Fast transient	2 KV power supply 1 KV signal lines	EN 61000–4–4
Electrostatic discharge	8 KV in air	EN 61000–4–2
PC/Printer Port	RS–232, D–sub 15 pin female, 300 – 38400 baud	
RS232/485 Port (PLC)	RS–232, RS–422, RS–485, 20 mA (active), D–15 pin male, 300 – 38400 baud	
CANopen Port (AUX)	D–9 pin female (functionality can be configured with an optional communication module)	
Recipe memory	16 KB / 32 KB RAM with back–up battery	
Hardware clock	Clock/Calendar with back–up battery	
Alarms	256/1024	
Historical event list	256/1024 events with back–up battery	
Programming software	Designer version 5.05	

Specifications Continued

Model	KPD007	KPD008	KPD009–501 (Mono)	KPD009–502 (Color)
Display	4x20 LCD	8x40 LCD	16x40 LCD	
Graphics	–	240x64	320x240	
Diagonal (inches)	–	5.2″ (132mm)	5.6″ (142mm)	
User memory (applications+protocol)	128KB (96+32)KB		8MB	
User memory expansion (Maximum)	No	512KB	No	
Function keys	4	23	Touchscreen (resistive)	
System keys	7	24	Touchscreen (resistive)	
Touch screen	No		Yes	
User LED's	5	24	0	
System LED's	4	5	5	
PC/Printer Port	No	Yes	Yes	
PLC Port	Yes	Yes	Yes	
AUX Port	Yes	Yes	Yes	
Programming speed	9600	9600 to 38400	9600 to 38400	
Battery	No	Yes	Yes	
Recipe memory	No	16KB	Not separate	
Alarms	256	1024	1024	
Events list	No	256	1024	
Hardware clock	No	Yes	Yes	
Downloadable characters	8	256	256	
Screen saver	No	Yes	Yes	
Buzzer	No	No	Yes (audible feedback for touch screen)	
Max power consumption on 24VDC (mA)	250	400	600	
Weight lbs (Kg)	1.98(0.9)	2.64(1.2)	3.08(1.4)	
Operating Temperature Range	0–50°C			
Enclosure	IP65 / NEMA4			

Dimensions
KPD007

4.29 (109)

5.86 (149)

2.36 (60)

0.19 (5)

3.78 (96)

Cutout

5.35 (136)

Dimensions are in inches (mm)

KPD008

6.93 (176)

8.66 (220)

2.8 (71)

0.19 (5)

6.41 (163)

Cutout

8.15 (207)

Dimensions are in inches (mm)

Dimensions Continued
KPD009

4.29 (109)

5.86 (149)

2.36 (60)

0.19 (5)

3.78 (96)

Cutout

5.35 (136)

Dimensions are in inches (mm)

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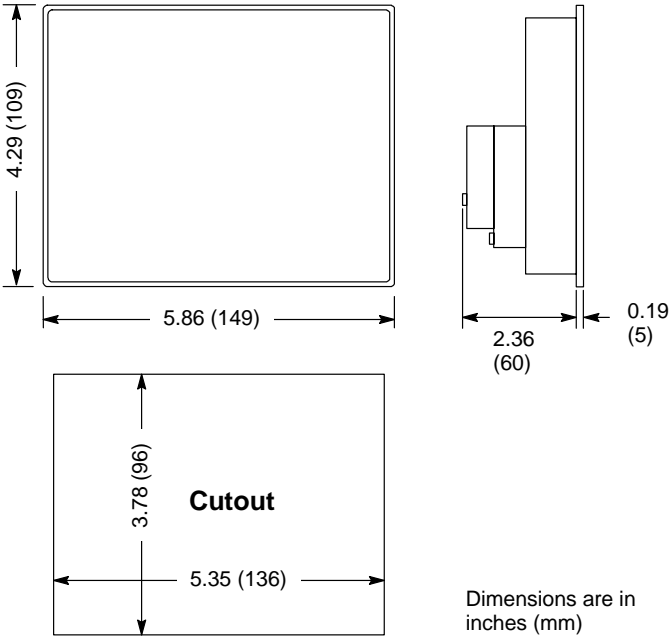
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