Datapanel

Operator Interface Products

Datapanel
200 & 300 Series

User's Manual

GFK-1571A *April 1999*

Warnings, Cautions, and Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware or software, nor to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. GE Fanuc Automation assumes no obligation of notice to holders of this document with respect to changes subsequently made.

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Revisons to This Manual

This revision includes the following changes:

- The Datapanel OI products feature a new enclosure design, which uses plastic clips instead of screws to secure the front and rear sections of the unit (chapter 4).
- Since the download cable is supplied with the Datapanel, the cable fabrication diagram previously included in chapter 4 is not needed and has been deleted.
- Other corrections and clarifications as required.

Content of This Manual

This manual describes features, installation, and operation of the following Datapanel 200 and 300 products.

Model
Datapanel 240T
Datapanel 320T BM
Datapanel 320T EM
Datapanel 320T EM with Genius
Datapanel 320T BC
Datapanel 320T EC
Datapanel 320T EC with Genius

Related Publications

GFK-1658 *Data Designer Software User's Guide*

GFK-1475 *WinCfg Software User's Guide*

Contents

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Chapter 1 Quick Start

This section is provided as a simplified introduction and operation guide. See subsequent chapters for more detailed information and explanation.

Installing the Datapanel

After positioning the Datapanel in the cutout, secure it using the spring clamps supplied with the Datapanel. Refer to Chapter 4 for cutout dimensions.

Connect the PLC-Datapanel cable between the PLC and the Datapanel. Connect the Datapanel power.

Starting Up

On power-up, the Datapanel will enter Run Mode and begin normal operation. The Start Up page will be displayed if one was specified during configuration with the configuration software. Otherwise, page 0 containing the logo will be displayed. Two lines of display are reserved for system use. The top line displays a mini alarm log, a communications error log, the date, the page number, and the time. The bottom line displays descriptive text for the function keys.

Viewing Other Pages

For a process that is running routinely, you would likely display a page which provides a good summary of process conditions. Other pages provide alternate views of the operation of the process. You can choose another page by typing in the page number and pressing (ENTER).

Viewing Overview Groups

Press **OVERVIEW** to see a list of Overview Groups which were configured for your application. The list of groups is displayed in pages, with 10 or 20 groups being listed on each page. Use <<< and >>> to move through the pages of the Overview list. Scroll through the pages of the Overview list until the required page is accessed. Use the ▲ or ▼ keys to select the required Overview Group from the displayed page. Press **TAGS** to display the tags and values associated with this group. You can return to the first page of the list at any time by pressing **OVERVIEW**.

Printing a Page

If the page being displayed has **PRINT** assigned to one of the F-keys, pressing that F-key will output the text content of the page to the printer.

Displaying Alarms

Press **ALARM LOG** to display the Alarm Log. When a tag exceeds its limits, it will remain in the Alarm Log until it has been acknowledged and returns to normal or until it has been overwritten by tags alarming at a later time in an overflowing alarm log. Three methods of showing unacknowledged alarms are used, depending on the Datapanel model: white text on black background, an asterisk to the left of the alarm, and red text on color models.

Acknowledging Alarms

Press **ALARM ACK** to acknowledge an alarm. The first press of the key clears the global alarm bit. Typically, this bit is sent to the controller to silence the audible alarm. Subsequent presses of the key clear each alarm in turn, starting with the earliest of the alarms. Press the ▲ or ▼ keys to access other pages of the log.

Adjusting Display Attributes

Press **MODE** to display the Mode Menu. Press DISPLAY to display the Display Control Menu. Press **INCREASE** or **DECREASE** repeatedly to adjust the contrast to the desired level.

Press **ON** to turn the display backlight on, enter a number within the range of 0 to 99 minutes. If the Datapanel keyboard or touch screen is inactive longer than this period the display will be turned off. The display will be turned back on when any key is pressed. If zero is entered, the backlight will remain on at all times.

Press **EXIT** to return to the main Mode Menu. Press **EXIT** to return to the displayed page.

Setting the Time and Date Display

Press **MODE** to display the Mode Menu. Press **OFF-L** to go off-line and display the Off-Line Mode Menu. Press **CLOCK** to display the Set Clock menu.

Touch Models

Press **SET** to access the pop-up screen touch numeric keypad. The active field is displayed at the top of the screen keypad. Press the up-down arrow keys (▲ ▼) to move from field to field on the display. Using the screen keypad, type in the desired values for each field in turn, press on the screen or on the physical keypad.

Press **UPDATE** to confirm the entries, update the clock, and return to the main Off-Line Menu.

Or, press **EXIT** to abort the option and return to the main Off-Line Menu without changing the clock settings.

Press **EXIT** to return to the main Mode Menu. Access the Run Mode by pressing **EXIT**.

Modifying the Process

An operator can modify the ongoing process by using the Drive Out function of the Datapanel. This enables fresh values to be transmitted to any configured Drive Out tag. If a softkey has been configured for Drive Out, press that key to access the Drive Out function.

A list of tags available for Drive Out and their associated index numbers will appear on the display. Enter the index number using the numeric keypad or the numeric touch region. Press . (If an incorrect value is entered, the message **bad input** is displayed and the value must be re-entered.) Additional Drive Out tags may then be entered. Pressing a second time after a value has been transmitted terminates the Drive Out option, and the normal page will be displayed.

Using Special Drive Out Capabilities

Five types of Enhanced Drive Out can be configured: Toggle, Ramp, Jog, Recipes, and Direct Write. If a tag with this capability is selected, the designation of the softkeys is re-assigned so that the user-defined labels for the toggle, ramp, jog or direct write functions will be displayed. On touch models, a special touch region may be displayed.

Toggle. Pressing the F-key or touch region defined for the toggle function will invert the value of the configured item. For example, this could be used to switch a valve from on to off.

Ramp. Pressing the F-key or touch region defined for the ramp function will display the current value and allow this value to be modified by pressing the up-down arrow keys (▲ ▼). The new value is confirmed by pressing .

Jog (aka Momentary). Pressing and holding the F-key defined for the function will continuously send a value (set or reset) to the configured item while the F-key is depressed. When the operator releases the F-key, the opposite value will be sent.

Recipes. Pressing the F-Key defined for the recipe function will run the recipe feature configured. This can load a group of recipe tags with pre-defined values, transmit a group of recipe tags down to the PLC device, or perform both of these tasks with just one press of a key.

Direct Write. Pressing the F-key or touch region defined for the direct write function will either:

1. Drive Out a preconfigured value.
2. Request operator input of a value to Drive Out.

Password Protection

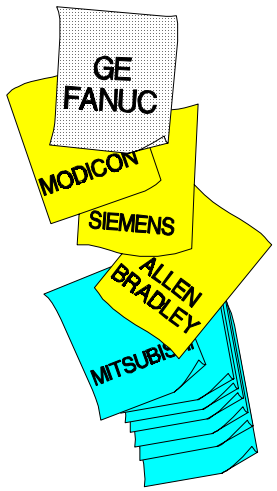
Some function(s) may be protected at the time of configuration. If so, a prompt is displayed asking for the password. The correct password for the particular option must be entered in answer to the prompt. An incorrect password aborts the request.

Chapter 2 Introduction to the Datapanel Range

The Datapanel Range consists of a series of low-cost Human-Machine Interfaces enabling the transfer of data from a Programmable Logic Controller (PLC) and other intelligent control devices to a comprehensive operator terminal. Datapanels are self-contained, solid state industrial display systems incorporating their own display screens and keypads. Datapanel Range Operator Interfaces (OIs) are an ideal replacement for discrete operator input and annunciation devices. Because of its many configurable options, a Datapanel can meet applications ranging from simple pushbutton replacement to complex interfaces beyond the capabilities of most small OIs.

Strong Commonality With Broad Range of Capabilities

With a uniform software and hardware architecture, Datapanels allow the user to produce an OI consistent with application budget and performance requirements while maintaining upgradeability. An expanding library of over 80 controller protocols is included with each Datapanel, meaning that a change in control hardware only requires reconfiguring communications and does not mean re-implementing the OI.



With a consistent architecture, Datapanel hardware is scaled to meet the cost and performance requirements of each particular model. That means application software can run on all models, providing extensive functionality on even the lowest price Datapanel. Application software makes Datapanels perform with efficiency. A wide range of applications software is built into every model.

An Operator Interface application is not restricted to emulating push buttons. Application software in Datapanels supports development of far more useful OI systems. Operator Interface software is included in every Datapanel. The software supports configuration of simple or complex OIs.

Standard features of all Datapanel models include:

- **Controller Communications.** Read and write data to the control equipment via a serial port.
- **Integrated Keypad.** Includes programmable function keys.
- **Broad Protocol Support.** Over 80 protocols supported.
- **Analog and Digital Tag Scaling.** Converts raw data to and from engineering units and adds tag name information.

- **Display Real-Time Data.** Provide information on the current state of the plant process.
- **Optional Display Modes.** Continuous updates, update continuously only when page is displayed, update once when page is first displayed.
- **Alarm Manager.** Checks for analog and digital alarms, maintains a log of active alarms and supports operator acknowledgment of alarms.
- **Graphic Page Display.** Display static and dynamic text on up to 200 user configured pages per Datapanel. Up to 512 dynamic elements may be updated from the controller per page. Multiple font sizes allow for emphasis of important data.
- **Softkeys.** Six keys per page, for up to 600 user-defined buttons per Datapanel. Buttons may change pages, write data, or perform other OI functions.
- **Overview Display.** Predefined tabular display of Datapanel and controller data.
- **NEMA 4X/4/12 Rated.** Ruggedized for harsh industrial environments.
- **VT 100 supported.** Emulation for expanded capability.

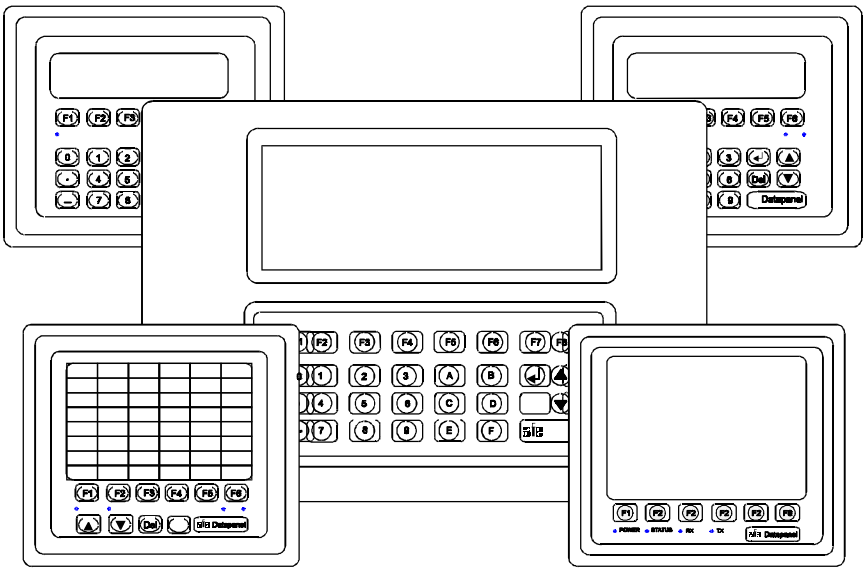
Configuration Software

Configuration of a Datapanel is quick and easy. Datapanels feature a common software environment, which means that configuring for one model is just like configuring for another. That increases productivity and decreases the time required to bring a Datapanel on-line. WinCfg, a PC-based tool operating under Windows® is used to create a database for the Datapanel. The database and communications protocol are loaded to the Datapanel via a serial port, and the OI may then be put on-line. WinCfg is sold separately. A single copy of WinCfg can be used to configure any of the Datapanel Range. WinCfg requires a PC-compatible computer running Windows 95®, Windows 98® or Windows NT®.

Industrial Housing

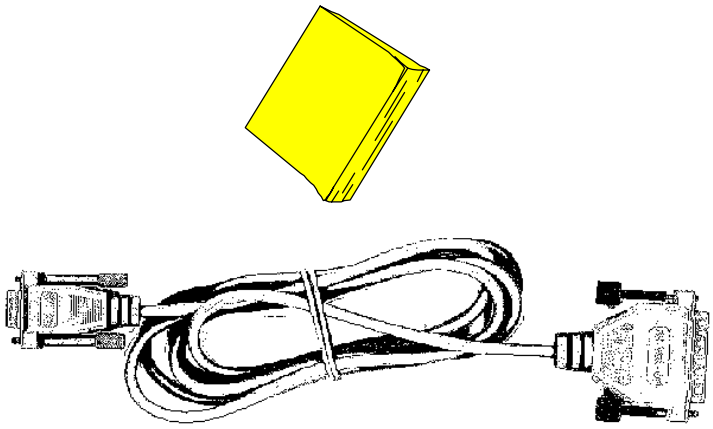
Datapanels are designed for use in demanding industrial applications. With over 15 years' experience in meeting the requirements of industrial users, Datapanels avoid the problems that can plague lesser-quality products. All hardware is designed to meet industrial application requirements. Datapanels are of compact, shallow design. All front external surfaces are sealed and protected to NEMA 4X/4/12 (IP65) standards against the penetration of water and foreign particles. Datapanels are ideally suited for use as ruggedized panel-mounted units in harsh industrial environments.

Components of the System



A Datapanel system includes:

- One unit from the Datapanel Range, incorporating an LCD display screen and membrane keypad and/or touch screen



- One PC-to-Datapanel cable
- Six Datapanel mounting clips
- One Operator's Manual (this book)

Although Datapanels are self-contained units, the use of a PC is necessary when configuring the system and when databases are being downloaded to the controller.

Chapter 3

Overview of the Midrange Datapanel Range

A brief description of each of the Datapanels is given below. A summary of Datapanel features and capabilities is given in Table 3-1. Chapter 4 provides information on installing the Datapanels, Chapter 5 provides operational information, and Chapter 7 provides detailed specifications.

The range is comprised of the following models:

Datapanel Model 240T
Has a bright display area with the functionality increased by use of the touch-screen technology.

Datapanel Model 320T Base
Has touch-screen technology in 16 shades of grey or 16 passive color modes.

Datapanel Model 320T Expanded
Has touch-screen technology in 16 shades of grey or 16 passive color modes. The expanded model adds PC/104 capability.

Datapanel Model 240T

If a flexible input system is a requirement for your OI application, then the Datapanel Model 240T is the answer. A 48-point touch input system, six user function keys, and control keys enhance the versatility of the Model 240T. A bright 240 x 128 pixel LCD display offers excellent visibility.

The panel cutout dimensions of the Model 240T are identical to the Model 320T and other Datapanel models. This allows a range of OI options to be offered without requiring modification to panel specifications.

In addition to the basic Datapanel runtime software, the Model 240T adds touch-input support and dynamic bitmap display. Pushbuttons may be simulated in many predefined styles, or new styles may be imported from many standard PC drawing packages.

Datapanel Model 320T

For monochrome or color applications, the Model 320T is the product of choice. In addition, the expandable version provides PC/104 capability, which gives the user the option of adding network interface cards. It has a 320 x 240 pixel display and an analog touch screen which makes possible any size touch button. It operates in either 16 passive color or monochrome 16 gray scale mode.

Table 3-1. Summary of Datapanel Features and Capabilities

Features	240T	320T Base	320T Expan.
Processor	NEC V20-10MHz	80386SX-40MHz	80386SX-40MHz
LCD Display Size (pixels) mm (in.)	240x128 119.4 x 63.5 mm (4.7 x 2.5 in.)	320x240 116.8 x 86.3 mm (4.6 x 3.4 in.)	320x240 116.8 x 86.3 mm (4.6 x 3.4 in.)
Display capability with minimum text size	40 char 14 lines	40 char 14 lines	40 char 14 lines
Minimum Text Size (pixels)	6w x 8h	8w x 16h	8w x 16h
Database Size	64k	107k	107k
Backlight	CCFT	CCFT	CCFT
Memory, Flash	256KB Flash	512KB Flash	512KB Flash
Memory, SRAM or DRAM	128KB SRAM	512KB DRAM	512KB DRAM (up to 8 MB)
Serial Ports	2 RS232	2 RS232	2 RS232
Additional Ports	No	No	Parallel, Keyboard, Ext. Floppy Disk Drive
Standard Software Features	Tag Scaling, Static and Dynamic data display, Alarm Manager, Read/Write to controller, Overview Display, Configurable Function Keys, Downloadable Database and Protocol, Variable text sizes		
Bar Graphs	Yes	Yes	Yes
Bitmap Graphics	Yes	Yes	Yes
Real-Time Trends	Yes	Yes	Yes
Host Comms	Yes	No	No
VT 100 Emulation	Option	No	No
PC/104 Expansion	No	No	Yes
Function Keys per Page	Six	Six	Six
Data Entry Keypad	10 keys	6 keys	6 keys
Touch Screen	Yes, 8 x 6 matrix	Yes, analog 1024 x 1024	Yes, analog 1024 x 1024
Controller Protocols	Over 80 supplied, including GE Fanuc, Modicon, Allen Bradley, Square D, Mitsubishi, Omron, Siemens, etc. Call for details.		
Analog Tags	500	1000	1000
Digital Tags (2 bits per tag)	500	1000	1000
Display Pages	100	200	200
NEMA, UL, CUL, CE	4X/4/12, UL, CUL, Class I Div II, CE	4X/4/12, UL, CUL, CE	4X/4/12, UL, CUL, CE

Minimum Customer Supplied Hardware

A PC or equivalent running Windows, is required to configure Datapanels and transfer databases and protocol to the Datapanel:

- 486 DX2/66
- 8 MB RAM
- VGA Color Display
- 10 MB Hard Disk Space

Chapter 4

Installing the Hardware

Physical Characteristics

Datapanels are housed in two molded enclosures forming the front and the rear sections of the unit. The front section of models 240 and 320 form a bezel with a large central aperture giving access to the LCD display and to the membrane keypad. The system hardware is mounted to the rear section with a gasket located between the front and rear sections to ensure conformity with IP65 (NEMA 4X/4/12) rating. The rear section of the housing is a simple cover designed to fully enclose the system hardware. The two sections are secured to one another by snapping them together. The four plastic clips (one located near each corner) should fully latch to one another. The physical dimensions and the required panel cutouts are shown in Table 4-1.

Table 4-1. Physical Dimensions and Panel Cutouts

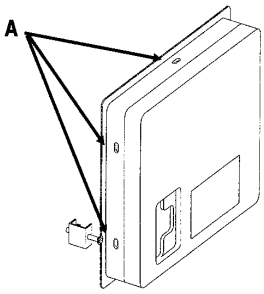
Features	240T	320T Base	320T Expan.
Dimensions (Inches)	8.19 Wide x 7.40 High x 1.81 Deep	8.19 Wide x 7.40 High x 1.81 Deep	8.19 Wide x 7.40 High x 2.67 Deep
Panel Cutout (Inches)	7.75 Wide x 6.97 High	7.75 Wide x 6.97 High	7.75 Wide x 6.97 High

Mounting Datapanels

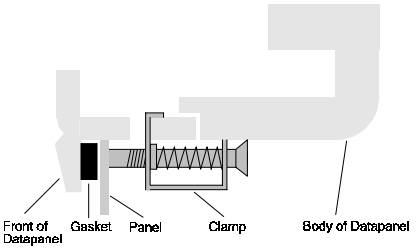
The Datapanel comes with a gasket glued in place on the bezel to ensure compliance with protection ratings. The Datapanel is secured using miniature screw clamps. The mounting points for the clamps are located on the front section of the Datapanels. Access to the rear of the unit is necessary so that clamps can be fitted.

After the Datapanel has been positioned in the cutout, the unit is then secured using the spring clamps as shown in Figure 4-1. Working from the rear of the panel, locate the clips in the slots shown in the diagram and marked A. The clamps should be tightened evenly so as to cause the nuts to rise up the screw threads and thus close the springs. It is important that the screws are not over-tightened, as the springs may then be deformed, resulting in an improper mounting of the Datapanel.

A total of six clamps are used to secure Models 240T and 320T.



Clamp Slot Locations



Clamp Mounting Detail

Figure 4-1. Datapanel Mounting Clamps

Cables

Two cables are required when using the Datapanels:

- The download cable is used when transferring databases or protocols from the configuration software to the Datapanel. The cable enables connection to a standard PC. For nonstandard PCs, consult the PC manual to check the pin configuration at the PC end of the cable. This cable is supplied with the Datapanel.
- The cable used to connect Datapanels to the controller. As a general guide, the only pin connections required at the Datapanel end are Tx, Rx, Signal, Ground; with RTS connected to CTS. Refer to your controller documentation for details of connections at the controller end. This cable is not supplied with the Datapanel.

Chapter 5 Operation Guide

Overview

Datapanels operate in one of two modes:

- Run — enables real time processes to be viewed from configured displays downloaded to Datapanel.
- Offline — enables the configuring of the communications port, setting the date and time, loading databases and protocols, and enabling or disabling alarm checking.

On power-up, the Datapanel will enter Run Mode and begin normal operation. The Start Up page will be displayed if one was specified during configuration with the configuration software. Otherwise, page 0 containing the logo will be displayed. The screen layouts of all Datapanels are similar in appearance, but vary slightly according to the capabilities of the various models. Two lines of display are reserved for system use. The top line displays a mini alarm log, a communications error log, the date, and the time as shown in Figure 5-1.

The bottom line displays descriptive text for the function keys. One of the obvious differences between various Datapanel models is the number and location of the function keys (F-keys). The Models 240T and 320T have six function keys each. The keys shown are the default configuration. Any of the keys may be assigned other labels and functions during configuration with the configuration software. They may have different labels and functions on different display pages. When the keys are reprogrammed from their default value, they are often referred to as *softkeys*.

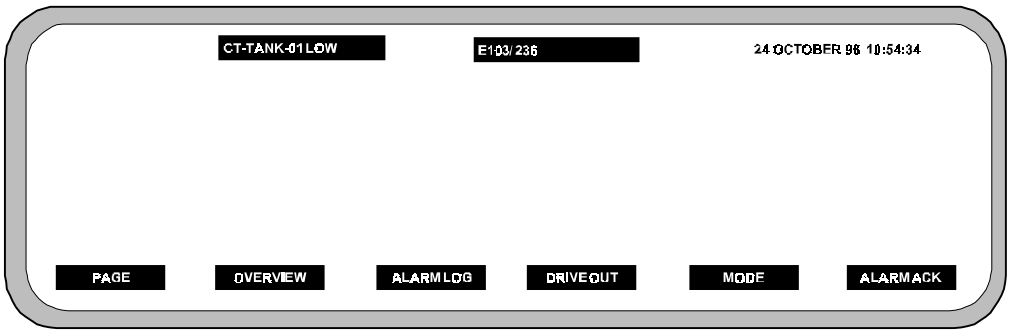


Figure 5-1. Function Keys of Datapanel Models

The default Run Mode function keys are:

- **PAGE** — displays configured pages. Often, the first page is configured as an index or menu of all other pages.
- **OVERVIEW** — displays configured Overview Groups.
- **ALARM LOG** — displays the Alarm Log.
- **DRIVE OUT** — allows the operator to write to the controller.
- **MODE** — allows the operator to switch between the Run Mode and Off-line.
- **ALARM ACK** — allows the operator to acknowledge alarms.

Typical Operation Scenarios

Routine Processing

For a process that is running routinely, you would likely display a page which provides a good summary of process conditions. The page might include a trend chart showing performance over some time period, a bar chart showing the availability of a critical process supply, and other elements showing constantly updating values of parameters indicating process efficiency (e.g., cans filled per hour, gallons of fruit juice per minute, kW of electricity consumed).

Viewing Other Pages

Other pages provide alternate views of the operation of the process. For instance, this would be useful if you noticed a change in some parameter and you wanted more detail on that aspect of the process. You can scroll through the pages by pressing the ▲ or ▼ keys. The ▼ key displays the next page; the ▲ key displays the previous page. The logo page or the Start Up page will appear when you press **PAGE**. If so configured by the configuration software, the Start Up page may show a list or menu of other pages. If so configured, you can use a redefined F-key or a touch region to access other pages.

Viewing Overview Groups

Press **OVERVIEW** to see a list of Overview Groups which were configured for your application. Each group contains a maximum of 10 configured tags which have been grouped together during configuration because they are relevant to each other, e.g., temperatures or pressures. There may be up to 100 groups. The list of groups is displayed in pages, with 10 or 20 groups being listed on each page. When the **OVERVIEW** key is pressed, the designation and function of some of the softkeys change. For instance, one of the F-key labels displays a left-chevron design (**<<<)** and another displays a right-chevron design (**>>>).**

Use <<< to move backwards through the pages of the Overview list. Use >>> to move forwards through the pages of the Overview list. Scroll through the pages of the Overview list until the required page is accessed. The range of Overview Groups on a particular page of the list is shown at the top of the display. Use the ▲ or ▼ keys to select the required Overview Group from the displayed page. Press **TAGS** to display the tags and values associated with this group. You can return to the first page of this list at any time by pressing **OVERVIEW**.

Printing a Page

If the page being displayed has **PRINT** assigned to one of the F-keys, pressing that F-key will output the text content of the page to the printer. For instance, you may want to do this at the end of a shift in order to have a permanent record of conditions at that time. Graphics on the page will not be printed.

Alarm Conditions

If one of the configured tags exceeds its limits, an alarm message will appear in the mini alarm log window and be added to the Alarm Log. Press the **ALARM ACK** F-key or touch region to acknowledge the alarm(s).

Displaying Alarms

Press **ALARM LOG** to display the Alarm Log. Sample Alarm Logs are shown in Figure 5-2. The capacity and display characteristics of the logs depend on the Datapanel type and are described in the table below. If the capacity of the log is exceeded, the earlier alarms will be lost. When a tag exceeds its limits, it will remain in the Alarm Log until it has been acknowledged and returns to normal or until it has been overwritten by tags alarming at a later time in an overflowing alarm log. Two methods of showing acknowledged alarms are used:

Model 240T: Unacknowledged alarms are indicated with an asterisk.

Model 320T: In the monochrome version, unacknowledged alarms are displayed in white text on a black background; acknowledged alarms are displayed using black text on a white background. In the color version, unacknowledged alarms are displayed in red; acknowledged alarms are displayed in black.

Acknowledging Alarms

Press **ALARM ACK** to acknowledge an alarm. The first press of the key clears the global alarm bit. Typically, this bit is sent to the controller to silence the audible alarm. Subsequent presses of the key clear each alarm in turn, starting with the earliest of the alarms. Press the ▲ or ▼ keys to access other pages of the log.

Additional Alarm Information

If the Datapanel has been configured to do so, selected alarms will be printed automatically as they occur. The mini Alarm Log shows the earliest unacknowledged alarm. The mini Alarm Log is updated as each alarm is acknowledged. When all alarms have been acknowledged, the mini Alarm Log is removed until another alarm condition occurs.

The **ALARM LOG** function key is displayed only if alarms are enabled. If the alarms were configured disabled or have been disabled in the Off-line option, the **ALARM LOG** and **ALARM ACK** function keys will be displayed blank.

Table 5-1. Alarm Log Characteristics

	Model 240T	Model 320T
Alarm Capacity	50	200
Alarms/Page	10	12
Mini Alarm Log	10 characters of tag name	10 characters of tag name
ACK method	* in ACK symbol column means not acknowledged	reverse video or red text means not acknowledged
Analog Alarms		
1st Column	ACK symbol	not used
2nd Column	10 characters of tag name	10 characters of tag name
3rd Column	4 characters of alarm type	6 characters of alarm type
4th Column	10 characters of value	not used
5th Column	5 characters of units	not used
6th Column	8 characters of time	8 characters of time
7th Column	not used	7 characters of date
Digital Alarms		
1st Column	ACK symbol	not used
2nd Column	10 characters of tag name	10 characters of tag name
3rd Column	4 characters of alarm type	6 characters of alarm type
4th Column	16 characters of status	not used
5th Column	not used	not used
6th Column	8 characters of time	8 characters of time
7th Column	not used	7 characters of date

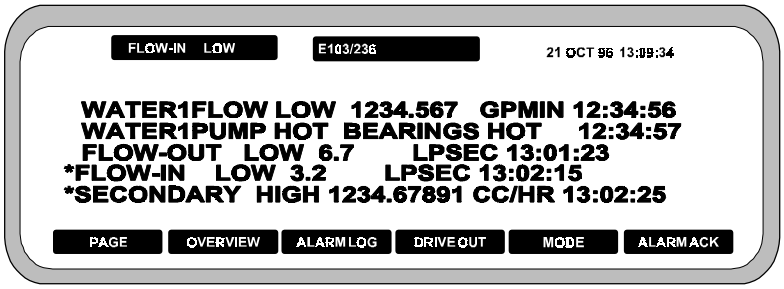


Figure 5-2. Sample Alarm Logs

Modifying the Process

An operator can modify the ongoing process by using the Drive Out function of the Datapanel. This enables fresh values to be transmitted to any configured Drive Out tag. If a softkey has been configured for Drive Out, press that key to access the Drive Out function.

Password Protection

The Drive Out function is usually password protected at the time of configuration. If so, when Drive Out is attempted, a prompt is displayed asking for the password. As there are three Drive Out options, three Drive Out passwords may have been configured, referenced to which display you have on the screen when you request Drive Out: Page, Monitor, or Overview. The correct password for the particular option must be entered in answer to the prompt. An incorrect password aborts the request. The Drive Out procedure is largely the same for each of the three options.

Selecting a Tag and Entering a Value

A list of tags available for Drive Out and their associated index numbers will appear on the display. Enter the index number using the numeric keypad or the numeric touch region. Press ↵. (If an incorrect value is entered, the message **bad input** is displayed, and the value must be re-entered.) Additional Drive Out tags may then be entered. Pressing ↵ a second time, after a value has been transmitted, terminates the Drive Out option, and the normal page will be displayed.

Special Drive Out Capabilities

Enhanced Drive Out (Output Operations)

Six types of Enhanced Drive Out can be configured: Macro, Jog, Toggle, Ramp, Recipe, and Direct Write. If a tag with this capability is selected, the designation of the softkeys is re-assigned so that the user-defined labels for the toggle, ramp, or direct write functions will be displayed. On touch models, a special touch region may be displayed.

Macro Pressing the F-key defined for a macro function causes a custom-configured operation to be performed.

Toggle Pressing the Function-key or touch region defined for the toggle function will invert the value of the configured item. For example, this could be used to switch a valve from on to off.

Ramp Pressing the Function-key or touch region defined for the ramp function will display the current value and allow this value to be modified by pressing the up-down arrow keys (▲ ▼). The new value is confirmed by pressing ↵.

Jog Pressing and holding the Function-key defined for the function will continuously send a value (set or reset) to the configured item while the F-key is depressed. When the operator releases the F-key, the opposite value will be sent.

Recipe Pressing the F-key defined for the recipe function will run the recipe feature configured. This can load a group of recipe tags with pre-defined values, transmit a group of recipe tags down to the PLC device, or perform both of these tasks with just one press of a key.

Direct Write Pressing the Function-key or touch region defined for the direct write function will either:

1. Drive Out a preconfigured value.
2. Request operator input of a value to Drive Out.

Chapter 6 Special Operations: Mode Menu

The Mode menu is normally not used during routine operation of the Datapanel. It allows the operator to display information about the Datapanel, change the attributes of the display, or operate the Datapanel in the off-line mode. Press **MODE** to display the Mode Menu.

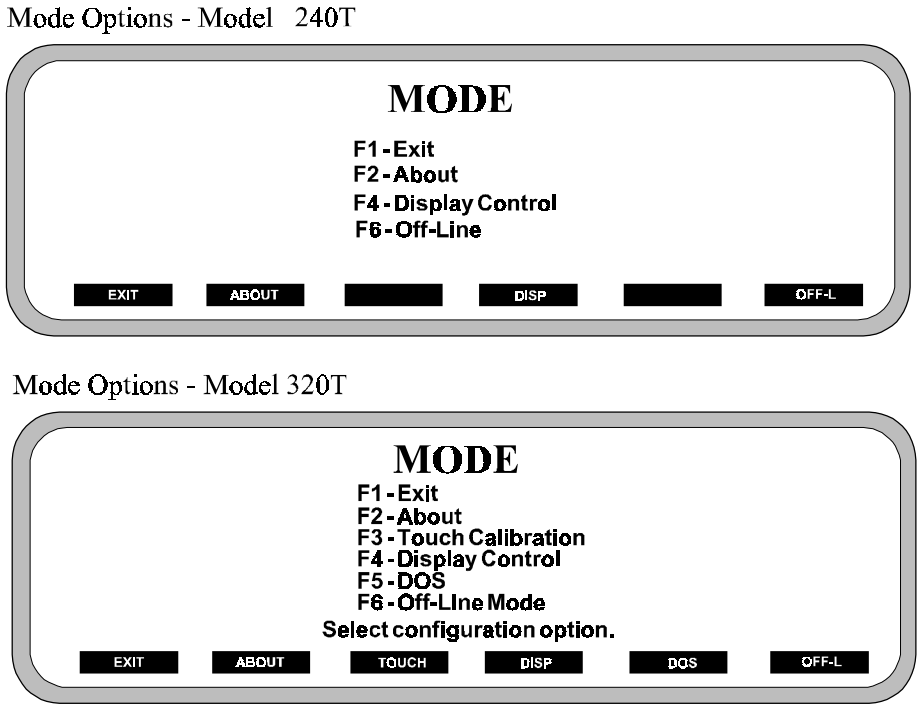


Figure 6-1. Mode Menu

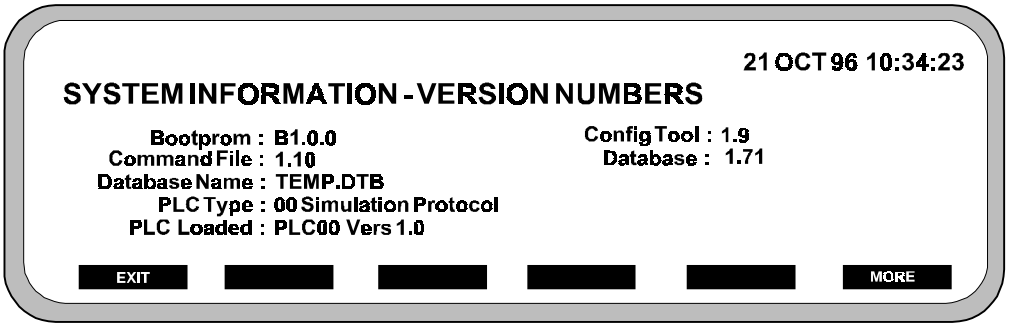
Exit

Press **EXIT** to return to the startup page.

About Menu

Press **ABOUT** to display information about the Datapanel as shown in Figure 6-2. This information cannot be edited. Press **MORE** to display the configuration of the port settings. Press EXIT to return to the main Mode menu.

About Page - Model 240T



About Page - Model 320T

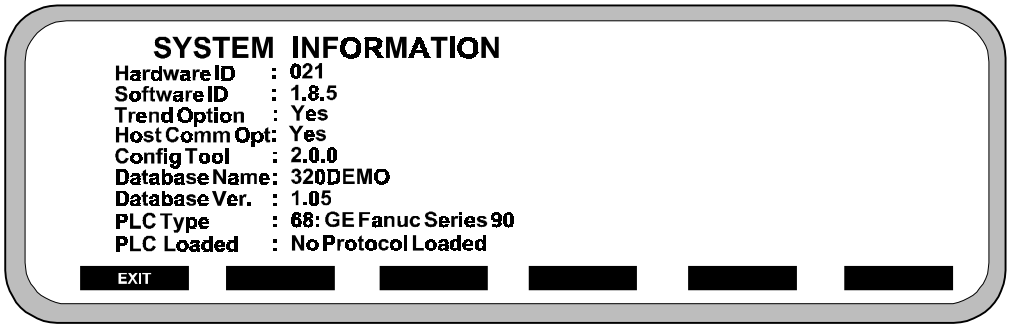
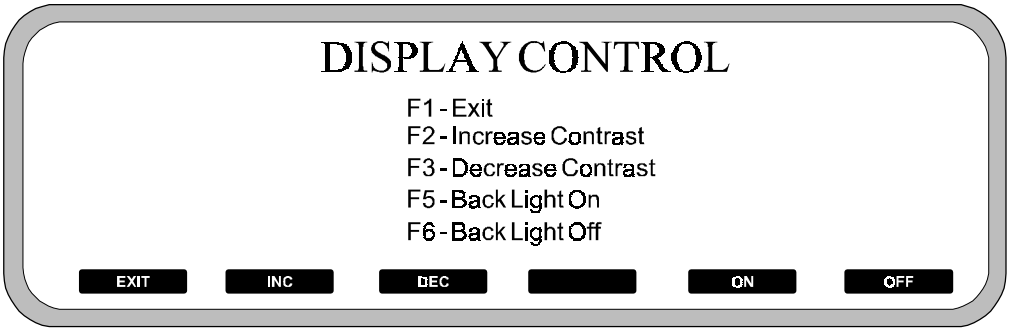


Figure 6-2. About Menu

Display Control Menu

Press **DISP** to view the Display Control Menu. This menu allows the operator to change the display contrast setting, reverse the display, or to switch the backlight on or off. Unless the backlight is configured OFF with WinCfg, the default is ON.



Display Control Options - Models 240T and 320T

Figure 6-3. Display Control Menu

Press **INC** repeatedly to increase the contrast to the desired level.

Press **DEC** repeatedly to decrease the contrast to the desired level.

Press **ON** to turn the display backlight on. The Datapanel will display the prompt:

Enter delay period in minutes -

If you want the display to be turned off after a period of inactivity, enter a number within the range of 0 to 99 minutes. If the Datapanel keyboard or touch screen is inactive longer than this period the display will be turned off. The display will be turned back on when any key is pressed. If zero is entered, the backlight will remain on at all times.

On Models 240T and 320T a numeric keypad touch region will be displayed for entering the number.

Press **OFF** to turn the backlight off. This should be done in environments where the backlight is not needed in order to conserve power.

Press **EXIT** to return to the main Mode menu.

PLC Fault Screens

Note

The PLC Fault Screens are available for Model 320 only in this version.

User SNP/SNP-X (protocol 68) will have another button available on the MODE screen. F5 is labeled FAULT. These screens allow the user to view the current run-mode of a PLC device and its PLC and I/O Fault tables. If write privileges are enabled, these tables may be cleared from the Datapanel and the run-mode changed.

Configuring PLC Fault Screen Options

Additional configuration is required if the datapanel is used in a multi-drop application or the Datapanel is to have the ability to modify the fault table or the run-mode of the PLC. If a multi-drop network is connected to the Datapanel, the SNP IDs of the PLCs must be entered using the PC configuration tool . Similarly, if the Datapanel is to have write privileges, this must be set with the PC configuration tool. Neither of these options is the default.

Selecting the PLC

If a multi-drop network is used, or SNP/SNP-X is chosen for both Port 1 and Port 2, the user will be prompted for which PLC they wish to communicate with after pressing FAULT on the MODE screen. The arrow keys may be used to highlight the correct SNP ID and the F-key labeled PORT toggles the communication port selection. The ENTER F-key continues to the PLC Faults screen.

PLC Faults Screen

This screen displays the PLC Faults log of the PLC.

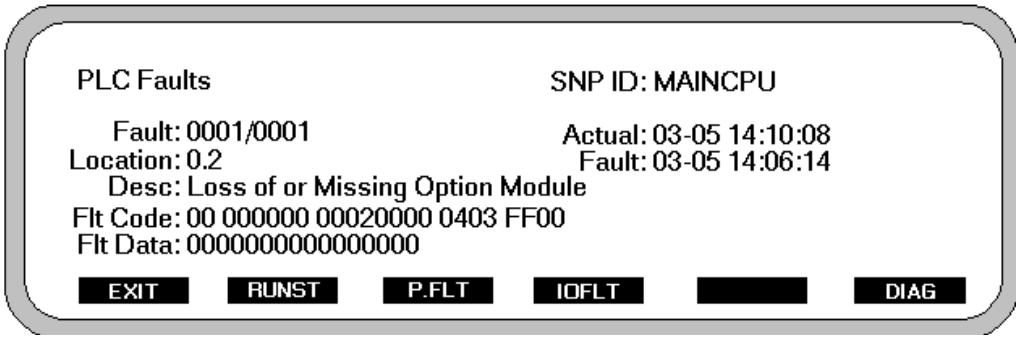


Figure 6-4. PLC Faults Log– Model 320T

Information is presented as follows:

Fault lists the displayed fault number out of the total number of faults registered in the system.

Location gives the rack and slot that reported this fault.

Desc provides a short text description of the problem.

Actual shows the current time in the PLC.

Fault provides the time stamp of the reported fault. Since the PLC clock may not be synchronized with the Datapanel, these entries can be significantly different from the Datapanel time and/or the current time of day.

If DIAG is pressed, the Fault Code and Fault Data lines appear. These provide more detailed fault codes that can be referenced n GE-Fanuc literature or with technical support.

Other function keys at the bottom of the screen include: RUNST, which changes to the Set PLC State page; IOFLT, which changes to the I/O Faults page; and EXIT, which returns to the MODE screen. If write privileges are enabled, the fifth function key will be labeled CLEAR. Pressing it

will clear the PLC fault log in the PLC. If the PLC is password protected, the user will be prompted for a Level 2 SNP password.

I/O Fault Screen

The I/O Fault Screen displays the I/O Faults log in the PLC.

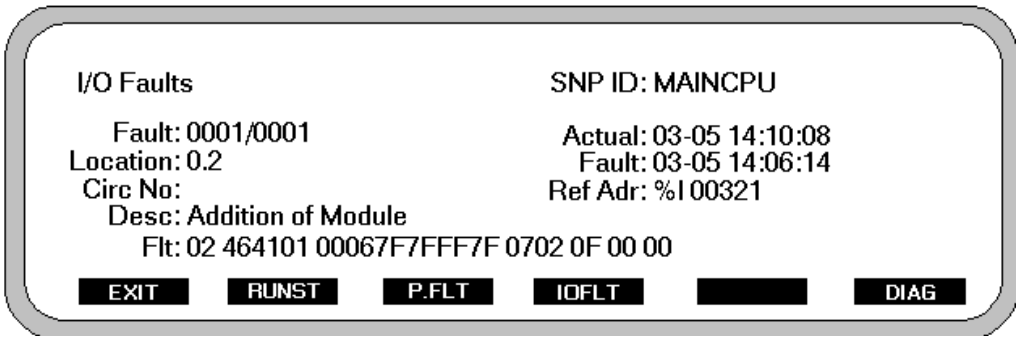


Figure 6-5. PLC I/O Faults Screen – Model 320T

The fields are similar to those in the PLC Faults screen.

Circ No is the point on a multi-point card, such as digital input 4 of a 16-pt module. Reference address provides the PLC table mapping of the card.

Set PLC State

This screen allows the user to view and modify the PLC's run-state.

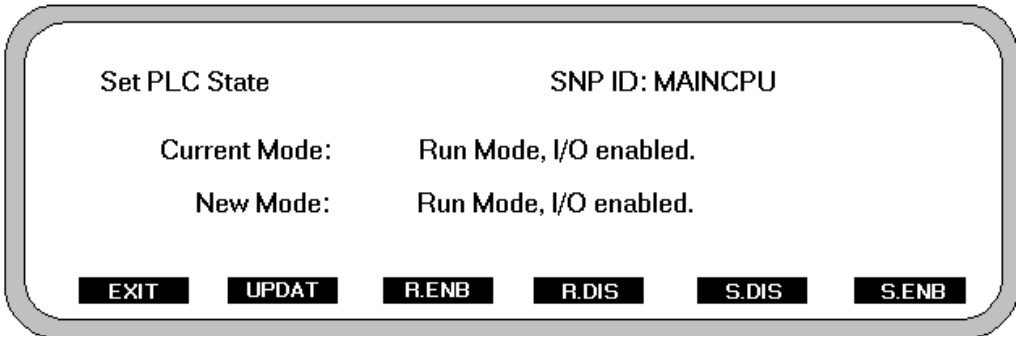


Figure 6-6. PLC Run/Stop Mode Screen – Model 320T

Current Mode states the present mode of the PLC. New Mode will change to reflect the last button the user pressed from four mode options.

R.ENB will change the new mode to Run Mode, I/O enabled.

R.DIS (only available for certain PLC models) will change the new mode to Run Mode, I/O disabled.

S.DIS will change the new mode to Stop Mode, I/O disabled.

S.ENB will change the new mode to Stop Mode, I/O enabled.

UPDAT is only available if write permissions have been set in the PC Configuration tool. Pressing update will attempt to change the current mode to the new mode selected. If the PLC is password protected, the user will be prompted for a Level 2 SNP password. Successful operation is marked by the current mode changing to the new setting.

EXIT returns to the PLC or I/O Fault screen.

Off-Line Mode

The **Off-line** mode enables the operator to configure the communications port, set the date and time, load databases and protocols, and enable or disable alarm checking. When the Off-Line option is accessed, all controller communications and alarms are inactive and the mini alarm log is not displayed. The real time clock is not displayed but is running as a background task.

This function is usually password protected at the time of configuration. If so, when Off-Line is attempted, a prompt is displayed asking for the password. The correct password must be entered in response to the prompt. An incorrect password aborts the attempt to go off-line.

Press **OFF-L** to go off-line and display the Off-Line Mode menu shown in Figure 6-7. Off-Line Mode Menu

When finished, press **EXIT** to return to the main Mode menu. The system will revert to the main Mode Menu but will remain Off-line until Run Mode is accessed by pressing **EXIT**. The clock and the mini alarm log will again display.

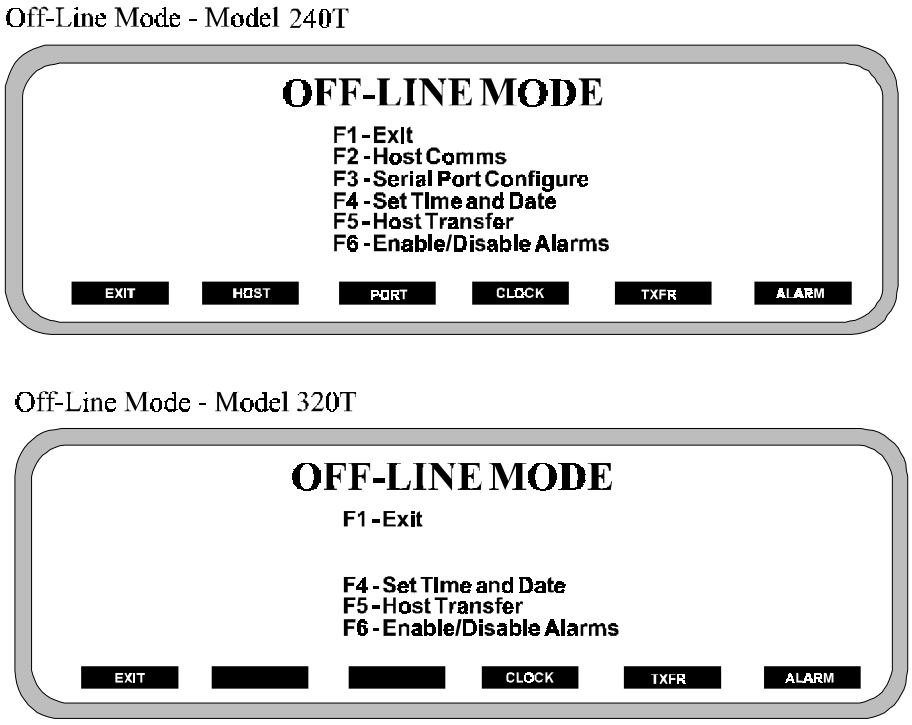


Figure 6-7. Off-Line Mode Menu

Serial Ports Configure

Press **PORT** to display the Set Ports Menu shown in Figure 6-5.

This option also enables the display and modification of the configured settings for Port COM1 and Port COM2, if present. When finished, press **EXIT** to return to the Off-Line Mode menu.

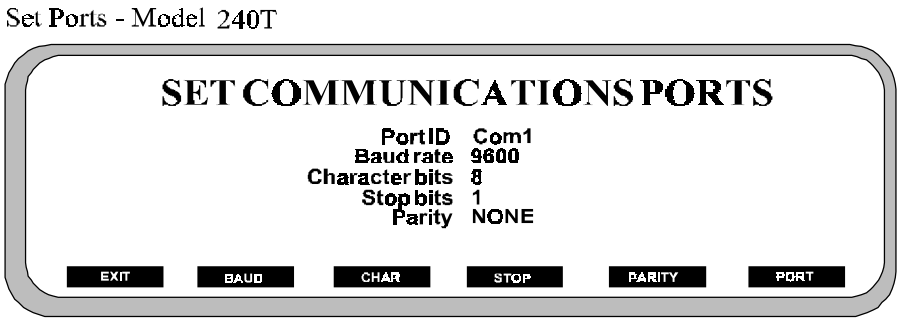


Figure 6-8. Set Ports Menu

Press **PORT** to toggle between COM1 and COM2 to select the desired port.

Press **BAUD RATE** repeatedly to scroll through the available baud rates to select the desired rate.

Press **CHAR BITS** repeatedly to toggle between 7 and 8 to select the desired number of character bits.

Press **STOP BITS** repeatedly to toggle between 1 and 2 to select the desired number of stop bits.

Press **PARITY** repeatedly to scroll through the available parity choices to select the desired parity.

Press **EXIT** to return to the Off-Line Mode menu.

Set Time and Date Display

Press **CLOCK** to display the Set Clock menu shown in Figure 6-6.

Set Clock - Models 240T and 320T

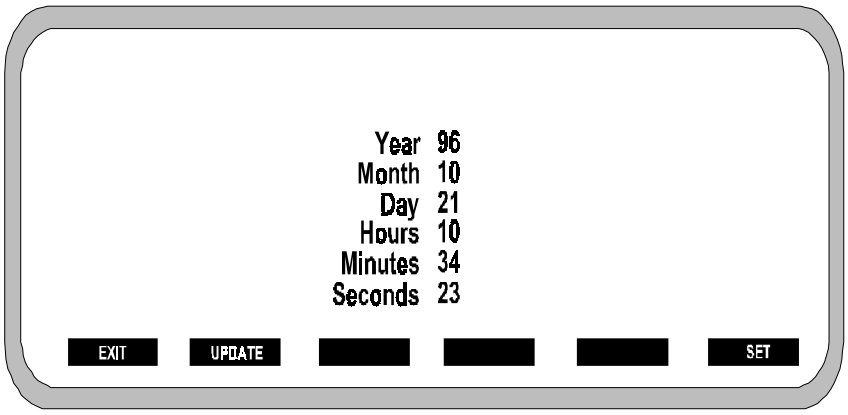


Figure 6-9. Set Clock Menu

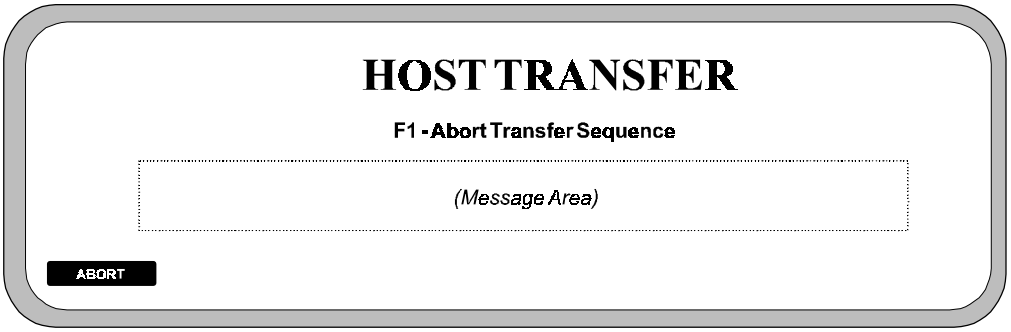
All Models

Press **UPDATE** to confirm the entries, update the clock, and return to the main Off-Line Menu.

Press **EXIT** to abort the option and return to the main Off-Line Menu without changing the clock settings.

Host Transfer

Press **TXFR** to access the Host Transfer display and enable data transfer between the Datapanel and the WinCfg PC. To exit the transfer, press **ABORT.**



Display for Host Transfer

Figure 6-10. Host Transfer Display

The actual transfer of the data is under the control of the PC. The following messages will be displayed in the message area of the display:

When downloading a Protocol:

Loading Communications Protocol ...
and on the same line when complete, Protocol installed.

When downloading a Database:

Loading Database ...
and on the same line when complete, Database installed.

When uploading a Database:

Uploading Database ...
and on the same line when complete, Database transferred.

When a communications error occurs:

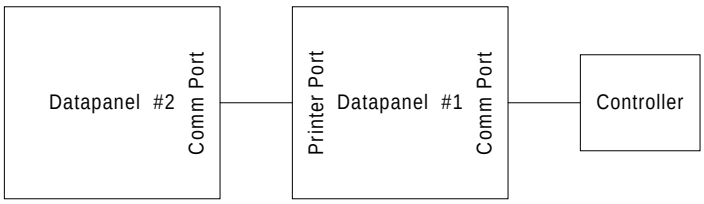
Transfer Failed

Enable/Disable Alarms

Press **ALARM** to access the alarm option. The label of one of the F-keys will change to **ENABLE,** another will change to **DISABLE**. Press **ENABLE** to enable alarms. Press **DISABLE** to disable alarms. Press **EXIT** to return to the Off-Line Menu. This option is useful to prevent excessive alarm logging during periods of operation with known process discrepancies or during process testing.

Configure Host Comms (Model 240T Only)

If the Datapanel was purchased with the Host Comms, the printer port on the Datapanel can be used for communicating with another Datapanel. The required configuration is shown in Figure 6-8. Datapanel #1 is connected to the controller via its comm port. The printer port on Datapanel #1 is connected to the comm port on Datapanel #2. With Host Comms enabled on Datapanel #1, Datapanel #2 can now indirectly communicate with the controller, using Datapanel #1 as an intermediary. Datapanel #1 and Datapanel #2 can be configured with different displays, alarms, etc. The device shown as Datapanel #2 can be any device which is compatible with the HOST COMM communication protocol, Modbus RTU.



Configuration for Using Host Comm

Figure 6-11. Datapanel Configuration For Host Comms – Model 240T Only

When Host Comms is enabled:

- the values entered in the Datapanel Printer Port for Datapanel #1 must be compatible with the comm port settings for Datapanel #2.
- a Node ID for Datapanel #1 must be entered.
- no print facilities are available for Datapanel #1 but print facilities can be implemented on Datapanel #2.

- all alarm printing is disabled unless it is done through Datapanel 2.

Press **HOST** to display the Set Host Communications menu shown in Figure 6-12. Set Host Comm MenuIf the Host Comms option is not installed, the message screen shown in Figure 6-12. Set Host Comm Menu will appear.

Press **MODE** to toggle between enabled and disabled to select the desired mode. When Host Comms is enabled, a unique Node Identity must be assigned to the Datapanel #2. Press **<NODE** or **NODE>** to scroll through the possible total of 256 Node IDs to select the desired ID. Use the **<<<NODE** and **NODE>>>** keys to increment in steps of 10.

Press **EXIT** to accept the data and return to the main Off-Line Menu. Press **QUIT** to abort the option and return to the main Off-Line Menu without changing the settings.

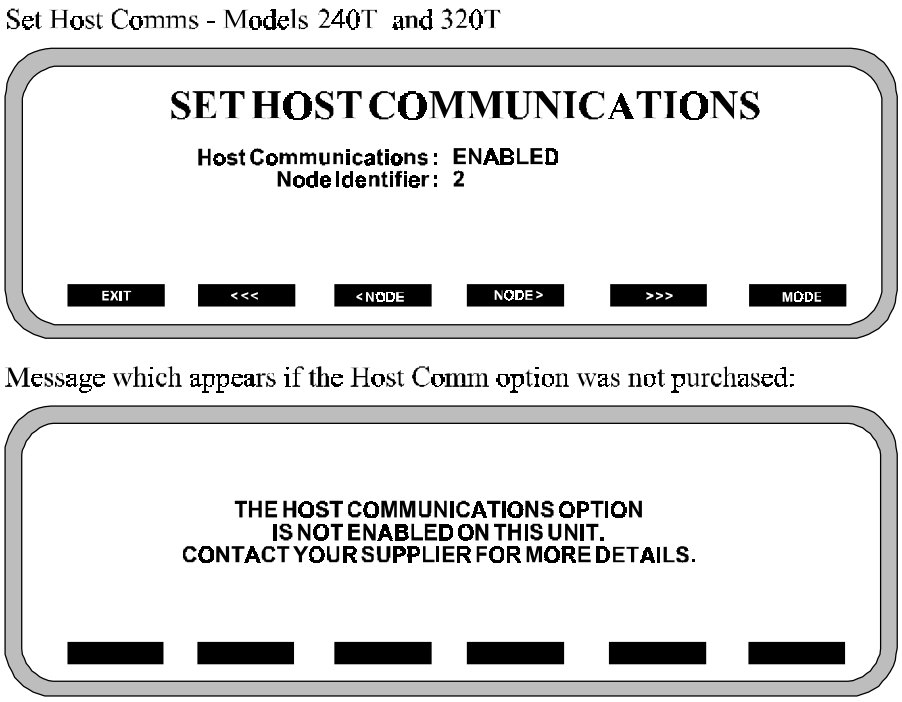


Figure 6-12. Set Host Comm Menu

Chapter 7

Specifications

Hardware Specifications

Display

Text can be displayed in a variety of sizes by changing the height and width of the text. The default size is displayed with a height and width of 1 x 1 (see table below for pixel relationships). This can be increased so that text of 4 x 4 size can be configured. Two lines of the display are reserved for system use. The top line displays the date and time and any communications errors. The bottom line displays descriptive text for the function keys. The display area and display characteristics of the models in the Datapanel Range are specified in Table 7-1.

Table 7-1. Display Area and Characteristics

Features	240T	320T Base	320T Expan.
LCD Display Size (pixels) mm (in.)	240x128 119.4 x 63.5 (4.7 x 2.5	320x240 116.8 x 86.3 (4.6 x 3.4)	320x240 116.8 x 86.3 (4.6 x 3.4)
Display capability with minimum text size	40 char 14 lines	40 char 14 lines	40 char 14 lines
Minimum Text Size (pixels)	6w x 8h	8w x 16h	8w x 16h

Touch Models

Overlaid on the display area is a resistive touch membrane divided into rows and columns providing touch regions that can be configured by the user. On the Model 240T 48 touch regions are provided. The Model 320T uses an analog resistive touch membrane with a resolution of 1024 x 1024 touch regions.

Backlight

The backlight type is given in Table 7-2. The backlight of the display can be switched ON or OFF on all models in the Datapanel Range. Operation of the backlight is defined during configuration by the configuration software. In addition, the operator can control the backlight using the membrane keypad.

Table 7-2. Backlight Type

Features	240T	320T Base	320T Expan.
Backlight	CCFT	CCFT	CCFT

Keypad

All Datapanels incorporate built-in membrane keypads with audible feedback as described in Table 7-3.

Table 7-3. Keypad Characteristics

Features	240T	320T Base	320T Expan.
Function Keys per Page	Six	Six	Six
Data Entry Keypad	10 keys	6 keys	6 keys
Touch Screen	Yes, 8 x 6	Yes, analog 1024 x 1024	Yes, analog 1024 x 1024

Touch Models

The use of a resistive overlay on the touch models of the Datapanel Range has enabled the development of a much simpler membrane keypad with the resistive touch areas being configured for most of the operator keying functions.

Technical Specifications

The technical specifications are given in Table 7-4.

Table 7-4. Technical Specifications

Features	240T	320T	320T Expan.
Processor	NEC V20-10MHz	80386SX-40MHz	80386SX-40MHz
Memory, Flash	256KB Flash	512KB Flash	512KB Flash
Memory, SRAM or DRAM	128KB SRAM	512KB DRAM	512KB DRAM (up to 8 MB)
Database Size	64k	107k	107k
Serial Ports	2 RS232	2 RS232	2 RS232
Additional Ports	No	No	Parallel, Keyboard, Ext. Floppy Disk Drive

Electrical Specifications

Power Requirements

The power requirements are given in Table 7-5. Power Requirements

The steady state current consumption of the Datapanel is dependent on the supply voltage. At power-up, the Datapanel briefly requires a larger current to operate correctly. To ensure correct power-up, the external power supply must be able to provide a current of at least 1 A, irrespective of the supply voltage.

The power for the 240T Datapanel can be supplied either through the 4-pin power connector or through pins 14 - 17 on the 25-pin connector. However, pins 14 - 17 are intended only as a secondary power input option for end-users wishing to supply power from the controller. It is recommended that power be supplied via the dedicated input connector.

When operating Datapanel Model 320T, the external power unit supplied with the model must be used.

Table 7-5. Power Requirements

Features	240T	320T	320T Expan.
Power Input	9-35VDC, 24VAC (500 mA @9VDC)	90-250 VAC with supplied power supply	90-250 VAC with supplied power supply

Ports and Pinouts

Ports and Pinouts are given in the following figures.

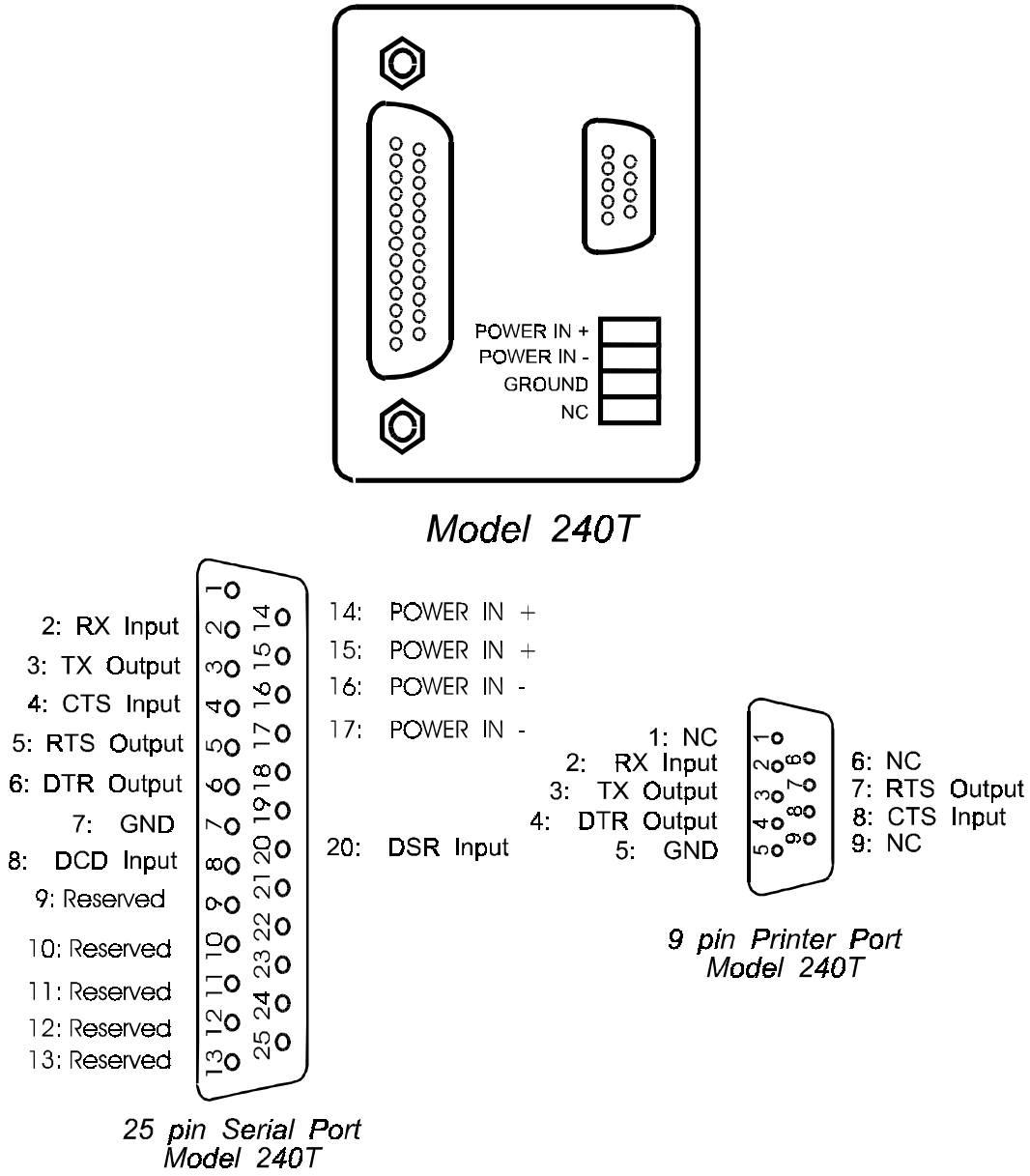


Figure 7-1. Model 240T Ports and Pinouts

Model 320T Base

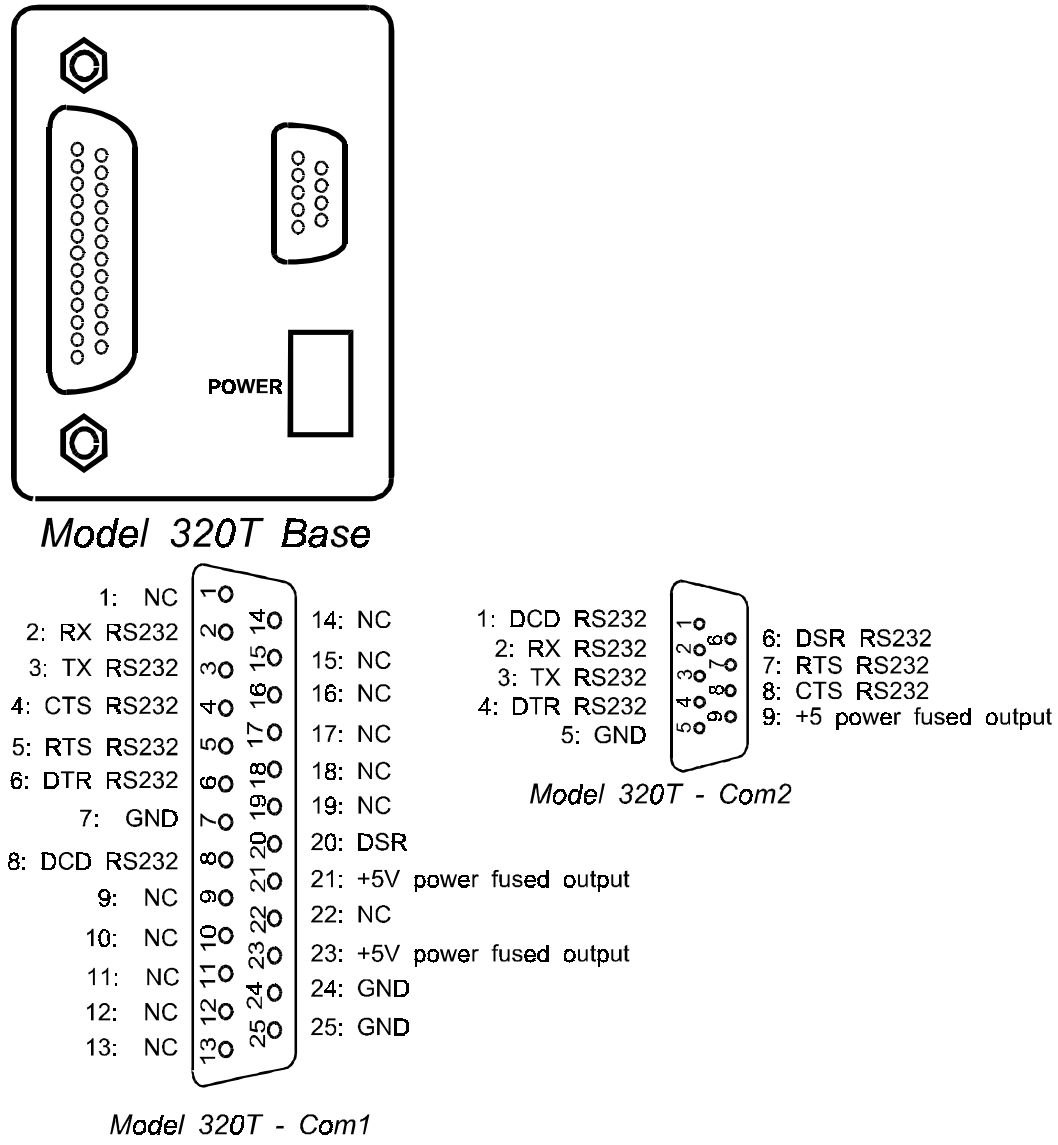
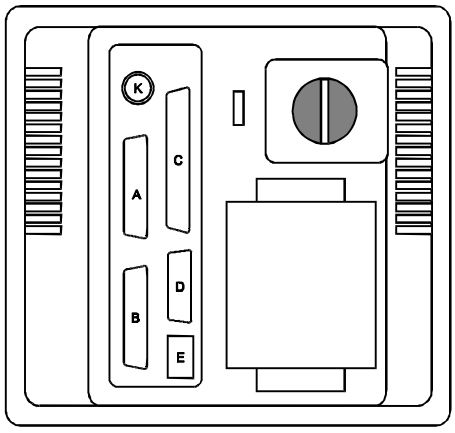
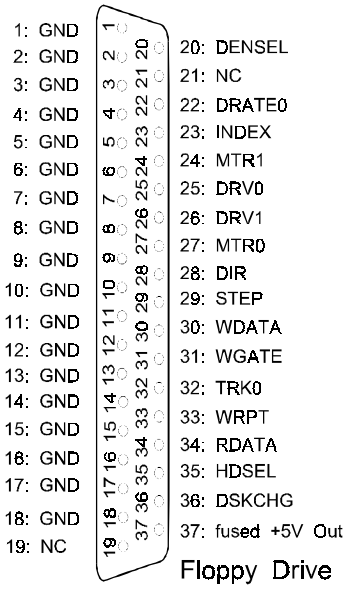


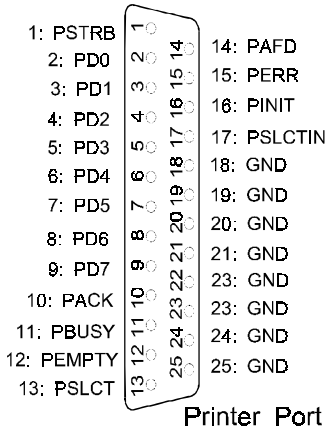
Figure 7-2. Model 320T Base Ports and Pinouts

Model 320T Expanded



K - Keyboard
A - Parallel Port (printer)
B - Com1 (RS232)
C - Floppy Drive
D - Com2 (RS232)
E - Power Input





Floppy Drive, Printer Port, and Keyboard are available only on the Model 320T Expanded .

Model 320T Expanded - Keyboard	Model 320T - Power Input
Keyboard 6 pin Mini-DIN	Power latching Molex connector for connection to power supply
1 KBDATA	1 Chassis Ground
2 NC	2 Common Return (Ground)
3 GND	3 +5 V Input, 4.0 A max
4 Fused +5	4 -12 V Input, 0.6 A max
5 KBCLK	5 Key Location - no pin in this position
6 NC	6 +12 V Input, 1.0 A max

Figure 7-3. Model 320T Expanded Ports and Pinouts

Data Retention

Data retention characteristics are given in Table 7-6.

Table 7-6. Data Retention Characteristics

240T	320T
Backup is provided for SRAM by the use of a lithium energy cell integrated within the Real-Time Clock circuit (not user replaceable).	No battery backup is provided. Two flash chips (512 and 128 kbytes) are used to provide non-volatile memory retention. The 128 kbyte chip is used for Boot PROM
Battery Life Typical: 10 years Worst: 5 years The battery life figures constitute total 'off-time'. For a Datapanel powered on half-time, the worst battery life figure would be at least 10 years.	

Real-Time Clock

Real-time clock characteristics are given in Table 7-7.

Table 7-7. Real-Time Clock Characteristics

240T	320T
Real-Time clock standard	Real-Time clock standard

Physical Specifications

	240T	320T	320T Expanded
Dimensions (Inches)	8.19 Wide x 7.40 High x 1.81 Deep	8.19 Wide x 7.40 High x 1.81 Deep	8.19 Wide x 7.40 High x 2.67 Deep
Weight (lb.)	1.75	2.5	3.0 without boards. Add weight of boards installed.
Panel Cutout (Inches)	7.75 W x 6.97 H	7.75 W x 6.97 H	7.75 W x 6.97 H

Environmental Conformity

Environmental conformity is given in Table 7-8.

Table 7-8. Environmental Conformity

Features	240T	320T	320T Expan.
NEMA, UL, CUL, CE	4X/4/12, UL, CUL, Class I Div II, CE	4X/4/12, UL, CUL, CE	4X/4/12, UL, CUL, CE

All models in the Datapanel Range are designed to satisfy the requirements and conditions of the following specifications. All units in the Datapanel Range remained operational when tested for temperature, humidity and vibration to the specifications shown in Table 7-9.

Table 7-9. Test Specifications

	All Models
Temperature	Operating Temp. 0 to +50 °C, Storage Temp. -20 to +60°C
Humidity	5 to 85 % non-condensing

Appendix A Error Codes

Standard Comms Block Error Codes

101	Timeout
102	Checksum Received Error
103	Bad Character Received Format Error
104	Bad Message Framing Error
105	Bad Message Format Received
106	NAK Response Received
107	Comms Block Format Error
108	Invalid Command

System Error Codes

28	More than 64 comms blocks activated at the same frequency.
29	More than 8 page-activated comms blocks activated by the page.
120	Tag Conversion error — unreasonable limits configured in an Analog Tag Record.
121	No Comms File.
122	No Comms Blocks.
123	Invalid Comms Block Time base.
124	Invalid Comms Block Type.

Controller Errors

If any errors are displayed which are not listed in the above tables, reference should be made to the configuration software Help system or to the controller documentation.

Appendix B Glossary

ACK	See Acknowledgment.
Acknowledgment	The action taken by the user to indicate the acceptance of the information presented by the system.
Alarm	An abnormal situation detected by the system, e.g., the violation of predefined limits by an input variable from the plant.
Alarm Limits	Limits set at the time the Datapanel was configured.
Alphanumeric	Alphabetic and numeric characters only.
Alphanumeric Display	A display of alphabetic and numeric characters only.
Analog	The characteristic of being able to take on any of a continuously variable range of values.
Analog Tag	An identifying name for an analog variable. See also Tag.
Analog Variable	A term used to describe a 16-bit integer, 32-bit integer, or floating-point number which may take many values.
ANSI	A character set optimized for the support of the French, German and Scandinavian characters.
Application Program	A user-defined program written to perform specific actions in addition to the system software functions.
Area Coloring	The coloring of a defined display area with a defined color.
ASCII	American Standard for Computer Information Interchange. Defines what numeric codes are used to represent numbers, punctuation and letters of the alphabet.
Attributes	The characteristics assigned to a graphic element such as: Blink, Position, Color.
Background Color	That part of the display that appears not to change as contrasted with a bar graph which changes with the value of the displayed parameter.
Backup	To copy and store data as a precaution against loss or damage. Also, the copy so created.
Bar Graph	A filled rectangular area whose height or horizontal length changes in proportion to a variable.
Baud, Baud Rate	User-configurable rates at which communication takes place between the system and the controller.
Bit	A binary value of 0 or 1. An area of memory dedicated to storing a binary value.
Bit Table	An area of memory dedicated to storing multiple bits.
Bitmap	A file that stores a graphic image in terms of bits. These bits are mapped to the screen to create the image.
Blinking	The effect created on a portion of a graphic which will allow it to change between two defined states at a specific rate.
Boot	
Browse	Scanning data in order to locate a required item.

Byte	A group of 8 consecutive bits.
Commands	Information sent from the Datapanel to the controller to control or modify the plant process.
Comms Block	See Communications Block.
Communications Block (Comms Block)	A group of user configured information describing a particular communications operation between the Datapanel and the controller.
Communications Protocol	The "language" to be used when the system communicates with a controller. It contains the rules used to establish contact, receive/transmit data, detect transmission errors, etc.
Configure	To set up the display system in accordance with the needs of a particular user. This includes user-specific displays, alarm criteria, etc.
Contiguous	A group of items stored in adjacent locations.
Controller	An industrial device that handles the Input/Output of plant voltages and signals, e.g., a Programmable Logic Controller.
Data	Information relating to the operation of the plant process.
Database	A structured set of data. In the Datapanel, databases are configured to customize the product to satisfy the needs of the user.
Datapanel	A self-contained, solid-state industrial display system incorporating its own display screen and keypad.
Datapanel Address	The Datapanel Register or Bit Table address to or from which data is to be transferred.
Digital	The characteristic of being able to take on only one of two possible states or conditions.
Digital Tag	An identifying name for a digital variable. See also Tag.
Download	Transmitting data from the configuration tool to the Datapanel.
Drive Out	The capability of the Datapanel which allows it to send information to the controller.
Drop-Down	A menu or list which appears in Windows upon selection of a menu item.
Dynamic	Any data element (tag value, graphic item, etc.) that can have changing values.
Firmware	Software (database, applications) stored in non-volatile memory, e.g., EPROM.
F-Key	See Function Key.
Flash memory	See Firmware.
Function Key	A key on a keyboard or keypad whose function is determined by software and may vary depending on the state of the software. Current definitions of the Datapanel function keys are displayed on the screen.
HMI (Human-Machine Interface)	Device enabling the two way transfer of data between a human and machine.
Host	Device on which the controlling software is resident.
I/O	See Input/Output.
Import	The ability to transfer configuration information into the Datapanel configuration tool from another application like a spread sheet.
Input/Output	A general expression for the input and output of binary data to or from a device.
Keyboard	A collection of physical keys used by the user to communicate with the computer system.
Keypad	An operator keyboard with a reduced number of keys, e.g., numeric and/or function keys.
LED	Light Emitting Diode. Typically used as a status indication light.
Macro	A collection of graphic elements used repeatedly thereafter in subsequent displays. This graphic application of the term differs from a macro instruction, a collection of instructions or program statements which can be activated collectively.
Master	The device controlling network communications.
Membrane	A continuous film intended to protect a device from the ingress of dust or liquid.

Mimic	A display which factually represents the plant. It provides the status of each displayed plant item. Mimics may be shown on monitors or wall displays.
Mini-Alarm Log	One of the Alarm area displays available when using the Datapanel. This display is found on all the Run Mode displays in the upper part of the screen.
NEMA	National Electrical Manufacturers Association. A group which sets American standards for enclosures which protect electronic equipment from the adverse affects of liquids, ingress of dust and physical shocks. Also, the standard created.
Network	An interconnected group of communicating devices.
Off-line	A condition where run time operations are suspended, so that system settings can be changed.
On-line	The system is communicating to external devices with dynamic data being updated.
Operator	The person who uses the system for its practical purpose such as to interface with the plant process. Not necessarily the one who configured the system. See also User.
Overview Group	A set of tags configured to be displayed together.
Page	One of 100 user configurable displays on the Datapanel.
Parallel	A data transfer mechanism using multiple transfer paths.
Parameter	A value set when the system is configured.
Parity	The means of checking the validity of a data character.
Password	A code used to show the authority of the user to gain access to various sensitive features of the system. For example, changes to the display design would normally be password-protected to guard against changes by unauthorized users.
PC	IBM Personal Computer or any computer generically similar.
Pixel	The smallest picture element of a display surface that can be independently assigned a color or intensity.
Plant Process	A series of actions or treatments designed to produce a desired end under the control or monitoring of a PLC or other intelligent controller.
PLC	Programmable Logic Controller.
Process	See Plant Process.
Process Variable	A variable parameter of the production process.
Programmable Logic Controller	An industrial device that handles the Input/Output of plant voltages and signals.
Protocol	The format, structure and procedure required to communicate with a controller.
RAM	Random Access Memory.
Ramp Drive-out	Pre-configured analog drive-out (Tag/Register) with a specific increment/decrement value.
Raw Data	Data read from the controller before being scaled into engineering values.
Real-Time Data	Current data.
Register	An internal memory location used for storing 16-bit representation of analog data in the Datapanel or controller.
Remote Address	The register or bit table address in the controller to or from which data is to be transferred.
Run Time	The operating state of the system. See also On-line.
Scaled Data	Raw data whose value has been modified to conform to prescribed engineering units.
Serial	A data transfer mechanism using a single transfer path.
Slave	The device which responds to a master over a network.
System Register	Same as any other register (see Register) but reserved for use by the system and cannot be modified by the user..
Tag	An analog or digital variable held in the Datapanel, usually representing an analog or digital variable in the controller. Includes additional information such as a name, size of the controller variable, scaling factors, alarm limits, etc.
Tag Record	An area of the database containing the information for a particular tag.

Tag Table	A group of Tag Values in the Datapanel.
Tag Value	The current value of the tag. This may be a scaled engineering value associated with the Tag Record.
Toggle	The action of inverting the value of a two-state item, such as a bit or a two-state digital tag.
Toolbar	A group of icons which provide easy access to other windows, menus or operations.
Touch Region	An area of the screen dimensionally defined to produce a program response when touched or pressed.
Trend	The graphical display of a variable in the form of a trace drawn with reference to X and Y coordinates.
Upload	Database transfer from Datapanel to WinCfg.
User	The person using WinCfg to configure a Datapanel. See also Operator.
WinCfg	A Windows-based tool for configuring Datapanels.

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