KEP Operator Interfaces
INDEX

New Products

AX6052
6-slot MicroBox
Industrial Computer

See Page 18 for Details
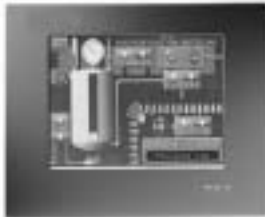
AX1000-370
Industrial Panel Computer
with 10.4" TFT Display

See Page 19 for Details

AX1127-370
Industrial Panel Computer
with 12.1" TFT Display

See Page 20 for Details

AX1150-370
Industrial Panel Computer
with 15" TFT Display

See Page 21 for Details

MMI-7xx-CASE-ARM
Mounting Accessory for MMI-720
and MMI-750

NEMA4 Enclosure with Mounting Arm

See Page 9 for Details

INFILINK-HMI

Industrial Automation Software

Features

- Free Design Mode: Only pay to unlock run-mode copies
- OPC Client Functionality
- E-mail and Web Enabled: Send e-mail and View tag data over the Internet

- Historical Trending, Alarming, Data Logging included in base price
- Email and Web Enabling included in base price
- No yearly "maintenance" or "support" fees

Description:

Infilink-HMI is a full featured solution at an affordable price. It is ideal for the small PLC user with its easy setup and run time price half that of competitive products. Machine builders and users want the benefits of a Windows based package, but are held back by the premium prices demanded by many vendors. Infilink-HMI changes all of that with the truly affordable HMI, Infilink-HMI.

Features Added to the New Version of Infilink-HMI

- OPC Client Functionality
- E-mail and Web Enabled: Send e-mail and View tag data over the Internet
- Historical and Alarm Data Logging to MS Access (MDB) Files

Other Important Features of Infilink-HMI:

- Free Design Mode: Only pay to unlock run-mode copies
- Historical Trending, Alarming, Data Logging included in base price
- Email and Web Enabling included in base price
- No yearly "maintenance" or "support" fees
- Built In Scheduler
- OPC, DDE, NetDDE & AdvancedDDE Support

Email Capable

Infilink-HMI can send email messages based on alarm conditions. This can be a regular email message, or it could be sent to a technician's alphanumeric pager.

Scheduler

Infilink-HMI now includes a built in scheduler. Events can take place or tag data can be changed based on time, date, day of week, or holiday. New events can be entered by the operator in Run mode through the calendar interface.

Infilink-HMI Communicates Using KEPServerEX

- One free driver included with Infilink-HMI purchase.
- OPC and DDE supported.
- Over 100 drivers available.
- Support for various fieldbus networks including Ethernet TCP/IP and DeviceNet.

Web Enabled

Use the internet and our Infiviewer utility to view tag data. This is an especially powerful troubleshooting feature when combined with email going to an alphanumeric pager. Infilink can notify technical personnel of a problem via email, and give them the ability to obtain additional application information over the internet.

Graphic Objects and Editing Features

Infilink-HMI provides a powerful set of graphic primitives and editing features allowing you to easily depict your application's displays. All of these functions are available from our toolbox. Store your objects in libraries for reuse later or use the 2000+ library objects available with Infilink-HMI to speed your development.

Professional Library Objects

Infilink-HMI includes over 2000 professionally drawn library objects licensed from Reichard Software, famous for their Symbol Factory product. Additionally, our libraries also contain hundreds of pre-animated objects such as buttons, meters, displays, and sliders to a name few. These pre-animated objects can quickly be added to your application using the new Reassign Tags function. Drag and Drop objects out of the library into your application.

Arrange your toolbars on the top, bottom, middle, or sides of the screen with Floating Palettes.

Key Editing and Drawing Functions Include:

- Lines
- Polylines
- Polygons
- Rectangles
- Rounded Rectangles
- Ellipses & Circles
- Arcs, Pies, Chords
- Text
- Bitmaps
- Buttons
- Windows Metafile Import

- Alarm Displays
- Alarm Logger
- Trend Displays
- Object Grouping
- Editing of Group Objects
- Align ~ Left, Right, Top, Bottom
- Align Middle ~ Horizontal, Vertical
- Space Equal ~ Horizontal, Middle

- Rotate ~ Clockwise, Counter Clockwise
- Make Equal ~ Width, Height
- Bring to Front
- Send to Back
- Z Depth Level 1-10
- Reshape
- Rotate Shapes
- Flip Horizontal or Vertical

Key Animation Functions Include:

- Visibility ~ Show/Hide
- Change Color
- Blink ~ Fast, Medium, Slow
- Take Action ~ Activate Script
- Rotate Shapes
- Move ~ Horizontal, Vertical
- Stretch ~ Horizontal, Vertical
- Enter Data ~ Boolean, Numeric, String
- Slider ~ Horizontal, Vertical
- Show Value ~ Boolean, Numeric, String

Trend Functions

Infilink-HMI provides built-in Real Time and Historical Trend objects which allow you to quickly add time based views of your process data.
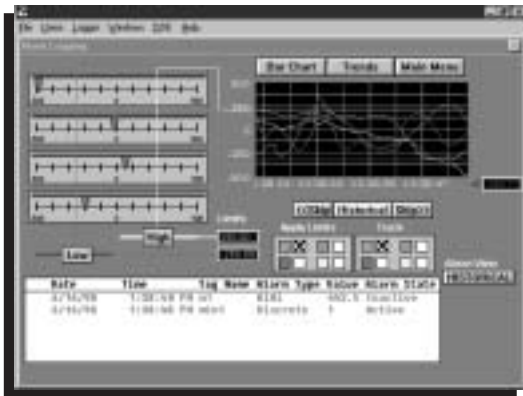
Sample Trending Application

Scripting Language

Infilink-HMI was designed to fit all of your needs with our built in functions. However, we have provided a powerful scripting language allowing you to tailor Infilink-HMI's operation to meet any application requirement.

Key Script Functions Include:

- Project Script ~ (Before, While, After) Open
- Window Scripts ~ (Before, While, After) Open
- Tag Scripts ~ On Data Change
- Conditionals ~ IF, THEN, ELSE
- Logical Operators ~ AND, OR, NOT

- Comments
- File Functions ~ Read, Write, Text, CSV
- Object Property Access
- Conditional Operators
- Full Set of Math and String Functions
- Automatic Error Checking
- Play Wave Files

Data Logging

Any Tag in Infilink's tag database can be configured to log itself to disk. Crucial events can be stored and shared with any application via industry standard database formats.

Key Trend Functions Include:

- Multiple Plotting Modes
- Script Control
- Fast Display Speed
- 10 Pens / Trend
- Library Objects for Trend Control

Key Data Logging Functions Include:

- User Specified Logging Path
- User Controlled Log Enabling
- Log File Change Based On Time
- Improved logging performance
- User Selectable DBASE (DBF) or MS Access (MDB) file formats.

Alarm Management and Display

Infilink-HMI provides a complete alarm management and display system available from any window in your application. Operators can view and acknowledge alarm conditions quickly using the alarm object. The Alarm History Viewer allows logged alarm events to be searched and filtered.

	Date	Time	Value	Alarm State
ACK	12/31/97	12:00:00 pm	99999999	SSSSSSSSSSSS
ACK	12/31/97	12:00:00 pm	99999999	SSSSSSSSSSSS
ACK	12/31/97	12:00:00 pm	99999999	SSSSSSSSSSSS

Key Alarm Functions Include:

- Limit Alarms ~ LowLow to HighHigh
- Discrete Alarms
- Selectable Priority Levels
- Custom Alarm Messages
- Selectable Filtering on History Viewer
- Automatic Printing of Alarms
- Logging of event with User ID
- Print Selected Alarm History Data

MS Access (MDB) File Logging

Use your favorite editor or report generation tools such as Excel, Crystal Reports or MS Access, to organize or analyze your data.

OPC Client

OPC (Object Linking and Embedding for Process Control) is now the standard format for industrial communication drivers. We have added OPC Client functionality to Infilink-HMI. Now you can use any of the OPC communication servers on the market with our product. We recommend using the KEPWare Extreme OPC servers, but you can use the OPC server product of your choice. Infilink also supports AdvancedDDE and NetDDE.

Other Features:
Software Based Protection

Infilink-HMI uses a software based keying system which works on any Windows operating system.

Multi-Platform Operation

Infilink-HMI runs with Windows 98SE, Windows 2000 and Windows NT.

Minimum System Requirements

Pentium 133MHz CPU
32 MB of RAM
50 MB of Free Disk Space
Display Resolution of 640x480 Run Mode, 800x600 Design Mode

Free Development System
Buy Only the Runtimes You Need

Infilink-HMI now offers our complete development system for free. When you download the latest version of Infilink-HMI (4.00 or higher) from our web site you have a complete development system. There's no limitation on the tag count. The provided runtime has a one hour expiration time. When used in combination with a demo version of our 32 bit OPC servers, you have a complete HMI system that can be used by every developer in your organization without spending a dime.

Ordering Information
Runtime Packages with the following Real I/O Tag counts are available:

128 I/O Tag Runtime **Part # KEPRUN-128**
        includes 1 KEPServer driver
256 I/O Tag Runtime **Part # KEPRUN-256**
        includes 1 KEPServer driver
512 I/O Tag Runtime **Part # KEPRUN-512**
        includes 1 KEPServer driver
Unlimited I/O Tag Runtime **Part # KEPRUN-0000**
        includes 1 KEPServer driver
Note: Internal or Memory tags are not counted as part of your licensed tag count.

Download a fully functional version of Infilink-HMI from our website at: www.kep.com

KEP ServerEX

High Performance OPC Server Software

Description

KEPServerEX is the latest generation of KEPware's OPC server technology. Building upon the original KEPserver, KEPServerEX has incorporated many of the features requested by KEPware's customers. In addition to customer driven enhancements, many technological changes have occurred. These features and enhancements have all been made with the goal of providing an OPC server that demonstrates unparalleled compatibility and performance. A few of the enhancements are transparent to the user, but there are a number of new features that are readily apparent and directly available to the user. The following sections will describe the primary features of KEPServerEX.

Application Connectivity

KEPServerEX supports the following client server technologies:
>   OPC Data Access Version 1.0a & 2.0
>   DDE Format CF_Text, XL_Table & AdvancedDDE

Device Connectivity

KEPServerEX allows you to use a number of communications drivers concurrently.

Runs as NT Service

KEPServerEX supports running as a service under Windows NT/2000. Service operation is completely user configurable from the Tools|Options menu and can be changed at any time allowing you to move from normal stand alone program operation to NT service mode.

Data Scaling

KEPServerEX now supports direct scaling of device data. Scaling allows raw device data to be converted to engineering units for OPC client applications. KEPServerEX provides a number of unique scaling features that make it easy to implement scaling in your application.

On-Line Full Time

The full time on-line mode of operation allows a KEPServerEX project to be modified while the server continues to supply data to client applications. Almost every parameter can be changed while the server is operating.

User Management

KEPServerEX includes a built-in User Manager that allows complete control over what types of functionality each individual user can access.

Tag Management

KEPServerEX's new user defined tag management features allow you to create a tag database structure that fits the nature of your application.

Automatic Tag Database Generation

The Automatic Tag Database Generation feature brings OPC technology one step closer to Plug and Play operation. Drivers that support this feature can either read tag information directly from a device or generate tags from stored tag data.

Diagnostics

KEPServerEX's new diagnostic features provide real-time data on the performance of your communication driver. All read and write operations can be viewed in the diagnostic display window of KEPServerEX or can be tracked directly in your OPC client application by using its built-in diagnostic tags.
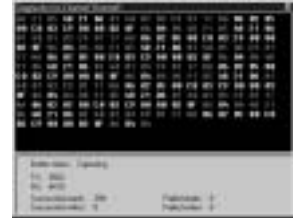
Modem Support

KEPServerEX supports the use of modems on all serial communication drivers. Modem control is provided by a set of new modem tags.

OPC Quick Client

KEPServerEX includes an extensive OPC Quick Client application to aid in the development of your OPC applications.

Visual Basic Examples

The simple and complex VB examples included with KEPServerEX are well commented and provide additional pointers for using OPC servers in your VB applications.

System Requirements:

	Minimum	Recommended
Operating System:	Windows 98	Windows NT 4.0 SP5 or better
Processor:	Pentium 200Mhz	Pentium 400Mhz
Ram:	32 MB	64 MB
Disk Space:	10 MB	10 MB

NOTE: While KEPServerEX will run on Windows 95 and Windows 98 we strongly recommend the use of either Windows NT 4.0 SP5 or Windows 2000 for use in industrial applications.

MMI-720/750

Graphic Display Panel and Touch Screen

Features

- LCD Graphic Display with Touch Panel

- 5.7" Displays, TFT Color, STN Color or Grayscale

- Connects to Today's Popular PLC's via Single Cable to Programming Port

- FREE Design Mode, Windows™ based Setup Software Included

- 24 VDC Powered
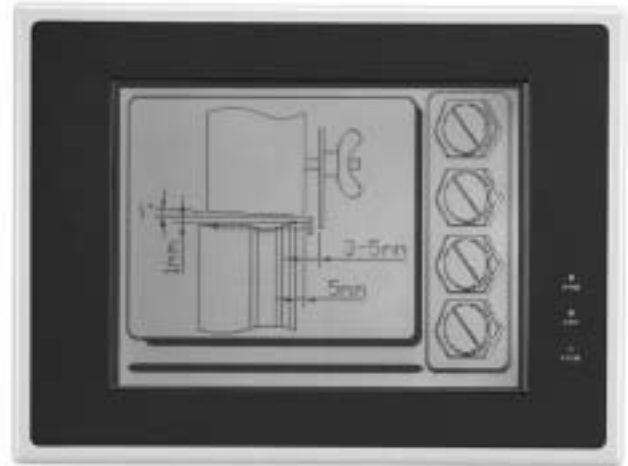
LCD with Touch Panel

The MMI-720/750 is a touch screen interface for programmable controllers. It connects directly to most PLCs and does not require the PLC to run any special program for data communication. This greatly reduces PLC programming time. The units display pictorial information, data and messages that are preloaded into it using a Personal Computer. Touch screen areas can be programmed to perform various functions. Free setup software for configuring the MMI-720/750 is included with each unit. The Easy Builder Screen Editor Software takes advantage of Microsoft Windows graphical interface and object oriented scheme. It offers fast and intuitive configuration. This simplifies application design while reducing development costs. It is designed especially for harsh working environments.

Connect directly to most PLCs

The MMI-720/750 uses each PLC's communication protocol to read or write data. It does not require the PLC to run any special program for data communication. The MMI-720/750 allows the user to optimize communications by selecting the data block size that is uploaded with each communication to the PLC. The EasyWindow utility that is provided along with EasyBuilder can be used to further monitor and tweak PLC communication efficiencies.

PLC Driver:

More supporting device drivers are being developed every day.

AB DF1	LG GLOFA Cnet
AB DH485	LG Master K
AB PLC5	Matsushita FP (Aromat)
AB Logix DF1	MITSUBISHI
DELTA DVP	MODICON MODBUS RTU
ENTERTRON MODBUS RTU	MODBUS RTU TCP/IP
FACON FB	OMRON
Fuji NB Series	SAIA PCD
GE FANUC SNP-X	Samsung SPC-10
HITACHI EH-150	Sharp JW Series
IDEC Micro[3]	SIEMENS S7-200
IDEC OpenNET	SIEMENS S7/300
INDUSTRIAL INDEXING	SIMATIC TI505
SYSTEMS, INC.	Telemecanique Unitelway
Jetter Nano	Toshiba T Serial
Keyence KV-16DT	VIGOR M Series
KOYO Direct	Yokogawa PLC Series
Lenze	

More supporting device drivers are being developed every day.

General Specifications

Item	Specification
Input power	21-25 VDC, 500 mA @ 24VDC
CE	Complies with EN50081-2 and EN50082-2 standards
EMI	Complies with FCC Class A
Isolation resistance	Exceeds 50 M_ at 500VDC
Vibration endurance	10 to 25 Hz (X,Y,Z direction 2G 30 minutes)
Environmental	NEMA 4 / IP65 front panel (when mounted with gasket seal)
Operating Temperature	32 to 113 °F (0 to 45 °C)
Operation humidity	10 to 90% RH Non Condensing
Enclosure	Plastic: Polybutylene Terephthalate (PBT) and Polycarbonate(PC)

Unit Specifications

Item	750T	750	720
LCD Display	5.7" TFT 256 color	5.7" STN 256 color	5.7" STN Dark Blue 4 color
Contrast Ratio	60:1	30:1	15:1
Brightness cd/m2	300	150	60
Back light CCFLx1*	MTBF 40,000 hr	MTBF 25,000 hr	MTBF 15,000 hr
Resolution pixels	320(W) x 240(H)		
Pixel size (mm)	0.33(W) x 0.33 (H)		
Display area (mm)	120(W) x 90(H)		
Touch panel	4 wire resistive type		
Touch granularity	2mm grid		
Touch Feedback	Beeper and or Graphic Indicator		
Surface hardness	4H		
Processor	32 bit RISC CPU 200 MHz		
Flash Project Memory	2MB		1 MB
System Memory	4MB DRAM		
Battery Held Memory	128kB with Y2K compliant Real Time Clock/Calendar		
Compact Flash Slot	Used for project updates		Not Available
Ethernet Port	RJ-45 8 wire (10 BaseT) TCP/IP		Not Available
Parallel Printer port	Compact D-Sub 15P with Ethernet option		No printer port
Serial ports	1 RS-232 (controller port) and 1 RS-232 / RS-485 (PC & controller port)		
System diagnostic	Watch dog timer, power failure detection		
Dimensions H x W x D inches (H x W x D) mm	Bezel: 5.90 x 8.00 x 2.95 (150 x 204 x 75) Cutout: 5.43 x 7.56 (138 x 192)		
Weight	Approx. 0.8 kg		

*Backlight: (programmable auto shutdown)

Screen editor	EasyBuilder Version 2.5.1 or later (to be run under Windows 98 / NT / 2000 / ME / XP)
No. of window	1 ~ 1999, limited by memory
No. of object	Up to 500 per window, limited by memory
Text strings, Tags & Labels	limited only by memory
Macro Scripts	256 maximum, limited by memory
Libraries per project	Up to 10 libraries can be attached to a project
Bitmap graphics	256 KB per graphic, limited by memory
Support PLC	Most popular PLC's
Support Printer	Simple ASCII, EPSON ESC/P2, HP PCL/(Simple page mode) or compatible

Easy Setup with EasyBuilder Software

EasyBuilder is a graphics editor software program for configuring the MMI Series. EasyBuilder can be downloaded for free from KEP's website (www.kep.com). Typical projects are composed of user defined windows. Each window is composed of a variety of elements called objects. There are drawing objects or putting static text and graphics on the window and Part objects for putting active objects on a window. PLC controlled objects can be used for window control and system functions.

Configuration of the MMI-720/750 is easy. To setup objects, select an icon from the toolbox, a dialog box appears. Fill in object attributes requested by the dialog to complete the object setup process. Move the object to the right position and drag the boundary of the object. It's a straightforward, simple, and consistent process.

Animation Tools:
Bit Lamp – Place an indicator that is bit triggered
Word Lamp – Place an indicator that is word triggered
Set Bit – Set a bit
Set Word – Set a word
Toggle Switch – Toggle a bit
MultiState Switch – Increment/Decrement a word
Function Button – Perform a system operation
Numeric Input Extend – Display/Change digital data
Numeric Display – Display digital data
ASCII Input Extend – Display/Change alphanumeric data
ASCII Display – Display alphanumeric data
X,Y Move Animation – Move an object via pixel coordinates
Spot Move Animation – Move an object on a predefined path
Direct Window - Popup Window on Bit
Popup Window on Register
Alarm Display
Trend Graph
XY Plot
BarGraph
Meter
Scrolling Alarm
Event Display
Recipe Transfer
(requires option card)
PLC Controls: Screen,
backlight, printer
Data Transfer

Graphics can be produced by using the EasyBuilders own set of drawing tools. You can import any 256 color BMP format graphic into EasyBuilder to customize your application. Screen Captures and Graphics may also be cut and pasted into Paintbrush for conversion to the BMP format. Libraries with over 300 commonly used graphics are included with EasyBuilder Software. These libraries can be edited and new libraries created to hold new graphics you have created

Drawing Tools:
Line – Draw straight lines
Rectangle – Draw squares and rectangles
Ellipse – Draw circles and ellipses
Arc – Draw 90-degree arcs
Polygon – Draw multisided objects
Text – Place static text
Scale – Place lines at regular intervals
Shape – Place a static shape from a library

Bitmap - Place a static bitmap from a library

Other convenient features include: The ability to copy windows and objects between projects. Windows can be stacked (overlapped) to reduce duplicate objects. Tags can be assigned to Data points for easy reference during project development. Labels that change depending on language use can also be incorporated into the project giving it international compatibility. Macro scripts can be triggered by bit actions to perform calculations, data manipulation and logical operations. Up to 256 scripts can be programmed into the unit. The ability to put a system bar (Taskbar) at the bottom of the screen to emulate familiar graphic interface operations.

After completing a project it can be simulated off-line to view approximately how your project will look and respond. There is also an on-line simulation. Connect the PC to your MMI unit and connect the MMI to your PLC. The MMI display is emulated on the PC screen by using the MMI as a bridge to go to your PLC. The PC will mimic exactly how the MMI will respond once the project is downloaded. To download a project, connect the MMI-720/750 to COM1 or COM2 port of your PC using the download cable provided with the unit. Execute the download function, it will directly transfer your project data to the MMI-720/750's flash memory.

The Ethernet Option package includes expanded memory, a compact card memory slot , an additional printer port and a 10 baseT ethernet port. The compact card slot allows a user to update the project in a unit without connecting a computer or some other programming device. The printer port can be used to print out screen captures and event or alarm information. The ethernet port can be used for unit to unit communications or Modbus TCP/IP communications to controllers.

MMI-7xx-CASE-ARM Accessory

Here's a practical and convenient mounting solution for your MMI-720 & MMI-750 graphical touchscreens. A NEMA 4 Enclosure & Mounting Arm offers washdown resistance and positioning flexibility, and improves operator utilization.

This Option is available for MMI-720 and MMI-750 models

Arm Dimensions:
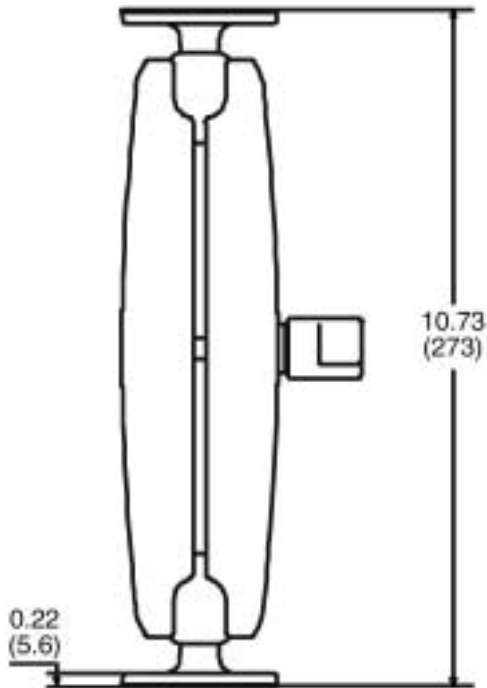
Enclosure Dimensions:

Front View

Side View
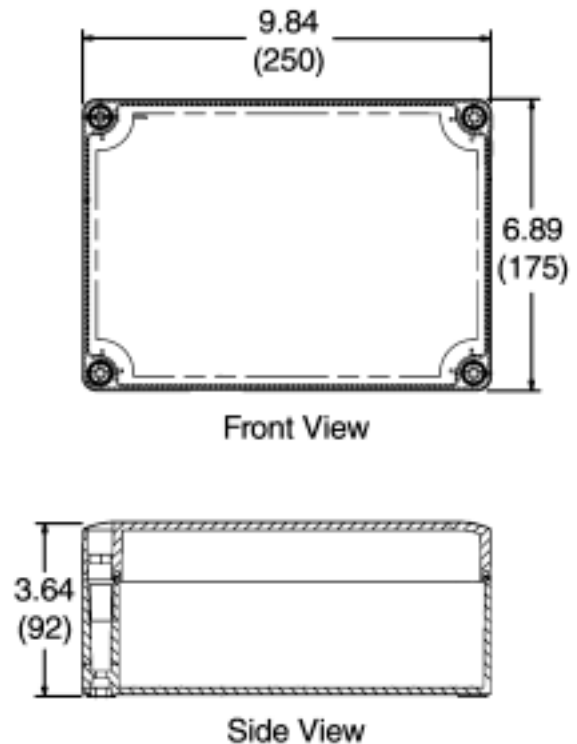
ORDERING INFORMATION:

Part Number	Description
MMI-720	Graphic Interface with 5.7" blue, 4 grey scale, LCD display and Touchscreen
MMI-750	Graphic Interface with 5.7" STN, 256 color, LCD display and Touchscreen
MMI-750T	Graphic Interface with 5.7" TFT, 256 color display & touchscreen

Options:
HB Enhanced display for daylight viewing (MMI750T only)

Accessories
MMI-7xx-CASE-ARM Mounting Option
MMI-PDK includes printed manual, programming cable and setup CD.

Note: Setup software and programming cable are included with each unit. The manual is on the CD as a PDF file. A printed copy of the manual is sent with each MMI-TS product order.

MMI-850/1050/1500

Graphic Display Panels and Touch Screens

Features
- LCD Graphic Display with Touch Panel
- 7.7", 9.4" and 10.4" Displays, TFT Color, STN Color or Monochrome
- Connects to Today's Popular PLC's via Single Cable to Programming Port
- FREE Design Mode, Windows™ based Setup Software Included
- 24 VDC Powered

LCD with Touch Panel

The MMI-850/1050/1500 are touch screen interfaces for programmable controllers. They connect directly to most PLCs and do not require the PLC to run any special program for data communication. This greatly reduces PLC programming time. The units display pictorial information, data and messages that are preloaded into them using a Personal Computer. Touch screen areas can be programmed to perform various functions. Free setup software for configuring the MMI-850/1050/1500 is included with each unit. The Easy Builder Screen Editor Software takes advantage of Microsoft Windows graphical interface and object oriented scheme. It offers fast and intuitive configuration. This simplifies application design while reducing development costs. They are designed especially for harsh working environments.

Connect directly to most PLCs

The MMI-850/1050/1500 uses each PLC's communication protocol to read or write data. They do not require the PLC to run any special program for data communication. The MMI-850/1050/1500 allows the user to optimize communications by selecting the data block size that is uploaded with each communication to the PLC. The EasyWindow utility that is provided along with EasyBuilder can be used to further monitor and tweak PLC communication efficiencies.

PLC Driver:

More supporting device drivers are being developed every day.

AB DF1	LG GLOFA Cnet
AB DH485	LG Master K
AB PLC5	Matsushita FP (Aromat)
AB Logix DF1	MITSUBISHI
DELTA DVP	MODICON MODBUS RTU
ENTERTRON MODBUS RTU	MODBUS RTU TCP/IP
FACON FB	OMRON
Fuji NB Series	SAIA PCD
GE FANUC SNP-X	Samsung SPC-10
HITACHI EH-150	Sharp JW Series
IDEC Micro^3	SIEMENS S7-200
IDEC OpenNET	SIEMENS S7/300
INDUSTRIAL INDEXING	SIMATIC TI505
SYSTEMS, INC.	Telemecanique Unitelway
Jetter Nano	Toshiba T Serial
Keyence KV-16DT	VIGOR M Series
KOYO Direct	Yokogawa PLC Series
Lenze	

More supporting device drivers are being developed every day.

General Specifications

Item	Specification
Input power	21-25 VDC, 500 mA @ 24VDC
CE	Complies with EN50061-2 and EN50082-2 standards
EMI	Complies with FCC Class A
Isolation resistance	Exceeds 50 M_ at 500VDC
Vibration endurance	10 to 25 Hz (X,Y,Z direction 2G 30 minutes)
Environmental	NEMA 4 / IP65 front panel (when mounted with gasket seal)
Operating Temperature	32 to 113 °F (0 to 45 °C)
Operation humidity	10 to 90% RH Non Condensing
Enclosure	Plastic: Polybutylene Terephthalate (PBT) and Polycarbonate(PC)

Unit Specifications

Item	1500T	850	1050
LCD Display	10.4" TFT, 256 color	7.7" STN, 256 color	9.4" STN Dark Blue, 4 color
Display area (mm)	215(W) x 162(H)	162(W) x 123(H)	196(W) x 150(H)
Brightness cd/m2	250	150	60
Contrast Ratio	100:1	30:1	15:1
Resolution pixels	640(W) x 480(H)		
Pixel size	0.33(W) x 0.33 (H) mm		
Back light	CCFLx2 (MTBF 25,000 hr)		CCFLx1 (MTBF 15,000 hr)
Touch panel	4 wire resistive type		
Touch granularity	2mm grid		
Touch Feedback	Beeper and or Graphic Indicator		
Surface hardness	4H		
Processor	32 bit RISC CPU 200 MHz		
Flash ROM Memory	4MB		2 MB
System Memory	4MB DRAM		
Battery Held Memory	128kB with Y2K compliant Real Time Clock/Calendar		
Compact Flash Slot	Used for project updates		Not Available
Serial ports	1 RS-232 (controller port) and 1 RS-232 / RS-485 (PC & controller port)		
Parallel port	Standard parallel printer port		
Ethernet Port	RJ-45 8 wire (10 BaseT) TCP/IP		Not Available
System diagnostic	Watch dog timer, power failure detection		
Dimensions Bezel H x W x D inches (H x W x D) mm	Bezel: 9.37 x 12.40 x 2.44 (238 x 315 x 62)	Bezel: 6.93 x 9.09 x 2.16 (176 x 231 x 55)	Bezel: 9.06 x 11.69 x 1.57 (230 x 297 x 40)
Cutout H x W inches (H x W) mm	Cutout: 8.86 x 11.89 (225 x 302)	Cutout: 6.57 x 8.75 (167 x 222)	Cutout: 8.38 x 11.10 (212 x 282)
Weight	Approx. 2.0 kg	Approx. 1.2 kg	Approx. 1.4 kg

*Backlight: (programmable auto shutdown)

Screen editor	EasyBuilder Version 2.6.1 or later (to be run under Windows 98 / NT / 2000 / ME / XP)
No. of window	1 ~ 1999, limited by memory
No. of object	Up to 500 per window, limited by memory
Text strings, Tags & Labels	limited only by memory
Macro Scripts	256 maximum, limited by memory
Libraries per project	Up to 10 libraries can be attached to a project
Bitmap graphics	256 KB per graphic, limited by memory
Support PLC	Most popular PLC's
Support Printer	Simple ASCII, EPSON ESC/P2, HP PCL/(Simple page mode) or compatible

Easy Setup with EasyBuilder Software

EasyBuilder is a graphics editor software program for configuring the MMI Series. EasyBuilder can be downloaded for free from KEP's website (www.kep.com). Typical projects are composed of user defined windows. Each window is composed of a variety of elements called objects. There are drawing objects or putting static text and graphics on the window and Part objects for putting active objects on a window. PLC controlled objects can be used for window control and system functions.

Configuration of the MMI-1500/1050/850 is easy. To setup objects, select an icon from the toolbox, a dialog box appears. Fill in object attributes requested by the dialog to complete the object setup process. Move the object to the right position and drag the boundary of the object. It's a straightforward, simple, and consistent process.

Animation Tools:
Bit Lamp – Place an indicator that is bit triggered
Word Lamp – Place an indicator that is word triggered
Set Bit – Set a bit
Set Word – Set a word
 Toggle Switch – Toggle a bit
MultiState Switch – Increment/Decrement a word
Function Button – Perform a system operation
Numeric Input Extend – Display/Change digital data
Numeric Display – Display digital data
ASCII Input Extend – Display/Change alphanumeric data
ASCII Display – Display alphanumeric data
X,Y Move Animation – Move an object via pixel coordinates
Spot Move Animation – Move an object on a predefined path
Direct Window - Popup Window on Bit
Popup Window on Register
Alarm Display
Trend Graph
XY Plot
BarGraph
Meter
Scrolling Alarm
Event Display
Recipe Transfer
(requires option card)
PLC Controls: Screen,
backlight, printer
Data Transfer

 Graphics can be produced by using the EasyBuilder's own set of drawing tools. You can import any 256 color BMP format graphic into EasyBuilder to customize your application. Screen Captures and Graphics may also be cut and pasted into Paintbrush for conversion to the BMP format. Libraries with over 300 commonly used graphics are included with EasyBuilder Software. These libraries can be edited and new libraries created to hold new graphics you have created.

Drawing Tools:
Line – Draw straight lines
Rectangle – Draw squares and rectangles
Ellipse – Draw circles and ellipses
Arc – Draw 90-degree arcs
Polygon – Draw multisided objects
Text – Place static text
Scale – Place lines at regular intervals
Shape – Place a static shape from a library
Bitmap - Place a static bitmap from a library

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Other convenient features include: The ability to copy windows and objects between projects. Windows can be stacked (overlapped) to reduce duplicate objects. Tags can be assigned to Data points for easy reference during project development. Labels that change depending on language use can also be incorporated into the project giving it international compatibility. Macro scripts can be triggered by bit actions to perform calculations, data manipulation and logical operations. Up to 256 scripts can be programmed into the unit. The ability to put a system bar (Taskbar) at the bottom of the screen to emulate familiar graphic interface operations.

After completing a project it can be simulated off-line to view approximately how your project will look and respond. There is also an on-line simulation. Connect the PC to your MMI unit and connect the MMI to your PLC. The MMI display is emulated on the PC screen by using the MMI as a bridge to go to your PLC. The PC will mimic exactly how the MMI will respond once the project is downloaded.

To download a project, connect the MMI-1500/1050/850 to COM1 or COM2 port of your PC using the download cable provided with the unit. Execute the download function, it will directly transfer your project data to the MMI-1500/1050/850's flash memory.

The Ethernet Option package includes expanded memory, a compact card memory slot , an additional printer port and a 10 BaseT ethernet port. The compact card slot allows a user to update the project in a unit without connecting a computer or some other programming device. The printer port can be used to print out screen captures and event or alarm information. The ethernet port can be used for unit to unit communications or Modbus TCP/IP communications to controllers.

ORDERING INFORMATION:

Part Number	Description
MMI-850	Graphic Interface with 7.7" STN, 256 color, LCD display and Touchscreen
MMI-1050	Graphic Interface with 9.4" blue, 4 gray scale, LCD display and Touchscreen
MMI-1500T	Graphic Interface with 10.4" TFT, 256 color display and Touchscreen

Accessories
MMI-PDK includes printed manual, programming cable and setup CD.

Note: Setup software and programming cable are included with each unit. The manual is on the CD as a PDF file. A printed copy of the manual is sent with each MMI-TS product order.

MMI-COVER

5.7, 7.7, 10.4" Protective Overlays

Features

- LCD Graphic Display with Touch Panel

- Protects against scratches, grime, and finger-prints

- Chemical resistant.

- Designed to fit the MMI Touchscreen Series

Introduction

The protective sheet adds a clear protective shield to your MMI touchscreen. Each protective screen comes with a peel-off film on the front to prevent scratching and a peel-off film in the back to protect the adhesive around the perimeter.

Specifications

Material: Polyester film.

Chemical resistance:
Resistant to:
Alcohols
Dilute Acids
Dilute Alkalis
Esters
Hydrocarbons
Ketones

Dimensions (W x H x D):
MMI-7XX-COVER (for MMI720/750):
183 x 129 x 0.18mm
MMI-8XX-COVER (for MMI850):
219 x 164 x 0.18mm
MMI-15XX-COVER (for MMI1500S/T):
294 x 217.3 x 0.18mm

Ordering Information

MMI-7XX-COVER: (for MMI720/750 Series)
Protective Sheet 5 sheets per package.

MMI-8XX-COVER: (for MMI850 Series)
Protective Sheet 5 sheets per package.

MMI-15XX-COVER: (for MMI1500Series)
Protective Sheet 3 sheets per package.

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FPM Series

Industrial Flat Panel Touch-Screen Monitors

Features:

- Mounting Bezel is Sealed to NEMA 4/12

- Screen Setup is Handled Through an Easy-To-Use Rear-Mounted Membrane Keypad (tamperproof)

- Bezel is Finished With a Tough Baked-On Powder Coat Resistant to Scratches and Most Chemicals

- Compatible With Standard Computer Video Cards

- All Video Settings are Stored in Non-Volatile Memory and Retained During Power Loss

- Multi-Frequency Capability and Internal Scaling Engine Provide Sharp Full Screen Display of Standard PC Video Display Signals

- High Quality LCD Suitable for Harsh Lighting Conditions and Off-Angle Viewing

- Displays are Fitted With High Resolution Analog Resistive Touch Screen, Available Either as a Serial RS-232 Interface or PC Bus Card

- Touch Screen Provides Mouse Emulation, Supporting Click, Double Click, and Click and Drag...With Right Click Functionality!

- Hinged Rear Panel for Easy Access During Service

- Stainless Steel Corrosion Resistance Chassis

- Bezel is Milled from .250"-thick 6061 Aluminum Plate.

- Wide Ranging (90-246 VAC) Auto Switching Industrial Grade Power Supplies.

Description:

Monitors for industrial computers have changed. Those big, clunky boxes are being replaced by slim-profile versions. These screens not only free up valuable benchtop or floor space, they also enhance the company's image with their leaner and cleaner high tech look. Kessler-Ellis Products offers a range of 7 different sizes to fit any space requirement — from a mini 6.4" up to a huge 20". These touch-screens are ruggedly constructed with a chassis of 16-gauge stainless steel, for NEMA-rated performance in harsh industrial environments. Operating temperature range is from 0 to 50° C and humidity levels of up to 95%. All models can be customized cosmetically to user requirements, including color match-ups and inclusion of company logos on mounting bezels.

Ordering Information

Part Number	Description
FPM-64T	6.4" TFT Display with Touch Screen
FPM-104T	10.4" TFT Display with Touch Screen
FPM-120T	12.1" TFT Display with Touch Screen
FPM-150T	15.1" TFT Display with Touch Screen
FPM-170T	17.1" TFT Display with Touch Screen
FPM-180T	18.1" TFT Display with Touch Screen

The above products include VGA cable, DB9 cable for touchscreen, power cable, and CD with ELO touchscreen driver. These displays all feature a heavy black power coated aluminum bezel and premium high brightness and high viewing angle TFT display panels. Mounting is by means of studs on the back of the bezel, nuts included.

GENERAL SPECIFICATIONS

	FPM-64 / 64T 6.4" Display	FPM-104 / 104T 10.4" Display	FPM-120 / 120T 12.1" Display	FPM-140 / 140T 14" Display	FPM-150 / 150T 15" Display	FPM-180 / 180T 18" Display	FPM-200 / 200T 20.1" Display
LIQUID CRYSTAL DISPLAY (LCD)							
Display Size/Type	6.4" Diagonal/TFT Active Matrix	10.4" Diagonal/TFT Active Matrix	12.1" Diagonal/TFT Active Matrix	14" Diagonal/TFT Matrix	15.1" Diagonal	18.1" Diagonal	20.1" Diagonal/TFT Active Matrix
Active Area	5.14" (h) x 3.82" (v)	8.31" (h) x 6.25" (v)	9.69" (h) x 7.25" (v)	11.19" (h) x 8.39" (v)	11.97" (h) x 8.98" (v)	14.135"(h) x 11.310"(v)	15.72" (h) x 12.58" (v)
Pixel Format	640(h) x 480(v)		800(h) x 600(v)	640(h) x 480(v) 800(h) x 600(v) 1024(h) x 768(v)		640(h) x 480(v) 800(h) x 600(v) 1024(h) x 768(v) 1280(h) x 1024(v)	
Brightness	300 Nits Typical	400 Nits Typical	300 Nits Typical	200+ Nits Typical	200 Nits Typical		150 Nits Typical
Contrast Ratio	100:1	300:1	200:1	150:1	>150:1	300:1	150:1
Viewing Angle (horiz.)	70/70 Deg.	60/60 Deg.		70/70 Deg.			80/80 Deg.
Viewing Angle (Vert.)	70/40 Deg.	45/55 Deg.	50/40 Deg.	70/70 Deg.	60/60 Deg.		80/80 Deg.
Back Light Life	50,000 Hours (half life)						
Colors Supported	256,000				16 Million with color enhancement on (Standard)	16 Million with color enhancement (standard controller function)	16 Million (full color analog LCD)
MECHANICAL CONSTRUCTION							
Bezel Outside Dim.	9.5" (h) x 7.0" (v)	13.13" (h) x 11.08" (v)	15" (h) x 12.5" (v)	16.5" (h) x 13.64" (v)	17.564"(h) x 14.563"(v)	18.927"(h) x 14.563"(v)	21.5" (h) x 18.3" (v)
Bezel Material	.250" 6061 Aluminum						
Bezel Finish	Black Textured Powder Coat						
Front End Const.	NEMA 4/12						
Chassis Depth (Behind Cabinet Door)	2.125"	1.125"	4.125"				
Chassis Construction	.16 Ga. Stainless Steel						
ENVIRONMENTAL							
Operating Temp.	0-50° C						
Storage Temp	0-60° C						
Operating Humidity	10-95% Non Condensing						
Storage Humidity	10-95% Non Condensing						
ELECTRICAL							
Input Voltage	12 VDC Nominal		90-264 VAC Auto Switching				
Input Wattage	25 Watts Typical		35 Watts Typical			50 Watts Typical	60 Watts Typical (75 Watt Power Supply)
TOUCH SCREEN							
Analog Resistive	5 Wire						
Touch Screen Res.	400 ppi						
Screen Finish	Anti Reflective						
Chemical Resistance	Acetone, MEK, Mineral spirits, Isopropyl alcohol, Methylene chloride						
Estimated Life	>35 Million touches in one location						
Computer Interface	Serial RS-232 (Standard) PC-Bus (optional)						
Electrostatic Protection	IEC-801-2						

AX6052

6-slot MicroBox Industrial Computer

Features

- Desktop or wallmount industrial computer

- Supports up to 6 full-size cards

- One 5.25" and three 3.5" drive bays

- Flexible drive bay design for ease of maintenance

- Equipped with a 150W power supply

- CDROM Drive

- Floppy Disk Drive

Specifications:

Standard Color	Black
Construction	Heavy-duty cold-rolled steel
Drive Capacity	Exposed 1 x 5.25" and 1 x 3.5" drives
	Internal 2 x 3.5" drives
Cooling	One 8cm ball-bearing fan (42.5CFM/each) with a removable filter
Front Panel Indicators	
	1 x power on/off; 1 x HDD
Front Panel Controls	
	1 x power on/off; 1 x system reset
Pre-punched Panel	
	Front
	1 x DIN 5-pin keyboard
	Rear
	1 x 9-pin; 1 x 25-pin
System Board	SBC
CPU	Celeron 533MHz
RAM	64MB
Expansions	6-slot backplane
Speaker	One 0.4W speaker
Operating Temperature Range	
	32° to 122° F (0° to 50° C)
OS Supported	Windows 98, Windows NT, Windows 2000, Windows XP
Dimensions (W x D x H)	
	7.5"(191.42mm) x 16.2"(412mm) x 9.7"(246.5mm)

Ordering Information:

BOXPC-WALL-AX6052
6-slot Industrial Computer with PICMG backplane

Includes:
- 150W power supply
- 10 GB HDD
- 256 MB RAM
- 6 slot backplane
- 1 GHz Pentium III Celeron CPU
- Windows 2000 Professional Operating System
- CD Read/Write Drive
- Floppy Drive
- Serial, Printer, USB, VGA, Ethernet Ports

Options:

512MB	512MB RAM
NTW	Windows NT Workstation
W98	Windows 98SE
XP	Windows XP Professional

Consult factory for the latest configuration options.

AX1000-370

Industrial Panel Computer with 10.4″ TFT Display

Features

- 10.4" TFT 250nit VGA LCD

- NEMA 4/12 Front Bezel

- Resistive Type of Touch Screen

- One Half-size PCI/ISA Card Expansion

Specifications:

Construction	IP 65, NEMA 4/12 Rugged Protection
Display	10.4" TFT; Brightness: 250nit View angle: U/D: 150°, R/L: 120° Resolution: 640 x 480
On Board Graphics:	1X AGP; 2MB SDRAM Graphic Memory
CPU	Celeron 533MHz
RAM	64MB
Memory Expansion	One 168-pin DIMM Socket Up to 256MB SDRAM
Serial Ports	RS-232 x 3; RS-232/422/485 x 1 +5V/+12V power output capability by pin 1 and pin 9 (selectable via jumper setting)
Parallel Port	SPP/EPP/ECP supported; Configurable to LPT1, LPT2, LPT3 or disable
PS/2 Interfaces	PS/2 mouse x 1; PS/2 keyboard x 1
DIO	4 channel bits of TTL/DTL compatible Digital input and digital output
DiskOnChip	Support M-systems Flash disk
Hard Disk Drive	enhanced IDE interface 2.5" type
Floppy Disk Drive	1.44MB, super slim type
LAN	32 bit PnP Ethernet controller 10/100 Base-T (RJ-45)
Watchdog Timer	64 levels timer with time-out intervals from 0.5 - 1600 sec.
Connectors	D-Sub 9 pin x 1 (male) for RS-232 / RS-422 / RS-485; D-Sub 9 pin x 3 (male) for RS-232 (One port reserve for touch screen); D-Sub 25 pin x 1 (female) for Parallel; D-Sub 15 pin x 1 (male) for digital I/O; P/S 2 x 2 for Keyboard and Mouse; RJ-45 x 1 for Ethernet; D-Sub 37 pin (female) for external floppy disk drive; D-Sub 15 pin x 1 (female) for S-VGA output
Expansion Slot	ISA x 1 / PCI x 1 Share PC/104 x 1
Dimensions	12.99"(330mm)(W) x 2.87"(73mm)(D) x 10.47"(266mm)(H); Front PANEL Thickness: 8mm
Weight	4.3 Kg
OS Supported	Windows 98, Windows NT, Windows 2000, Windows XP
Operation Temp.	32° to 122° F (0° to 50° C)
Relative Humidity	5% - 95%, non-condensing

Ordering Information:
AX1000-370
10.4" TFT Industrial Panel Computer

Includes:

    100W power supply
    10 GB HDD
    64MB RAM
    1 slot backplane
    533 MHz Celeron CPU
    Windows 2000 Professional Operating System

Options:

T	Touchscreen, Analog Resistive Type
128MB	128MB RAM
256MB	256MB RAM
512MB	512MB RAM
CD	Internal CDROM Drive
850MHz	850MHz Pentium III CPU
1GHz	1GHz Intel Celeron CPU
NTW	Windows NT Workstation
W98	Windows 98SE
XP	Windows XP Professional
CDRW	CDROM R/W Drive

Consult factory for the latest configuration options.

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AX1127-370

Industrial Panel Computer with 12.1″ TFT Display

Features

- 12.1" TFT 250nit SVGA LCD
- NEMA 4/12 Front Bezel
- Resistive Type of Touch Screen
- Build-in Super Slim type of CD-ROM or CD-RW
- Build-in 3.5" IDE type HDD
- One Half-size PCI/ISA Card Expansion

Specifications:

Front Bezel	IP 65, NEMA 4/12 Rugged Protection
Display	12.1" TFT; Brightness: 250nit View Angle: U/D: 150° Resolution: 800 x 600
CPU	Celeron 533MHz
RAM	64MB
Bus Clock	66/100MHz
Memory Expansion	One 168-pin DIMM socket up to 256MB SDRAM
Onboard Graphics	C&T 69000 1X AGP; 2MB SDRAM Graphic memory
DIO	4 channel bits of TTL/DTL compatible Digital input/output
DiskOnChip	Support M-systems flash disk
Hard Disk Drive	Enhanced IDE interface 3.5" type
LAN	32 bit PnP Ethernet controller 10/100 Base-T (RJ-45)
Watchdog Timer	64 levels timer with time-out intervals from 0.5 - 1600
Serial Port	RS-232 x 3; RS-232/422/485 x 1 +5V/+12V power output capability by pin 1 and pin 8, (selectable via jumper setting)
Parallel	SPP/EPP/ECP supported; Configurable to LPT1, LPT2, LPT3 or disable
I/O Connectors	D-Sub 9-pin x 1 (male) for RS-232/RS-422/RS-485; D-Sub 9-pin x 3 (male) for RS-232 (One port reserve for touchscreen); D-Sub 25-pin x 1 (female) for parallel; D-Sub 15-pin x 1 (male) for DIO; PS/2 x 2 for keyboard and mouse; RJ-45 x 1 for Ethernet; D-Sub 15-pin x 1 (female) for S-VGA output; Centronic 26-pin (female) for external floppy disk drive; Andio (Line-out, Mic in, Line-in); USB x 2
Expansion Slot	ISA x 1/PCI x 1 share
System Fan	4cm fan x 2
Touchscreen	Resistive type
Power Supply	AC 100-230V, 100W
Dimensions	15.75"(400mm)(W) x 4.34"(110.2mm)(D) x 12.20"(310mm)(H)
Weight	5.0Kg
O/S Supported	Windows 98, Windows NT, Windows 2000, Windows XP
Operation Temp.	32° to 122° F (0° to 50° C)
Relative humidity	20% ~ 90%, non-condensing

Ordering Information:
AX1127-370

12.1" TFT Industrial Panel Computer

Includes:
- 100W power supply
- 10 GB HDD
- 64MB RAM
- 1 slot backplane
- 533 MHz Celeron CPU
- Windows 2000 Operating System

Options:

T	Touchscreen, Analog Resistive Type
128MB	128MB RAM
256MB	256MB RAM
512MB	512MB RAM
CD	Internal CDROM Drive
850MHz	850MHz Pentium III CPU
1GHz	1GHz Intel Celeron CPU
NTW	Windows NT Workstation
W98	Windows 98SE
XP	Windows XP Professional
CDRW	CDROM R/W Drive

Consult factory for the latest configuration options.

AX1150-370

Industrial Panel Computer with 15″ TFT Display

Features

- 15" TFT 200nit XGA LCD
- NEMA 4/12 Front Bezel
- Resistive Type of Touch Screen
- Build-in Super Slim type of CD-ROM & FDD
- Build-in 3.5" IDE type HDD
- Modularized Expansion Box Design for Two Full-size PCI/ISA Cards

Specifications:

Front Bezel	IP 65, NEMA 4/12 Rugged Protection
Display	15" TFT; Brightness: 200nit View Angle: U/D: 150° Resolution: 800 x 600
CPU	Celeron 850MHz
RAM	64MB
Bus Clock	66/100MHz
Memory Expansion	One 168-pin DIMM socket up to 256MB SDRAM
Onboard Graphics	C&T 69000 1X AGP; 2MB SDRAM Graphic memory
DIO	4 channel bits of TTL/DTL compatible Digital input/output
DiskOnChip	Support M-systems flash disk
Hard Disk Drive	Enhanced IDE interface 3.5" type
Floppy Disk Drive	1.44MB slim type
LAN	32 bit PnP Ethernet controller 10/100 Base-T (RJ-45)
Watchdog Timer	64 levels timer with time-out intervals from 0.5 - 1600
Serial Port	RS-232 x 3; RS-232/422/485 x 1 +5V/+12V power output capability by pin 1 and pin 9, (selectable via jumper setting)
Parallel	SPP/EPP/ECP supported; Configurable to LPT1, LPT2, LPT3 or disable
I/O Connectors	D-Sub 9 pin x 3 (male) for RS-232/RS-422/RS-485; D-Sub 25 pin x 1 (female) for Parallel; D-Sub 15 pin x 1 (male) for DIO; PS/2 x 2 for Keyboard and Mouse; RJ-45 x 1 for Ethernet; D-Sub 15 pin x 1 (female) for S-VGA output; USB x 2
Expansion Slot	ISA x 2 + PCI x 1 or PCI x2 + ISA x 1 All Full Size
System Fan	4cm fan x 2
Touchscreen	Resistive type
Power Supply	AC 90-240V, 100W
Dimensions	w/o Expansion Box: 17.05"(433mm)(W) x 3.59"(91.3mm)(D) x14.09"(358mm)(H) w/ Expansion Box: 17.05"(433mm)(W) x 5.73"(145.5mm)(D) x 14.09"(358mm)(H)
Weight	8.4 Kg
O/S Supported	Windows 98, Windows NT, Windows 2000, Windows XP
Operation Temp.	32° to 122° F (0° to 50° C)
Relative humidity	5% ~ 95%, non-condensing

Ordering Information:

AX1150-370

15" TFT Industrial High Brightness Panel Computer

Includes:
- 100W power supply
- 10 GB HDD
- 64MB RAM
- 2 slot backplane
- 850 MHz Celeron CPU
- Windows 2000 Operating System

Options:

T	Touchscreen, Analog Resistive Type
128MB	128MB RAM
256MB	256MB RAM
512MB	512MB RAM
CD	Internal CDROM Drive
850MHz	850MHz Pentium III CPU
1GHz	1GHz Intel Celeron CPU
NTW	Windows NT Workstation
W98	Windows 98SE
XP	Windows XP Professional
CDRW	CDROM R/W Drive

Consult factory for the latest configuration options.

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AMB-2000/2020

Industrial HMI Panel PC with Flat-Panel Display

Features

- 10.4" or 12.1" VGA color TFT LCD display

- Heavy-duty steel chassis and NEMA 4/12 compliant plastic front panel

- All-in-one SBC, MediaGX 233MHz

- Brightness and LCD power on/off controller on the aluminum alloy front panel (aluminum front panel optional)

- Four 16C550 RS-232C ports, one RS-232C port can also be set as RS-422/485

- Disk Driver Space for CD-ROM, FDD and HDD

- DiskOnChip flash disk socket

- PC/104 expansion connector

Introduction

The AMB-2000/2020 series panel PC's are industrial computers that are designed for industrial environments.. They are a full function PC-base system with a 10.4" VGA (640 x 480) color TFT hi-brightness, long-life time LCD display. The compact dimensions are ideal for automation applications where the installation space is critical. These PC's are characterized by their space saving feature and flexible selection of hardware. The AMB-2000/2020 series panel PC's feature a heavy-duty steel chassis with a sealed plastic front panel that meets the toughest industrial and environmental standards.

Specifications for AMB-2000

Construction: Heavy-duty steel chassis & NEMA 4/12 plastic front panel.
CPU: MediaGX 233MHz
Memory: 64M DRAM
Display: 10.4" VGA (640 x 480) TFT color LCD
LCD/CRT controller: NS Cx5530 Chipset UMA supports up to 4MB display memory
Network (LAN): Realtek RTL8139B 10/100Base-T Ethernet controller
I/O ports: 4 serial ports: three RS-232, one RS-232/422/485, 1 parallel port (support ECP/EPP), 1 keyboard port, 1 PS/2 mouse interface
Disk Drives: HDD and FDD or HDD and CD-ROM
USB connector: Dual USB ports onboard
Expansion: PC/104 connector
Mounting: Panel mount
Power supply: Universal 70W switching power supply
Dimension: (W x H x D) 306 x 228 x 95 mm
Gross Weight: 6.0 Kg

Specifications for AMB-2020

Construction: Heavy-duty steel chassis & NEMA 4/12 plastic front panel.

CPU: MediaGX 233MHz

Memory: 64M DRAM

Display: 12.1" SVGA (800 x 600) TFT color LCD

LCD/CRT controller: NS Cx5530 Chipset UMA supports up to 4MB display memory

Network (LAN): Realtek RTL8139B 10/100Base-T Ethernet controller

I/O ports: 4 serial ports: three RS-232, one RS-232/422/485, 1 parallel port (support ECP/EPP), 1 keyboard port, 1 PS/2 mouse interface

Disk Drives: HDD and FDD or HDD and CD-ROM

USB connector: Dual USB ports onboard

Expansion: PC/104 connector

Mounting: Panel mount

**Power supply:** Universal 70W switching power supply

Dimension: (W x H x D) 330 x 255 x 93 mm

Gross Weight: 5.0 Kg

LCD Specifications

Model:	AMB-2000	2020
Display type:	10.4" TFT color LCD	12.1" TFT color LCD
Max. resolution:	640 x 480	800 x 600
Max. colors:	256K	256K
Dot size (mm):	0.33 x 0.33	0.308 x 0.308
Luminance (cd/m2):	200	200
Viewing angle:	90° (h) 50° (v)	110°
Temperature:	0° ~50° C	0° ~50° C
VR Controller:	Yes	Yes
LCD MTBF (Hrs):	50,000	50,000
Back Light MTBF (Hrs):	25,000	25,000
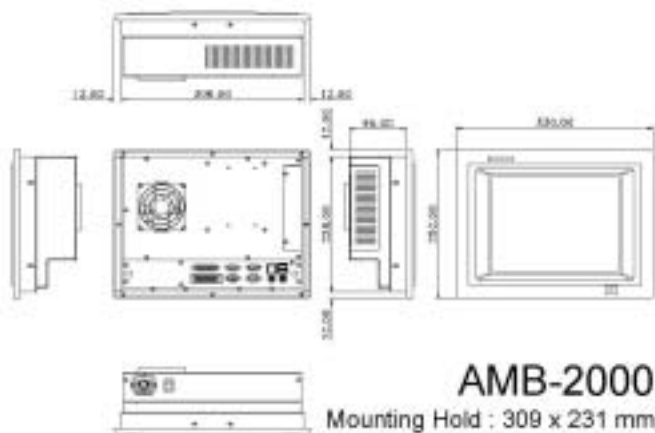
Ordering Information

AMB 2000

Part Number	Description
2000HT	10.4" Bright TFT Color LCD, (200 cd/m) Cyrex MediaGX 233MHz CPU

Options (add to end of Part Number)

T	Touchscreen
24V	24V power instead of 120VAC power
12V	12V power instead of 120VAC power
128M	Memory expanded to 128MB
NTW	Windows NT 4.0 Workstation Installed
NTS	Windows NT 4.0 Server (5 lic.) Installed
ILINK	Infilink Software Installed. Unlimited Tags, Any Driver
INTCD	Internal Slim CDROM REPLACING internal FDD. With this option, no internal FDD will be present. There is no external FDD connector, so a USB floppy drive should be purchased if needed.
USBFDD	External USB Floppy Disk Drive
EXTCD	External CDROM Drive

AMB 2020

Part Number	Description
2000HT	12.1" Bright TFT Color LCD, (250 cd/m) Cyrex MediaGX 233MHz CPU

Options (add to end of Part Number)

T	Touchscreen
24V	24V power instead of 120VAC power
12V	12V power instead of 120VAC power
128M	Memory expanded to 128MB
NTW	Windows NT 4.0 Workstation Installed
NTS	Windows NT 4.0 Server (5 lic.) Installed
ILINK	Infilink Software Installed. Unlimited Tags, Any Driver
INTCD	Internal Slim CDROM REPLACING internal FDD. With this option, no internal FDD will be present. There is no external FDD connector, so a USB floppy drive should be purchased if needed.
USBFDD	External USB Floppy Disk Drive
EXTCD	External CDROM Drive

Dimensions

AMB-2000
Mounting Hold : 309 x 231 mm

AMB-2020
Mounting Hold : 333mm x 258mm

MMI-3000

Industrial PC with 15" TFT Display & Keyboard

Features

- 15" TFT LCD display

- Heavy-duty Stainless Steel Case and NEMA 4/12 Compliant Front Panel

- 700MHz Intel Pentium III CPU

- NEMA 4 Rubber Keyboard

- 45GB Hard Drive, CD-ROM, FDD

- 100 Base T Ethernet

- 128MB RAM, Expandable to 384MB

Introduction

The MMI-3000 Industrial PC is designed for harsh, industrial environments. It is a full function PC-based system with a 15" (1024x 768) color TFT hi-brightness, long-life time LCD display. The MMI-3000 is equipped with a rubber keyboard that meets NEMA 4 requirements.

Specifications
Computer:

TMC Single Board Computer
Chips & Technologies 69000 Video Chipset
4 Serial ports
Parallel port
Socket 370 CPU Socket
700MHz Intel Pentium PIII CPU, upgradable to 800MHz
100 BaseT Ethernet
128MB RAM, expandable to 384MB
45 GB Hard Disk Drive
Kingston Removable HDD Chassis
CD ROM
Floppy Disk Drive
250W Power Supply
Circuit Breaker

Expansion Slots:

Three PCI and one ISA (Full length)

Case:

304 Stainless Steel
Grade 4 Finish. No welds are visible.
NEMA 12 (Face of unit is NEMA 4, but there are louvered vents on the sides).
Approximate Dimensions in inches: 23H x 20W x 20.3D

<div style="text-align: right">Industrial PC's</div>

Keyboard:
NEMA 4 Rubber Keyboard with Pointing Device

Display:
15" High Brightness TFT Display
1024 X 768 Resolution
Scaling Allows Full-Screen Display at Lower Resolutions
ELO Touchscreen

Testing Standards:
CE
FCC Class A

Operating Specifications
Operating Temperature: 0 to 50 degrees C
Storage Temperature: -10 to 0 degrees C
Relative Humidity: 10 to 90%, non-condensing
Input Voltage: 115 or 230Vac(switch selectable), +- 10%

Mounting:
Pedestal Mount Standard.
Wall and Top Mounting Options Available.

Cooling:
One 85CFM Exhaust Fan
Louvered Vent on Each Side of Enclosure.
CPU Fan
85CFM Fan on Card Cage

The MMI-3000 features a hinged back panel which allows easy access to the interior for quick upgrades and maintenance.

Dimensions:

20.00

11.00

23.00

3.25

20.31
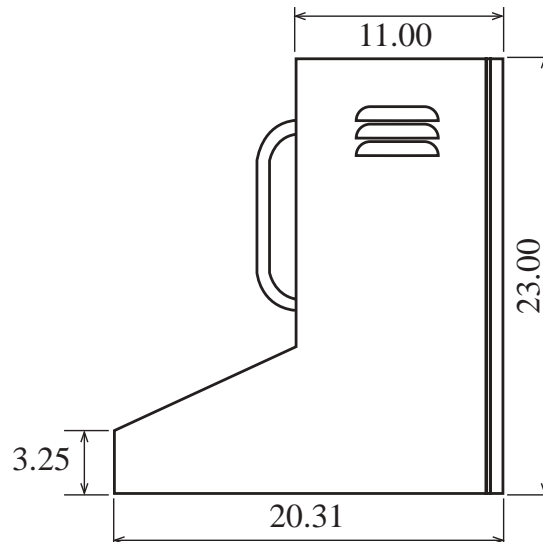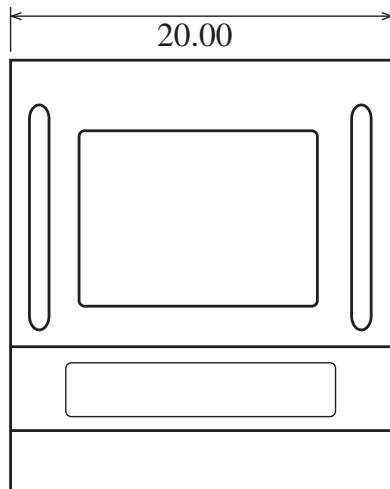
Ordering Information:

Part Number   Description

MMI-3000   MMI-3000 Industrial Computer Includes: 700MHz Intel Pentium PIII CPU, 128MB RAM, 4 Serial ports, Parallel port, 100 BaseT Ethernet, 45 GB Hard Disk Drive, Kingston Removable HDD Chassis, CD ROM, Floppy Disk Drive, 250W Power Supply

MMI-10

Message Center

Features

- Windows™ based setup software

- Setup software can convert projects from one PLC brand to another

- 2 x 20 character, LCD or VFD display

- Small DIN size

- Multiple embedded variables per screen

- Smart cable hookup to PLC's

- RS-232 printer port

- Message capacity is limited only by memory

Description
The MMI-10 is a message center based on the powerful features found in our other MMI products. The easy to use Windows™ setup software allows users to quickly configure their units.

MESSAGES
The MMI-10 can store a large number of messages. Message numbers can range from 1 to 65500. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-10 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-10. A message can be assigned to each line on the MMI-10. Messages can scroll, flash, have minimum time for display and can be chained to other messages. They can also be designated to be printed through the serial port.

Specifications

Display	2 x 20 Char. LCD or VFD
Character Size	0.23" (5.5mm)
Memory	32k EEPROM
Set-Up	Windows™ based PC software
Programming	via RS-232
Message	via message triggering register request.
Power Supply	12-24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 5.67", H= 2.83", D= 3.54"
Cutout	W= 5.43", H= 2.68"
Environmental	NEMA4 / IP65
Approvals	CE Certified

How To Order:

EXAMPLE: MMI10   V   N

Series
  MMI -10

Display Type
  L= LCD
  V=VFD

Options (add to part number)
  N = NEMA4 enclosure

For PLC type refer to SMIC Cables in the Accessories Section of this catalog.

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

Text Interfaces

MMI-40

Message Center with Four Line Display

Features

- Windows™ based setup software

- Setup software can convert projects from one PLC brand to another

- 4 x 20 character, LCD display

- Small DIN size

- Multiple embedded variables per screen

- Smart cable hookup to PLC's

- RS-232 printer port

- Message capacity is limited only by memory

Description

The MMI-40 is a message center based on the powerful features found in our other MMI products. The easy to use Windows™ setup software allows users to quickly configure their units.

MESSAGES

The MMI-40 can store a large number of messages. Message numbers can range from 1 to 65500. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-40 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-40. A message can be assigned to each line on the MMI-40. Messages can scroll, flash, have minimum time for display and can be chained to other messages. They can also be designated to be printed through the serial port.
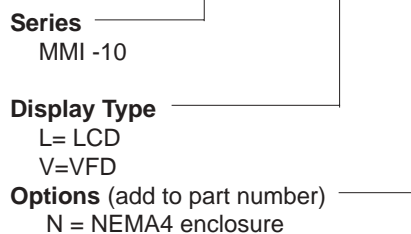
Specifications

Display	4 x 20 Char. LCD
Character Size	0.23" (5.5mm)
Memory	32k EEPROM
Set-Up	Windows™ based PC software
Programming	via RS-232
Message	via message triggering register request.
Power Supply	12-24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 5.67", H= 2.83", D= 3.54"
Cutout	W= 5.43", H= 2.68"
Environmental	NEMA4 / IP65
Approvals	CE Certified

How To Order:

EXAMPLE: MMI40   L   N

Series
  MMI -40

Display Type
  L= LCD

Options (add to part number)
  N = NEMA4 enclosure

For PLC type refer to SMIC Cables in the Accessories Section of this catalog.

Accessories:
ZA9M9F -   Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

MMI-100

Message Center with Function Keys

Features

- Windows™ based setup software

- Setup software can convert projects from one PLC brand to another

- 2 x 20 character, LCD or VFD display

- 8-30 VDC power

- Small DIN size

- 8 Programmable function keys

- Multiple embedded variables per screen

- Smart cable hookup to PLC's

- Serial interface for PLC connection and programming setup.

- RS-232 printer port

- Message capacity is limited only by memory

Description

The MMI-100 provides a powerful yet cost effective Programmable Logic Controller (PLC) interface where space requirements are critical and cost is important. It communicates directly with the PLC through the programming port so that I/O can be used for what it is intended. In addition, the MMI-100 provides a serial output port to support a printer or additional slave device.

Function Keys

The 8 user definable keys make machine interfacing very simple. The function keys are legendable and can be used for various PLC interactive applications including:

- Turn ON/OFF internal contacts
- Hold On/OFF contact while key is pressed
- Toggle status of contact
- Download a constant to PLC register
- Trigger a message

Data Entry

Special messages can be used to load values into the PLC. The register that is to be modified would be defined in the message. The user can also embed the data within this message making it very user friendly.
A bit/coil can also be edited in an interactive manner using a similar special message.

MESSAGES

The MMI-100 can store a large number of messages. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-100 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-100. A message can be assigned to each line on the MMI-100. Messages can scroll, flash, have minimum time for display and can be chained to other messages. They can also be designated to be printed through the serial port.

Specifications

Display	2 x 20 Char. LCD or VFD
Character Size	0.23" (5.5mm)
Memory	32k EEPROM
Set-Up	Windows™ based PC software (order separately)
Programming	via RS-232
Message Request	via message triggering register or function key
Function Keys	8 user programmable function keys
Power Supply	12-24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 5.67", H= 2.83", D= 3.54"
Cutout	W= 5.43", H= 2.68"
Environmental	NEMA4 / IP65
Approvals	CE Certified

MMI Setup Software Information

The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

Our software makes Function Key setup a snap! Create, Edit and View messages with Point & Click Ease!

How To Order:

EXAMPLE:	MMI100	V	N

Series
MMI -100

Display Type
L= LCD
V=VFD

Options (add to part number)
N = NEMA4 enclosure

For PLC Type
Use Smart cable part number as indicated below. Also **refer to SMIC Cables in the Accessories Section of this catalog.** The MMI-100 will not operate without a cable and software.

EXAMPLE:	SMIC-	GE90-	05

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
IDECM3C	Idec Micro3C Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

MMI-110

Message Center with Function Keys & Data Access

Features

- Windows™ based setup software

- Setup software can convert projects from one PLC brand to another

- 2 x 20 character, LCD or VFD display

- Small DIN size

- 8 Programmable function keys

- Multiple embedded variables per screen

- Smart cable hookup to PLC's

- Numeric keys for easy data entry

- RS-232 printer port

- Message capacity is limited only by memory

- Operator controlled scrolling through linked messages

Description

The MMI-110 provides all of the powerful features found in the MMI-100 with the addition of four keys which allow for easy data entry. The easy to use Windows™ setup software allows users to quickly configure their units.

Function Keys

The 8 user definable keys make machine interfacing very simple. The function keys are legendable and can be used for various PLC interactive applications including:

- Turn ON/OFF internal contacts
- Hold On/OFF contact while key is pressed
- Toggle status of contact
- Download a constant to PLC register
- Trigger a message for data entry

Data Entry

By pressing the CLR/DATA key, the keys become activated for entering numerical values. Through the use of 0-9 keys, an operator can easily change values of PLC registers. Bit/coil status can also be edited in an interactive manner using special messages.

MESSAGES

The MMI-110 can store a large number of messages. Message numbers can range from 1 to 65500. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-110 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-110.

A message can be assigned to each line on the MMI-110. Messages can scroll, flash, have minimum time for display and can be chained to other messages. They can also be designated to be printed through the serial port. Messages can be linked together to make menus or lists which the operator can scroll through using the up and down arrow keys.

Specifications

Display	2 x 20 Char. LCD or VFD
Character Size	0.23" (5.5mm)
Memory	32k EEPROM
Set-Up	Windows™ based PC software (order separately)
Programming	via RS-232
Message Request	via message triggering register or function key
Function Keys	8 user programmable function keys
Power Supply	12-24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 5.67", H= 2.83", D= 3.54"
Cutout	W= 5.43", H= 2.68"
Environmental	NEMA4 / IP65
Approvals	CE Certified

Text Interfaces

MMI Setup Software Information

The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

Our software makes Function Key setup a snap! Create, Edit and View messages with Point & Click Ease!

How To Order:

EXAMPLE: MMI110   V   N

Series
  MMI-110

Display Type
  L= LCD
  V=VFD

Options (add to part number)
  N = NEMA4 enclosure

For PLC Type
Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog.
The MMI-110 will not operate without a cable and software.

EXAMPLE: SMIC-   GE90-   05

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
IDECM3C	Idec Micro3C Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector.
        (PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
        (PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

MMI-140

Message Center with Data Access & Four Line Display

Features

- Windows™ based setup software

- Setup software can convert projects from one PLC brand to another

- 4 x 20 character, LCD display

- Small DIN size

- 8 Programmable function keys

- Multiple embedded variables per screen

- Smart cable hookup to PLC's

- Numeric keys for easy data entry

Description
The MMI-140 provides all of the powerful features found in the MMI-110. Its multifunction keypad allows for easy data entry. The easy to use Windows™ setup software allows users to quickly configure their units.

Function Keys
The 8 user definable keys make machine interfacing very simple. The function keys are legendable and can be used for various PLC interactive applications including:
- Turn ON/OFF internal contacts
- Hold On/OFF contact while key is pressed
- Toggle status of contact
- Download a constant to PLC register
- Trigger a message for data entry

Data Entry
By pressing the CLR/DATA key, the keys become activated for entering numerical values. Through the use of 0-9 keys, an operator can easily change values of PLC registers. Bit/coil status can also be edited in an interactive manner using special messages.

Messages
The MMI-140 can store a large number of messages. Message numbers can range from 1 to 65500. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-140 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-140. A message can be assigned to the full, upper or lower part of the MMI-140 display. Messages can scroll, flash, have minimum time for display and can be chained to other messages. They can also be designated to be printed through the serial port. Messages can be linked together to make menus or lists which the operator can scroll through using the up and down arrow keys.

- RS-232 printer port

- Message capacity is limited only by memory

- Operator controlled scrolling through linked messages

Specifications

Display	4 x 20 Char. LCD
Character Size	0.23" (5.5mm)
Memory	32k EEPROM
Set-Up	Windows™ based PC software
Programming	via RS-232
Message	via message triggering register request or function key.
Function Keys	8 user programmable F-keys
Power Supply	12-24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 5.67", H= 2.83", D= 3.54"
Cutout	W= 5.43", H= 2.68"
Environmental	NEMA4 / IP65
Approvals	CE Certified

How To Order:

EXAMPLE: MMI140   L   N

Series
   MMI -140

Display Type
   L= LCD

Options (add to part number)
   N = NEMA4 enclosure

For PLC type refer to SMIC Cables in the Accessories Section of this catalog.

Accessories:
ZA9M9F -   Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

MMI-200

Programmable Push Button and Annunciator Panel

Features

- Easy, Smart Cable Hookup to PLC Programming Port

- 24 Programmable Push-Buttons

- 24 LED Indicators

- Beeper for Audio Feedback of Key Presses

- Open Collector Output

- Setup software can convert projects from one PLC brand to another
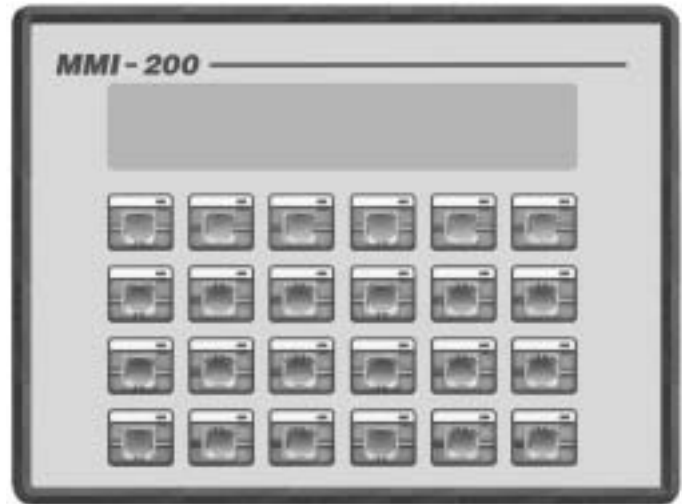
Description:

The MMI-200 is designed to:
1. Provide a convenient way for machine operators to:
   a) View machine status.
   b) Change applicable status of operation.
   c) Maintain the running of a machine.
2. Enhance the capabilities of a machine through:
   a) User defined Push-Button interface.
   b) Annunciation of user defined conditions through LED's.

The MMI-200 interfaces to a machine through a Smart Cable which is connected to the PLC programming port. No additional communications modules are necessary. Just plug in both ends of the cable and you are ready to go!

Application:

Typical applications include:
Status indication and simple push button operations such as, noncritical On/Off, Alarm Acknowledge and Clear.

Setup -- The MMI-200 is programmed using a Personal Computer. The Windows based setup software is used to configure Push-Buttons and LED's which are defined and downloaded to the MMI-200.

Annunciator LED's -- The MMI-200 has 24 user definable LED's for the purpose of annunciation. Each LED corresponds to a bit in a user designated register pair in the PLC.

Alarm Open Collector Output -- The Alarm Output is controlled by the same register designated for LED annunciation. The Alarm Output can also be disabled by the programming software.

Push-Button Keys -- The MMI-200 has 24 user definable Push-Buttons. A button can be defined to perform any one of the following actions.
   a) TURN ON a bit in the PLC.
   b) TURN OFF a bit in the PLC.
   c) TOGGLE a bit in the PLC.
   d) HOLD ON a bit in the PLC.
   e) HOLD OFF a bit in the PLC.
   f) Download a CONSTANT to a specific location in the PLC.

Beeper -- The MMI-200 contains a piezo electric beeper which is programmed in a similar procedure as the LED's. The beeper can also be disabled by the programming software.
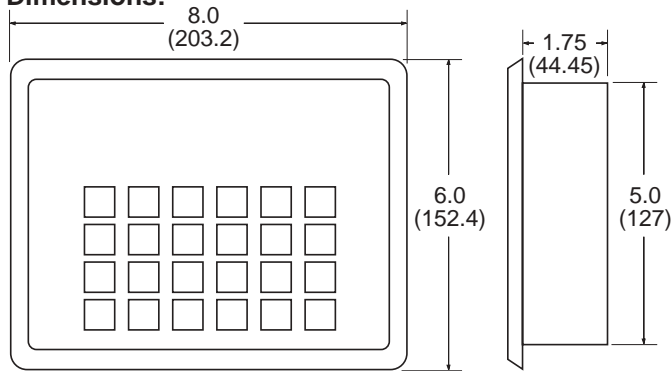
Register Bit designations

Register 1	Register 2
1 - LED 1	1 - LED 17
2 - LED 2	2 - LED 18
3 - LED 3	3 - LED 19
4 - LED 4	4 - LED 20
5 - LED 5	5 - LED 21
6 - LED 6	6 - LED 22
7 - LED 7	7 - LED 23
8 - LED 8	8 - LED 24
9 - LED 9	9 - Not Used
10 - LED 10	10 - Beeper Enable
11 - LED 11	11 - Activate Beeper
12 - LED 12	12 - O.C. Enable
13 - LED 13	13 - Activate O.C.
14 - LED 14	14 - Not Used
15 - LED 15	15 - Not Used
16 - LED 16	16 - Not Used

SPECIFICATIONS

Power	12 to 24 VDC, 6W Maximum
Bezel	NEMA 4 / IP65 rated membrane keypad
Temperature	Operating: - 0 to 50 degrees C
	Storage: -40 to 90 degrees C
Humidity	10% to 90% (Non condensing)
Size	8" W x 6" H x 1.75" D
	(203.2 mm x 152.4 mm x 44.45 mm)
Panel Cutout:	7.1"W x 5.1"H
	(180.3 mmWx 152.4 mm H)
Communication	Using the programming or the standard communication port of the PLC
Memory	8k EEPROM
Open Collector O/P	24 Volts at 100 mA maximum
Immunity to ESD	8 kV Air, 6 kV Contact as per IEC801-2
Immunity to Transients	2 kV as per IEC801-4
	2 kV 1 us Impulse Noise
Radiated Susceptibility	10 Volts/meter as per 1EC801-3
Emissions	EN5501,1 CISPR A
Approvals	CE Pending

Dimensions:

PANEL CUTOUT: 7.1 (180.3) X 5.1 (129.5)
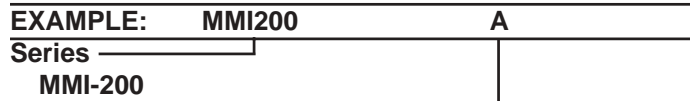
All Dimensions in inches (mm)

MMI Setup Software Information

The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

Our software makes Function Key setup a snap!
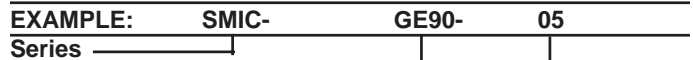Create, Edit and View messages with Point & Click Ease!

How To Order:

EXAMPLE: MMI200   A

Series
   MMI-200

Options (add to end of part number)
   A = 115 VAC Power
   B = 230 VAC Power

For PLC Type

Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog.
The MMI-200 will not operate without a smart cable and software.

EXAMPLE: SMIC-   GE90-   05

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
IDECM3C	Idec Micro3C Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

MMI-210

Combination Register Access Panel with Programmable Push Buttons

Features

- 2 Line by 20 Character Backlit LCD or VFD Display

- Easy, Smart Cable Hookup to PLC Programming Port

- Programming Software Allows Labels to be Assigned to Registers and Bits

- Setup software can convert projects from one PLC brand to another

- Programmable Lists of Commonly Used Registers and Bits

- Security Lockout of Registers and Bits

- 20 Programmable (40 using shift key) Push-Buttons and LED's

- Programmable Open Collector Alarm Output

- Beeper for Audio Feedback of Key Presses and Alarms.

Description:

The MMI-210 is designed to:
1. Provide a convenient way for machine operator to:
   a) View machine status and parameters.
   b) Change applicable parameters of operation.
   c) Maintain the running of a machine.
2. Enhance the capabilities of a machine through:
   a) User defined Push-Button interface.
   b) Annunciation of user defined conditions through LED's.

The MMI-210 interfaces to the PLC through a Smart Cable which is connected to the PLC programming port. No additional communications modules are necessary. Just plug in both ends of the cable and you are ready to go!

Application:

Typical applications include:

Changing timer or counter set points; changing batch recipes; monitoring shift production; troubleshooting I/O points and many other applications where register access is needed.

Setup -- The MMI-210 is programmed using a Personal Computer. Using the Windows™ based configuration software, parameters can be defined and downloaded to the MMI-210.

Annunciator LED's -- The MMI-210 has 20 LED's for the purpose of annunciation. Each LED corresponds to a bit in a user designated register in the PLC.

Programmable Push-Buttons -- The MMI-210 has 20 (40 using the shift key) user definable Push-Buttons. A Push-Button can be defined to perform any one of the following actions:
a)   TURN ON a bit in the PLC.
b)   TURN OFF a bit in the PLC.
c)   TOGGLE a bit in the PLC.
d)   HOLD ON a bit in the PLC.
e)   HOLD OFF a bit in the PLC.
f)   Download a CONSTANT to a specific location in the PLC.
g)   Display a Labeled register or bit in a List.

List Definitions -- The Lists are user defined lists of frequently viewed register and bit locations. Up to 20 lists can be created. They are programmed using the MMI-210 Configuration Software.

Registers and bits can be:
- Assigned labels
- Password Protected
- Viewed as Signed Integer, Decimal, Binary, Hexadecimal, or BCD values (as applies to a particular PLC)
- Assigned a decimal point location
- Assigned High and Low limits for operator input values.

These labels are displayed whenever the register or bit is called up. The registers and bits in a list can be accessed conveniently by pressing the NEXT or PREV keys.

Alarm Open Collector Output -- The Open Collector Output is controlled by a PLC register. The O.C. output can also be set to pulse when a key is pressed. (On/Off = Active-Sinking/Inactive-High Impedance).

Beeper -- The MMI-210 contains a piezo electric beeper which is programmed in a similar procedure as the LED's. The beeper can also be disabled by the programming software.

Operation:

The NEXT and PREV keys step up or down through a Queued list as they are pressed. In this manner, any register or bit in a list can be viewed.

The register or bit status being displayed can be changed by use of the NUM key (See below). Also, the displayed Queue List can be changed by pressing a pre-pro-grammed Push-Button designated to call up a specific list.

The MMI-210 can access counter/timer accumulators and presets. This is indicated by a P or A next to the displayed counter / timer number.

Registers and bits may be viewed in one of two ways:

1. Full screen: The entire display is used to show the label, the register or bit number and the register value or bit status. The Labels can be up to 20 characters.
For Example: Showing Timer 1. Labeled as "Dwell Timer"

```
Dwell Timer
T0001A            789
```

2. Half screen: Two registers or bits are displayed, one on each line of the display. The Label and register value or bit status is shown on each line. The Labels are truncated to 11 characters.
For Example: Showing a register. Labeled as "Gallons" and a bit. Labeled as "Pump #1"

```
Gallons         12340
Pump #1           OFF
```

ENTERING DATA -- The NUM key is used for changing bit, register, preset and accumulator values.

A new value may be entered into a register if:
a) The register is not Password protected; or
b) The Password is assigned a value of 0000.

Press the NUM key to change a bit status, register, preset or accumulator value while it is being displayed. You will notice that the last digit of the displayed value or status is flashing. This indicates that the unit is ready to accept a new value. Use the CLR key and Number keys to change the flashing value. Press ENT to accept the value.

If the register or bit is assigned write protection the unit will prompt the operator for the Write Password when the NUM button is pressed. The password is entered the same way that new data is entered as described above.

MMI Setup Software Information

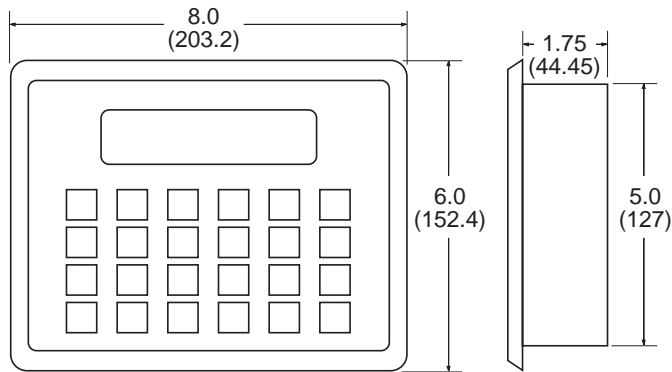The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

Our software makes Function Key setup a snap! Create, Edit and View messages with Point & Click Ease!

SPECIFICATIONS

Power	12 to 24 VDC, 6W Maximum
Display	LCD Backlit Liquid Crystal Display; 2 lines; 20 characters per line; character height is 0.2" VFD Vacuum Fluorescent Display; 2 lines; 20 characters per line; character height is 0.2"
Bezel	NEMA 4 / IP65 rated membrane keypad
Temperature	Operating: - 0 to 50 degrees C Storage: -40 to 90 degrees C
Humidity	10% to 90% (Non condensing)
Size	8" W x 6" H x 1.75" D (203.2 mm x 152.4 mm x 44.45 mm)
Panel Cutout:	7.1"W x 5.1"H (180.3 mmWx 152.4 mm H)
Communication	Using the programming or the standard communication port of the PLC
Memory	8k EEPROM expandable to 32k
Open Collector O/P	24 Volts at 100 mA maximum
Immunity to ESD	8 kV Air, 6 kV Contact as per IEC801-2
Immunity to Transients	2 kV as per IEC801-4 2 kV 1 us Impulse Noise
Radiated Susceptibility	10 Volts/meter as per 1EC801-3
Emissions	EN5501,1 CISPR A
Approvals	CE Pending

Dimensions:

PANEL CUTOUT: 7.1 (180.3) X 5.1 (129.5)

All Dimensions in inches (mm)

How To Order:

EXAMPLE: **MMI210**   **V**   **32**

Series
   MMI-210

Display Type
   L= LCD
   V=VFD

Options (add to end of part number)
   32 = 32K of storage
   A = 115 VAC Power
   B = 230 VAC Power

For PLC Type
Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog. The MMI-210 will not operate without a smart cable and software.

EXAMPLE: **SMIC-**   **GE90-**   **05**

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
IDECM3C	Idec Micro3C Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector. (PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector. (PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

Text Interfaces

MMI-220

Programmable Push Button and Message Panel

Features

- 2 Line by 20 Character Display

- Bar Graph Capable

- Connects to The PLC's Programming Port

- The Number of Messages To View Machine / Process Status is Limited Only by Memory

- Recipe Management with Retentive Internal Registers

- User Friendly Prompts to Change Data and Presets

- 20 Programmable (40 using shift key) Push-Buttons and LED's

- Setup software can convert projects from one PLC brand to another

- Message Chaining and Linking

- Serial Printer Port, Beeper and Open Collector Output

DESCRIPTION

The new MMI-220 from KEP is a simple, easy to use, cost effective interface. It communicates with the PLC directly through the programming port. Expensive I/O, interface ladder logic or hard wiring are no longer needed.

FUNCTION KEYS

The MMI-220 has 20 (40 using shift key) user definable keys which can be used as push buttons or as selector switches. Each key can be defined to do one of the following functions:
- Turn specified bits ON or OFF
- Hold Specified bits ON or OFF while the key is pressed
- Toggle the status of a specified bit (like a selector switch).
- Edit or download constants and recipe values to the PLC.
- Trigger a message for data entry.
- Trigger a message chain or linked list useful for machine setup etc..

Access to Function keys can be password protected.

ANNUNCIATOR LEDS

The MMI-220 has 20 user definable LEDs for the purpose of annunciation The LEDs are mapped to a user definable register In the PLC. A beeper is also provided for annunciation.

ENTERING DATA --
The NUM key is used for changing bit, register, preset and accumulator values.

A new value may be entered into a register if:
a) The register is not Password protected; or
b) The Password is assigned a value of 0000.

Press the NUM key to change a bit status, register, preset or accumulator value while it is being displayed. You will notice that the last digit of the displayed value or status is flashing. This indicates that the unit is ready to accept a new value. Use the CLR key and Number keys to change the flashing value. Press ENT to accept the value.

If the register or bit is assigned write protection the unit will prompt the operator for the Write Password when the NUM button is pressed. The password is entered the same way that new data is entered as described above.

MESSAGES

The MMI-220 can store a large number of messages. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-220 reads the contents of this register in every scan and the message corresponding to the number in the MTR is displayed on the MMI-220. A message can be assigned to each line on the MMI-220. Messages can scroll, flash, have minimum time for display and can be chained or linked to other messages. They can also be designated to be printed through the serial port.

A list of messages can be defined (called linked messages) allowing the operator to scroll through this list of messages simply by pressing the NEXT key.

Messages can have PLC data embedded in Decimal, Hex, Binary or BCD formats. They can also have text dependent on a bit status or can have data displayed as a bar graph making the unit very user friendly.
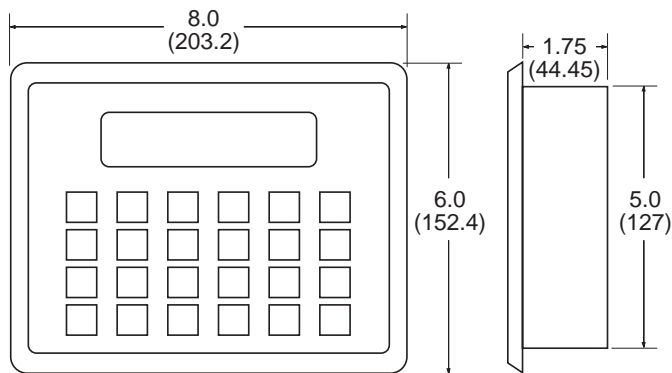
SETUP

The MMI-220 is setup on an IBM PC using a Windows™ based setup software package. Simply point and click and you are ready to go!

SPECIFICATIONS

Power	12 to 24 VDC, 6W Maximum
Display	LCD Backlit Liquid Crystal Display; 2 lines; 20 characters per line; character height is 0.2" VFD Vacuum Fluorescent Display; 2 lines; 20 characters per line; character height is 0.2"
Bezel	NEMA 4 / IP65 rated membrane keypad
Temperature	Operating: - 0 to 50 degrees C Storage: -40 to 90 degrees C
Humidity	10% to 90% (Non condensing)
Size	8" W x 6" H x 1.75" D (203.2 mm x 152.4 mm x 44.45 mm)
Panel Cutout:	7.1"W x 5.1"H (180.3 mmWx 152.4 mm H)
Communication	Using the programming or the standard communication port of the PLC
Memory	8k EEPROM expandable to 32k
Open Collector O/P	24 Volts at 100 mA maximum
Immunity to ESD	8 kV Air, 6 kV Contact as per IEC801-2
Immunity to Transients	2 kV as per IEC801-4 2 kV 1 us Impulse Noise
Radiated Susceptibility	10 Volts/meter as per 1EC801-3
Emissions	EN5501,1 CISPR A
Approvals	CE Pending

Dimensions:

PANEL CUTOUT: 7.1 (180.3) X 5.1 (129.5)

All Dimensions in inches (mm)

MMI Setup Software Information

The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

How To Order:

EXAMPLE: **MMI220**   **V**   **A**

Series
   MMI-220

Display Type
   L= LCD
   V=VFD

Options (add to end of part number)
   32 = 32K of storage
   A = 115 VAC Power
   B = 230 VAC Power

For PLC Type

Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog.
The MMI-220 will not operate without a smart cable and software.

EXAMPLE: **SMIC-**   **GE90-**   **05**

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
IDECM3C	Idec Micro3C Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector. (PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector. (PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

Our software makes Function Key setup a snap!
Create, Edit and View messages with Point & Click Ease!

MMI-240

Features

- 4 Line x 20 Character Display

- Bar Graph Capable

- Connects to The PLC'S Programming Port

- The Number of Messages To View Machine / Process Status is Limited Only by Memory

- Recipe Management with Retentive Internal Registers

- User Friendly Prompts to Change Data and Presets

- 20 Programmable (40 using shift key) Push-Buttons and LED's

- Setup software can convert projects from one PLC brand to another

Programmable Push Button and Message Panel

- Message Chaining and Linking

- Serial Printer Port, Beeper and Open Collector Output

DESCRIPTION
The new MMI-240 from KEP is a great addition to our line of operator interface products. Featuring a 4 line, 20 character LCD or VFD display, the MMI-240 allows the operator to view many parameters at one time. The MMI-240 communicates with the PLC through the PLC's programming port.

FUNCTION KEYS
The MMI-240 has 20 (40 using shift key) user definable keys which can be defined to do one of the following functions:
- Turn specified bits ON or OFF.
- Hold specified bits ON or OFF while the key is pressed.
- Toggle the status of a specified bit (like a selector switch).
- Edit or download constants and recipe values to the PLC.
- Trigger a message for data entry.
- Trigger a message chain or linked list useful for machine setup etc..

Access to Function keys, can be password protected.
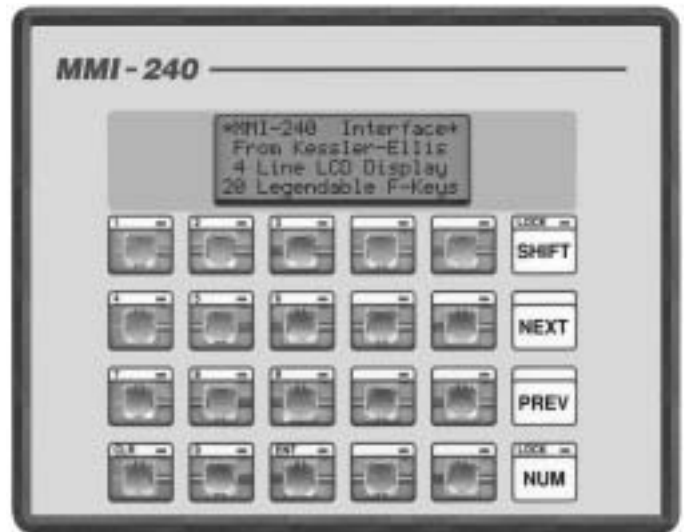
ANNUNCIATOR LEDs
The MMI-240 has 20 user definable LEDs for the purpose of annunciation. The LEDs are mapped to a register in the PLC. A Beeper is provided for annunciation.

ENTERING DATA -- The NUM key is used for changing bit, register, preset and accumulator values.

A new value may be entered into a register if:
a) The register is not Password protected; or
b) The Password is assigned a value of 0000.

Press the NUM key to change a bit status, register, preset or accumulator value while it is being displayed. You will notice that the last digit of the displayed value or status is flashing. This indicates that the unit is ready to accept a new value. Use the CLR key and Number keys to change the flashing value. Press ENT to accept the value.

If the register or bit is assigned write protection the unit will prompt the operator for the Write Password when the NUM button is pressed. The password is entered the same way that new data is entered as described above.

MESSAGES
The MMI-240 has a message capacity limited only by memory. A register called the Message Triggering Register (MTR) is defined in the PLC. The MMI-240 reads the contents of this register during every scan. The message corresponding to the number in the MTR is displayed on the MMI-240. A message can be assigned to the upper or lower lines on the MMI-240. Messages can scroll, flash, be displayed for a minimum time, and can be chained or linked to other messages. They can also be directed to print through the serial port.

A list of messages can be defined (called linked messages) and the operator can scroll through this list of messages simply by pressing the NEXT key.

Messages can have PLC data embedded in Decimal, Hex, Binary or BCD format. They can have text dependent on a bit status or can have data displayed as a bar graph making the unit very powerful.
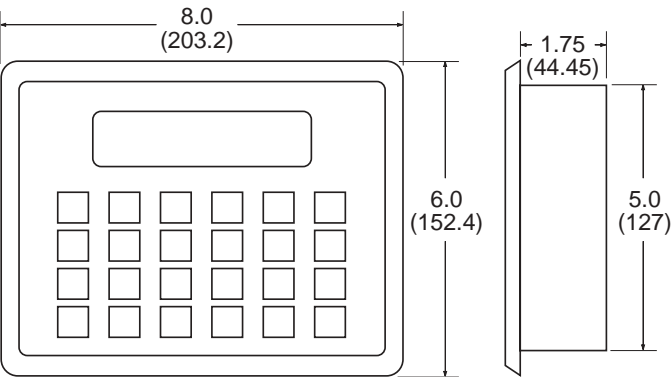
SETUP
The MMI-240 is setup by a PC using MMISOFT, a Windows™ based setup software package. Simply point and click and you are ready to go!

SPECIFICATIONS

Power	12 to 24 VDC, 6W Maximum
Display	LCD Backlit Liquid Crystal Display; 4 lines; 20 characters per line; character height is 0.2"
	VFD Vacuum Fluorescent Display; 4 lines; 20 characters per line; character height is 0.2"
Bezel	NEMA 4 / IP65 rated membrane keypad
Temperature	Operating: - 0 to 50 degrees C Storage: -40 to 90 degrees C
Humidity	10% to 90% (Non condensing)
Size	8" W x 6" H x 1.75" D (203.2 mm x 152.4 mm x 44.45 mm)
Panel Cutout:	7.1"W x 5.1"H (180.3 mmWx 152.4 mm H)
Communication	Using the programming or the standard communication port of the PLC
Memory	32k EEPROM
Open Collector O/P	24 Volts at 100 mA maximum
Immunity to ESD	8 kV Air, 6 kV Contact as per IEC801-2
Immunity to Transients	2 kV as per IEC801-4 2 kV 1 us Impulse Noise
Radiated Susceptibility	10 Volts/meter as per 1EC801-3
Emissions	EN5501,1 CISPR A
Approvals	CE Pending

Dimensions:

PANEL CUTOUT: 7.1 (180.3) X 5.1 (129.5)

All Dimensions in inches (mm)

MMI Setup Software Information

The Windows® based MMI setup software is a convenient way to setup this PLC Interface Product.

How To Order:

EXAMPLE: MMI240   V   A

Series
   MMI-240

Display Type
   L= LCD
   V=VFD

Options (add to end of part number)
   A = 115 VAC Power
   B = 230 VAC Power

For PLC Type
Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog.
The MMI-240 will not operate without a smart cable and software.

EXAMPLE: SMIC-   GE90-   05

Series

PLC Type

AB500	AB SLC500 types with DH485 port
ABDF1	AB SLC500 5/03, 5/04 with DF1 port
ABMICRO	AB MicroLogix only
ABAIC	For use with AB AIC Modules
ARO	All Aromat FP1 Series
FUJI	Fuji Flex Series NB, NJ and NS
GE90	All GE 90 Series SNP Port
IDECM1	Idec M1 and FA2J
IDECM3	Idec Micro3 Series
K205	Koyo DL230, DL240, DL250
K305	Siemens Simatic 335, Koyo 340
K405	Siemens Simatic 425, 435, Koyo 440
KEY	Keyence KV 10,16,24,40 & 80, KV300
MOD	Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO	Modicon Micro 984
MITFX	Mitsubishi FX Series
MITFXO	Mitsubishi FXo only
OMCK25	Omron C Series, (Host link modules)
OMCH9	Omron CH Series
OMCQM	Omron CQM1 Series
SIS5	Siemens S5 Series, 95, 100, 102, 103, 115
SIS7	Siemens S7-200 Series
TSBEX	Toshiba EX Series & M Series Program Port
TSB485	Toshiba EX & M Series RS-422 Link Port
TSBT1	Toshiba T1 only
TSBT2	Toshiba T2 and T3
TSX07	Telemecanique TSX 07 (nano), TSX 37
TSX17	Telemecanique TSX 17
TSX47	Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F - Five feet of cable with DB9 male connector and DB9 female connector.
(PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

MMISOFT - Setup software for MMI-1XX, IMMI-2XX and IMC2

Our software makes Function Key setup a snap!
Create, Edit and View messages with Point & Click Ease!

ZOID DC

PLC Operator Interface

Features:

- Meets CE Mark requirements (DC powered units only)

- 2 x 20 character, VFD or backlit LCD display

- 24 VDC power (AC power optional)

- 12 Programmable function keys (24 with shift keys)

- 487 message capability

- Serial interface for programming setup and printout of messages

- Multiple embedded variables per screen

Description:

KEP designed the ZOID DC to provide:

1. A convenient way for a machine operator to:
   a. View machine status and parameters.
   b. Change applicable parameters of operation of a machine.
   c. Maintain the running of a machine.
2. Enhanced capabilities to a machine through:
   a. Real Time Clock access.
   b. RS-232 ASCII output.
   c. Direct keypad interface
   d. Visually displayed prompts.

The ZOID DC is designed to provide these features in a cost effective unit. It interfaces to the machine through a single cable (typically to a PLC programming port).

The ZOID DC is a simple, easy-to-use interface that talks to your PLC directly through the programming port. Additional communications modules and cumbersome interface ladder logic are no longer necessary. Just plug in both ends of the cable and you are ready to go!

Set up: The ZOID DC is programmed using a Personal Computer. Our user friendly software is used to set up the parameters and download them to the ZOID DC.

Function Keys: 12 function keys can be programmed to call up 24 (12 non-shifted and 12 shifted) critical messages or prompts.

Labels: Labels are a way to tag specific registers or bits. The label, or "SYNONYM" can be up to 11 alphanumeric characters. For example, if register number R00020 represents the number of widgets made on Production Line 3, the user can view the number of widgets on that line by assigning a label "Prod Line 3" to register R00020. "Prod Line 3" and the value in R00020 are displayed along with the register number.

Canned Messages: The ZOID DC is more than just a register access device. Up to 487 messages can be loaded into the ZOID DC and then called up by the PLC. The PLC calls up a message by putting the message number into a register that is designated as the Message Triggering Register (MTR). Register values, time and date can be embedded into messages. Messages can flash, have fixed minimum time, scroll, be chained to another message or be downloaded to the serial port for print out. They can also be used to prompt an operator to enter values. This allows the ZOID DC to be used for interactive machine setups.

Real Time Clock: The ZOID DC can be configured to download the time and date into the PLC once per second. The time and date can also be embedded into messages which allows for time and date stamping of printouts.

Math Functions: Labeled registers can be scaled and/or offset before they are viewed. This allows the operator to view a value in "real" units. Data entered by the operator into math modified registers is "backed out" so that the PLC receives it as a value it can use. (Math operators are *, /, + and -)

Operator Interfaces

4 Types of Lockout: The ZOID DC can be programmed to restrict a user from viewing or changing critical registers. The user can also be locked out from changing register values while still being able to view these values. Along with this the user can also change, within defined limits, any labeled register value. Lastly, the user can lockout function keys. Locked keys can be accessed by function password only.

Operating mode:
Once the ZOID DC is programmed, it can be connected to the PLC programming port.

Modes of control - 3 types are available
* **Operator mode** - The ZOID DC operates as a *register access module* in this mode. This allows the operator to call up and change register data. Function Keys are active in this mode. Messages cannot be called by the PLC in this mode.
* **PLC mode** - The ZOID DC operates as a *message center* in this mode. The PLC prompts the operator with messages. The operator can only access the registers assigned to function keys or embedded in special messages.
* **Normal mode** - This mode *combines* the above two modes. The ZOID DC defaults to the PLC mode. When a key is pressed, the ZOID DC enters the Operator mode temporarily. After 10 seconds of no keypad activity the ZOID DC returns to the PLC mode.

Printer Interface - Messages and Function key messages can be designated to be printed out. They will be printed with any variable register value or real time embedded in the message. One advantage of this feature is that an expensive ASCII PLC module for printout becomes unnecessary.

The ZOID DC makes communication to a PLC controlled machine easy and is great for troubleshooting.
Input, Output and Data registers can be easily viewed by maintenance personnel. Printed messages, with the time and date embedded, can be used to log downtime and alarms.

Viewing Modes (selectable from ZOID DC front panel)

The ZOID DC allows 2 different ways to view register data. When the ZOID DC is operating in the Normal or Operator Mode, register data can be viewed in Number or Synonym formats.

1) Number Mode:
The Number Mode allows direct access to any register by entering the desired register number. The display shows the register number, the register data, the synonym assigned (if applicable) and a "REG# ?" prompt. Press the NEW DATA key to change the register data.
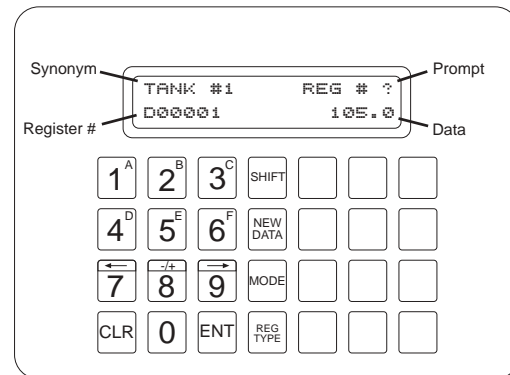
Number Mode

2) Synonym Mode:
The Synonym Mode allows access to any register that has been assigned a synonym. Pressing the arrow keys will advance ($\rightarrow$) or backup ($\leftarrow$) through the list. The display shows the register number, the register data, the synonym and a "<-/-> ?" prompt. Press the NEW DATA key to change the register data.
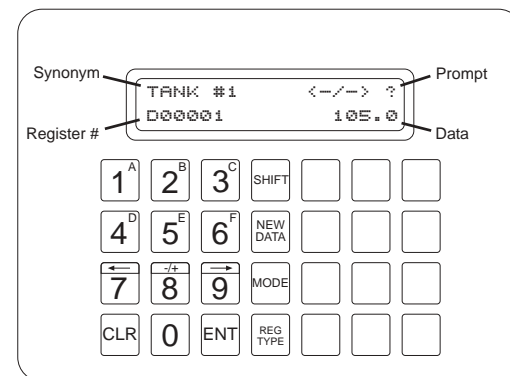
Synonym Mode

SPECIFICATIONS:

Temperature:
 VFD: 32-140°F (0-60°C)
 LCD: 32-122°F (0-50°C)
Power: 12 to 24 VDC, 110 VAC or 220 VAC
Battery Life: (for real time clock & memory backup)
 10 years calculated
Display:
 VFD Vacuum Fluorescent Display; 2 lines; 20 charac-
 ters per line; character height is 0.2"
 LCD Backlit Liquid Crystal Display; 2 lines; 20 charac-
 ters per line; character height is 0.2"
Serial Communication:
 RS-232 8 bit, no parity, 1 start bit, 1 stop bit, no
 handshake, 300, 600, 1200, 2400, 4800 or 9600 baud
Keypad:
 Membrane Keypad, dome, positive feedback 1 million
 keystrokes minimum
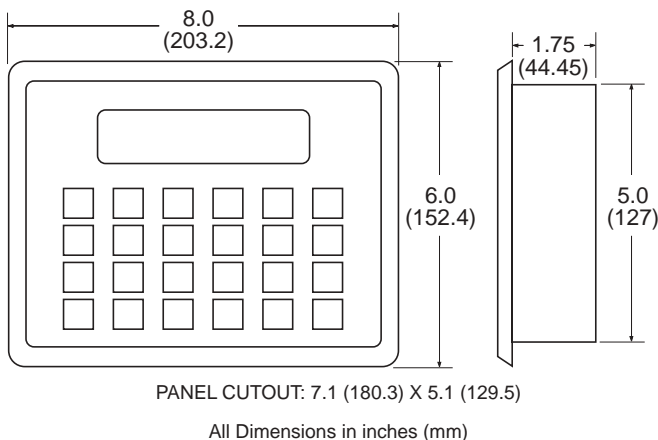**Keypad Rating:**
 NEMA 4X/IP65
Approvals: CE (ZOID DC only)
Dimensions:
 H = 6", W = 8", D = 1.75"
 Cutout H = 5.1, W = 7.1

NOTE: May require up to 4" below cutout for connec-
 tions

How To Order:

EXAMPLE:	ZOID D	C	GE-90	L

Series

Power
A = 110 VAC
B = 220 VAC
C = 12 to 24 VDC (standard)

PLC Type
AB500   AB SLC500 types with DH485 port
ABDF1   AB SLC500 5/03, 5/04 with DF1 port, AB MicroLogix
GE90   All GE 90 Series SNP Port
IDECM3   Idec Micro3 Series
K205   Koyo DL230, DL240
K305   Siemens Simatic 335, Koyo 340
K405   Siemens Simatic 425, 435, Koyo 440
KEY   Keyence KV 10,16,24,40 & 80 —KV300
MOD   Modicon Micro 84; 884; 984; Micro 984
MITFX   Mitsubishi FX Series
OMC   Omron C Series, (Host link modules), CH, CQM1 Series
SIS5   Siemens S5 Series, 95, 100, 102, 103, 115
SI135   Siemens S5 Series, 135 only
SIS7   Siemens S7-200 Series
TSBEX   Toshiba EX & M Series Program Port & RS-422 Link Port
TSBT2   Toshiba T1, T2 and T3
TSX07   Telemecanique TSX 07 & TSX 37
TSX   Telemecanique TSX 17, TSX 47-40, TSX 47-20

Display Type
L = Backlit LCD display
V = Vacuum fluorescent display (VFD)

Use Smart cable part number as indicated below. Also refer to
SMIC Cables in the Accessories Section of this catalog.

8.0
(203.2)

1.75
(44.45)

6.0
(152.4)

5.0
(127)

PANEL CUTOUT: 7.1 (180.3) X 5.1 (129.5)

All Dimensions in inches (mm)

EXAMPLE:	SMIC-	GE90-	05

Series

PLC Type

AB500   AB SLC500 types with DH485 port
ABDF1   AB SLC500 5/03, 5/04 with DF1 port
ABMICRO   AB MicroLogix only
ABAIC   For use with AB AIC Modules
ARO   All Aromat FP1 Series
FUJI   Fuji Flex Series NB, NJ and NS
GE90   All GE 90 Series SNP Port
IDECM1   Idec M1 and FA2J
IDECM3   Idec Micro3 Series
K205   Koyo DL230, DL240
K305   Siemens Simatic 335, Koyo 340
K405   Siemens Simatic 425, 435, Koyo 440
KEY   Keyence KV 10,16,24,40 & 80, KV300
MOD   Modicon Micro 84; 884; 984; Open Modbus and J-Bus
MODMICRO   Modicon Micro 984
MITFX   Mitsubishi FX Series
MITFXO   Mitsubishi FXo only
OMCK25   Omron C Series, (Host link modules)
OMCH9   Omron CH Series
OMCQM   Omron CQM1 Series
SIS5   Siemens S5 Series, 95, 100, 102, 103, 115
SIS7   Siemens S7-200 Series
TSBEX   Toshiba EX Series & M Series Program Port
TSB485   Toshiba EX & M Series RS-422 Link Port
TSBT1   Toshiba T1 only
TSBT2   Toshiba T2 and T3
TSX07   Telemecanique TSX 07 (nano), TSX 37
TSX17   Telemecanique TSX 17
TSX47   Telemecanique TSX 47-40, TSX 47-20

Cable Length
05 = 5 feet

Accessories:
ZA9M9F -   Five feet of cable with DB9 male connector and
 DB9 female connector.
 (PC end, normally used for "AT" COM1)

ZA9M25F - Five feet of cable with DB9 male connector and
 DB25 female connector.
 (PC end, normally used for "XT" or "AT" COM2)

Operator Interfaces

S12

Parallel or Multiplexed BCD to 7 Segment Display

Features

- 4 or 6 digit large display
- 12 to 24 VDC data and power Inputs
- Easy hook up to programmable controller
- Full parallel or digit strobe input
- Positive or negative true logic
- Sourcing or sinking inputs
- Standard 1/8 DIN case, NEMA 4X/IP65 Front

Applications:
The S12 display is designed to be a window for programmable controllers. Working with any 12 to 24 VDC PLC output card, it accepts full parallel or strobed data from the controller register and displays temperature, setpoint, time, speed or other data within the programmable controller to keep operators aware of important parameters.

Description:
The S12 is a 12 to 24 VDC, 4 or 6 digit .56" LED, 7 segment remote display mounted in a 1/8 DIN housing. Data is received full parallel, 4 lines per digit or may be switch selected to receive all data on 4 binary lines using individual digit strobe lines. Decimal position, positive or negative logic, two different display codes, as well as input filtering are selectable by dip switches behind the removable front lens. Any number of displays can be linked together using the optional ribbon cable and strobe lines.

Specifications:
Display: High efficiency .56 inch, 7 segment red/orange LED
Power: 12 VDC -10% to 24 VDC +10%,
Current: 175 mA maximum
Display Codes: Two types of "display codes", switch selectable. Hexadecimal (H) code displays 0 - 9, A - F.
B (B) code displays 0 - 9, -, E, H, L, P, (blank).
Input Mode: Data can be entered full parallel (24 lines for six digit). Several displays can be linked together using the optional parallel ribbon cable. By connecting together the six digit strobes of each display, each display can be updated by its separate strobe. A dipswitch change allows use of six separate digit strobe lines to enter data one digit at a time over four data lines. Minimum strobe pulse is 1 msec but can be set by dip switch to react only to longer pulses, thus preventing data from being entered by noisy signals. If strobe input is held at "display update" voltage level, the display changes as data changes. Four digit versions have display centered. Display data and strobes are connected to terminals for four inside digits.

Decimal Point: Dip switch selectable in any position or none.
Data Inputs: (Binary data and strobes)
Voltage: High; greater than 75% of supply voltage. Low; less than 50% of supply voltage. Impedance; 4.7K resistor to ground. (Input type 4, last digit of number has 4.7K resistor to +DC supply voltage. Inputs must be driven low by "sinking" device. Use only with output modules that sink to ground.) Polarity (DIP switch selectable); Unit accepts either positive or negative true data.
Terminations: "X"; 32 contact screw terminal on plug-in adapter "X" with connector for ribbon hook up of multiple displays. See data on S12 ribbon cable.
Temperature: Operating +32°F (0°C) to +130°F (+54°C). Storage -40°F (-40°C) to +200°F (+93°C).
Strobe Input:
The strobe input controls data entry into the display. It is used to latch the data or enable the display to be updated by new data inputs. The polarity of the strobe is set by SW2. Minimum strobe pulse is 1 mSec. The S12 can be set by SW7 and SW8 to react only to longer pulses, thus preventing data from being entered by noise signals. If the strobe is held at "Display Update" voltage level, the display changes as the data changes.
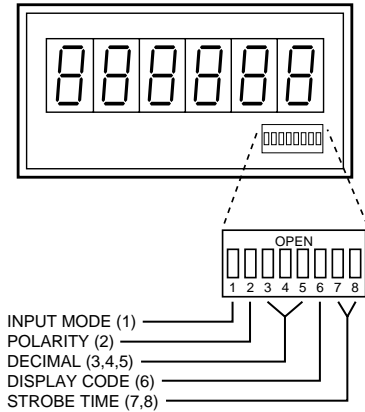
Parallel Data Input:
Data can be entered full parallel (24 lines for 6 digits). When driving a single display, strobe inputs do not need to be connected if *A: S12 has INPUT TYPE 1 and SW1 is ON or B: S12 has INPUT TYPE 4 and SW1 is open.*
Otherwise, connect all strobes together and jumper to ground (to +DC power if negative polarity is selected). The display will change as data changes. Several displays can be linked together with the optional ribbon cable which connects data and power to every display in the link. Connect the digit strobes together for each display. Connect the strobe bank for each display to an output driver programmed to be normally high (normally low if negative true polarity). When data on the parallel ribbon needs to be displayed, activate the selected display strobe bank for the time set on switches 7 and 8 to update the display. *Data must be constant at least 2 mSec. before and after the strobe is returned to the latch voltage level.*

DIP Switch Selection:

The S12 Display is designed with several switch selectable options which are set by the end user. New units are normally shipped with switches 2 and 6 in the ON (down) position and 3,4,5,7 and 8 in the OPEN (up) position. If changes are needed, locate the switches behind the front bezel.

Front Select Switches:

Dip Switch Settings:

SW1: DATA INPUT MODE
   1= Parallel (24 data lines)
   0= Multiplex (4 data lines)

SW2: INPUT POLARITY
   1= Data is positive true; high strobe input latches display, low strobe updates display.
   0= Data is negative true; low strobe input latches display, high strobes updates display.

SW3,4,5: DECIMAL POINT

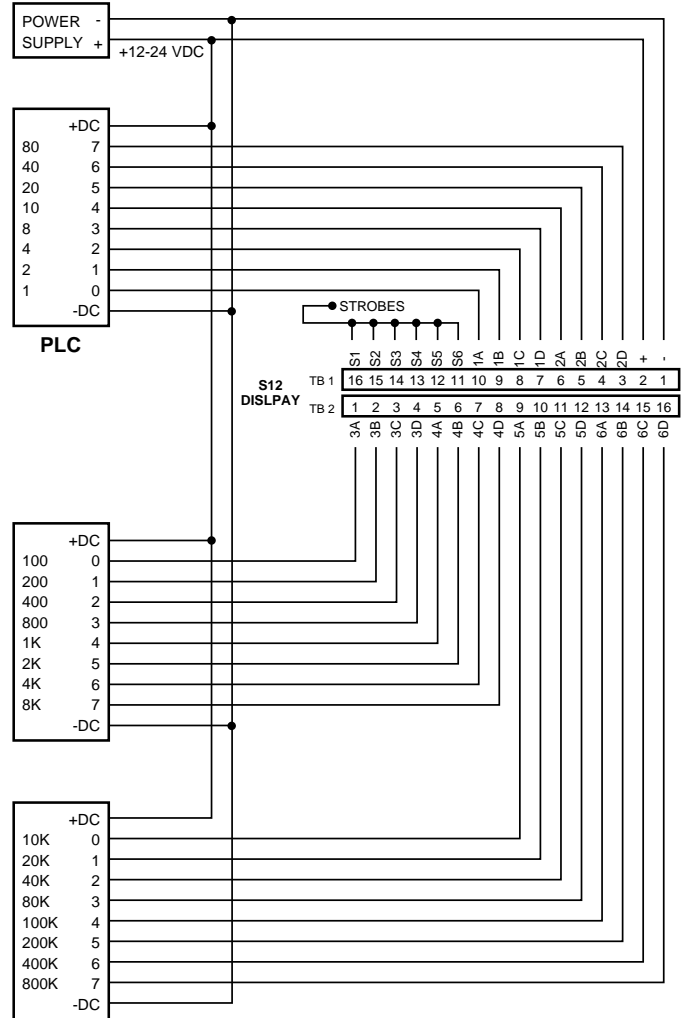| SW3	SW4	SW5	DEC.
1	1	1	NONE
1	1	0	XXXXXX.
1	0	1	XXXXX.X
1	0	0	XXXX.XX
0	1	1	XXX.XXX
0	1	0	XX.XXXX
0	0	1	X.XXXXX
0	0	0	NONE

SW6: DISPLAY CODES (see Display Code Table)
   1=Hex Code
   0="B" Code

SW7,8: STROBE RESPONSE
(For best noise protection use longest time possible)

SW7	SW8	RESPONSE TIME
1	1	1 mSec
1	0	2 mSec
0	1	10 mSec
0	0	25 mSec

SAMPLE WIRING: 6 Digit Parallel

Display Code Table:

DATA 8421	HEX CODE DISPLAY	"B" CODE DISPLAY
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	A	-
1011	b	E
1100	c	H
1101	d	L
1110	E	P
1111	F	(BLANK)

Multiplex Data Input:

If SW1 is open, all data is entered in a multiplex fashion on 4 lines only (TB-1 pins 7,8,9 and 10). The strobe lines must be normally high (normally low for negative true polarity). Activate digit strobes one at a time to latch each digit as data is sent for that digit. (Digit 1 is LSD, digit 6 is MSD.) *Data must be constant at least 2 mSec. before and after the strobe returns to the latch voltage level.* Any number of displays can use the same 4 wire data bus using individual strobes to update each digit of the each display.
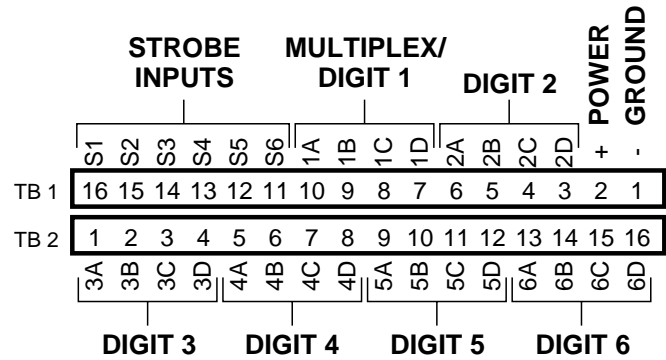
Sample Wiring: 4 Digit Multiplex Input
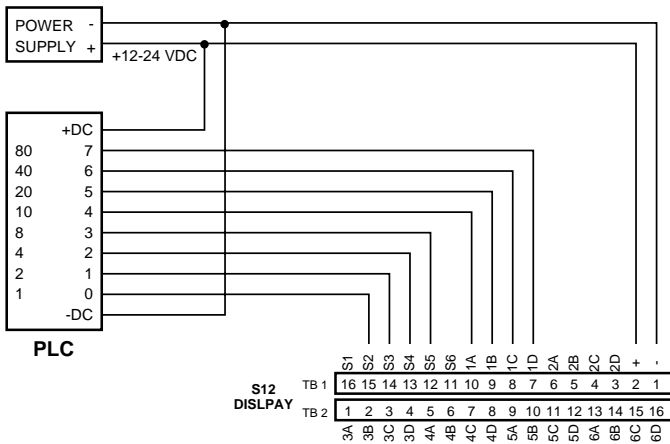
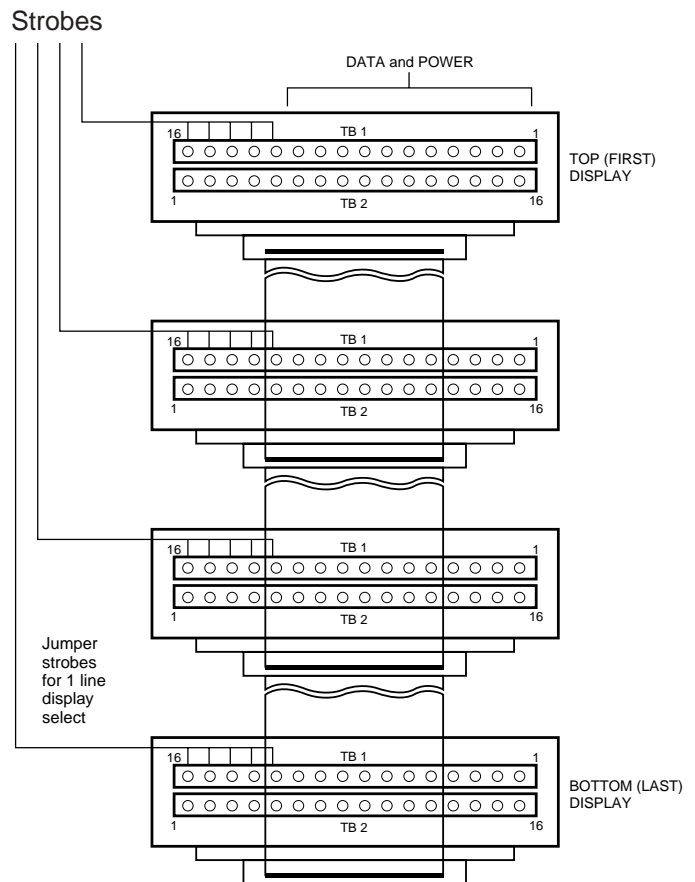## RIBBON CABLE FOR MULTIPLE UNITS OF S12
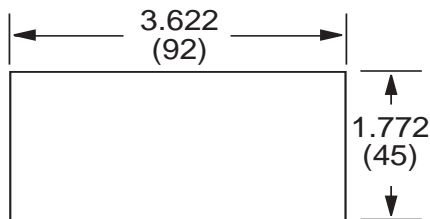
Wiring
Terminal Adapter "X"
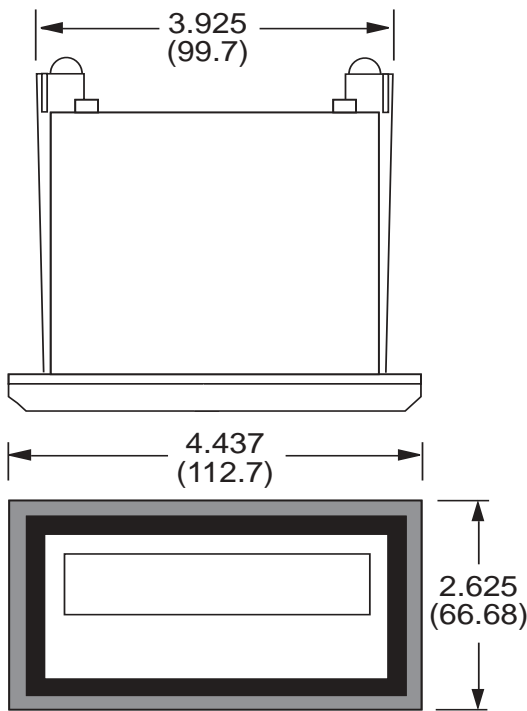

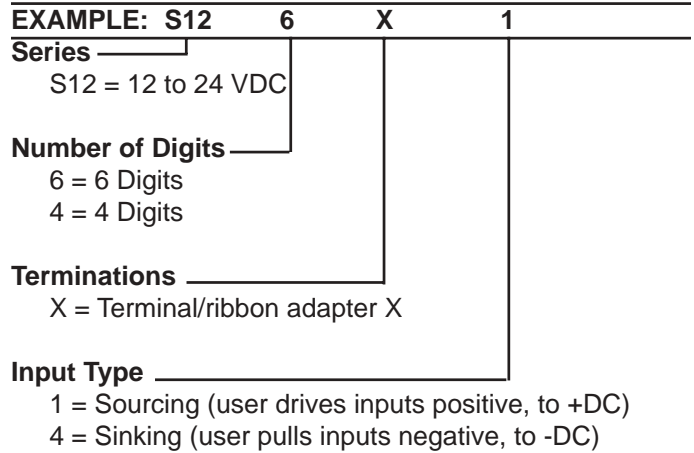4 digit units have display centered wire data and strobes to digit 2 through 5.

Ribbon Cable Wiring:

Strobes

Slave Displays

Dimensions:

3.925
(99.7)

4.437
(112.7)

2.625
(66.68)

0.587
(14.91)

4.245
(107.8)

BEZEL
GASKET

CUSTOMER PANEL
Panel Thickness 0.062" (1.5)
to 0.187" (4.7) max.

3.622
(92)

1.772
(45)

How To Order:

EXAMPLE:	S12	6	X	1

Series
S12 = 12 to 24 VDC

Number of Digits
6 = 6 Digits
4 = 4 Digits

Terminations
X = Terminal/ribbon adapter X

Input Type
1 = Sourcing (user drives inputs positive, to +DC)
4 = Sinking (user pulls inputs negative, to -DC)
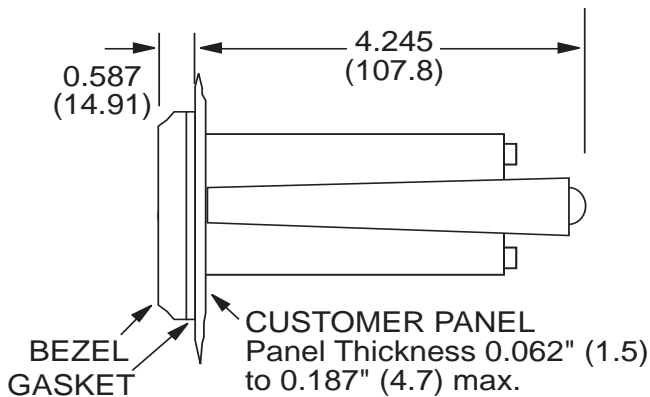
Accessories

S12 RIBBON FOR ADAPTER "X"
Ribbon is continuous with connectors attached each 12 inches.
Part Number: S12RX__ Specify number of units to be linked together.
Example: #S12RX4 is cable to connect four S12 units spaced 12 inches apart.

S12 ADAPTER "X" FOR RIBBON CABLE
(Supplied as termination "X" when ordered on S12 display)
May be ordered separately #S12AX.
May be used at PLC to convert ribbon cable to screw terminal.

* SPECIAL LENGTH ORDER FORMAT
S12RX - Specify ribbon lengths between connectors in 6 inch increments using alphabet letters to indicate number of 6" intervals. Eg. A=6", B=12". C=18", etc. List the interval between the top display and next highest first, then list lower ones in order. S12RXACCB is a ribbon to connect 5 displays with 6" between 1st (top) and 2nd, 18" between 2nd and 3rd, 18" between 3rd and 4th, 12" between 4th and 5th (bottom).

Slave Displays

PC 9000

BCD to 7 Segment Display Requires Only 8 Output Lines

Features

- Interfaces with any PLC through I/O

- 6 large digits

- Dip Switch Addressable, Allows up to 4 Displays to be Cascaded

- 1 kHz buffered input speeds

- Requires only 8 output bits

- Uniquely addressable - allows cascading of multiple displays

- Wide variety input signals

- 5 or 10 to 24 VDC power supply

- Low power: less than 300 mA

- Uses fewer lines than any other slave display

- All data input self-latching

- Sealed NEMA 4X/IP65 front panel

Description:

The PC 9000 is a 6 digit display device with large LED digits. Any value available in a Programmable Controller can be displayed using 8 output bits or less. Up to 4 displays of 4 digits each can also be operated with only 8 output bits. Counts, times, RPM's, temperature, setpoints, etc. can be displayed continuously during a process. Power can be either 5 VDC or 10-24 VDC, however the data and power need not be the same voltage.

This 6 digit slave instrument is designed for displaying information being processed by a programmable controller. All information is loaded into its brilliant LED display using a maximum of 8 lines. Four of the 8 lines establish the number value in the BCD code. Another 4 lines are designed to carry a broad variety of instructions including digit selection, decimal position, and addressing status. In addition, the PC 9000 contains switches for field programming a completely unique address for each instrument. This feature allows many PC 9000s to be cascaded and information rapidly loaded for evaluation. The PC 9000 may slave off a broad variety of input voltages at data input rates at 1 kHz. 5 VDC or 10-24 VDC may be used for power. Typical current consumption at 12 VDC is 250 mA.

Specifications:

Display: High efficiency .56 inch LED display.

Display Modes: Two types of "display modes" - hexadecimal or B code. Hexadecimal permits the letters A-F to be displayed along with the numbers 0 through 9. B code version displays the numbers 0-9 while offering characters such as negative sign and digit blanking.

Decimal Point: Decimal points may be under complete software control or factory set (see how to order).

Data Inputs: Data is entered serially, 4 bits at a time (1 digit). Input voltages 3-30 VDC. Impedance 1.5K Ohms. All inputs are buffered and filtered. Standard input rate is 1 kHz. Additional filtering is user programmable. All inputs are active high.

Digit Select Inputs (DS): The digit select inputs accept 3-30 VDC signals used to establish which of the 6 digits in the display are being addressed.

Display Select (DSPS): "Display Select" is used only when 2 or more PC 9000 instruments are connected in parallel. The display select inputs accept 3-30 VDC signals which are used to select 1 of 4 PC 9000's.

Display Address (DSPA): Like "Display Select" Display Address is only used when 2 or more PC 9000 instruments are connected in parallel. The display address (DIP switch selectable) will assign a unique address to each PC 9000.

Termination: A unique, pluggable screw terminal block is used allowing maximum termination flexibility.

Digit Select Inputs:
There are three digit select inputs. These are used to direct the data to the appropriate digit locations of the display. They are coded in Binary, and the digits are numbered 0 through 5, starting with the least significant digit being 0 and proceeding to the left to the most significant digit.

Digit select inputs (pins 5,6,7) will be referred to as DS1, DS2, DS4 respectively in the following table. NOTE: DS4 is not used when addressing only 4 digits.

DS4	DS2	DS1	Digit Selected
0	0	0	0 LSD
0	0	1	1
0	1	0	2
0	1	1	3
1	0	0	4
1	0	1	5 MSD

Display Select Inputs:
Up to four separate PC 9000 devices may be grouped together and connected to a programmable controller. Eight output points will operate these four displays with up to 4 digits of data shown by each. Adding one more output point will permit either four 6 digit displays or four 4 digit displays with software selectable decimal points. By adding one additional point, both software selectable decimal points and six digit displays are possible.

Software Selectable Decimal Point:
To turn on any decimal point, while entering data and position information for the desired digit enter a logic "1" to the "Decimal Point" input. The decimal point will light at the right of the digit entered. To enable the software decimal point option, any fixed decimal point solder bridge must be removed.

**Programming for
Hexadecimal Code:**
The standard display mode of the PC 9000 is the "B" code. This includes the minus sign and the blank digit. If the hexadecimal mode is desired, it can be activated by bridging gap number 8 in a manner similar to the setting of fixed decimal points as outlined in the previous section.

Programming for Display Select:
If multiple PC 9000's are to be connected together, each device will need a unique address.

Remove the front lens as described under Case/Lens Removal. Locate switches 3 and 4 on the right under the display.

The PC 9000 is normally set at the factory for an address of 0. If other addresses are desired, set according to the following chart. (On is down, Off is up)

Switch 3	Switch 4	Display Selected
OFF	OFF	DISP 0
OFF	ON	DISP 1
ON	OFF	DISP 2
ON	ON	DISP 3

Programming for Scan Time:
The PC 9000 has been designed to reject a great amount of electrical noise. It is suggested that if the scan time of the programmable controller is relatively long, the internal filtering switches be set to assure highly reliable operation.

The PC 9000 is normally set at the factory for an input scan response time of approximately 1.2 milliseconds. If a 10 mS. or 25 mS. scan response time is desired the front lens must be removed. To change the response time, locate the four position switch mounted directly under the LED display board. Set the switches numbered 1 and 2 according to the following chart (ON is down, OFF is up).

Switch 2	Switch 1	Scan Time
OFF	OFF	1.2 mS
ON	OFF	10 mS
OFF	ON	25 mS

NOTE: If both switches 1 and 2 are turned on, the display will lock up.

NOTE: If multiple PC 9000's are going to be connected in parallel, they must have their addresses set before the front lens is installed. If this is required after completing the scan time adjustment, go on to the next section (Programming For Display Select).

**Programming for a Fixed
Decimal Point:**
Remove the circuit board from the case, locate the area just behind the display on the left side showing 8 solder jumper gaps numbered 1-8. (Refer to Modification Section). The first five (1-5) are used to light a decimal point in the display. By making a solder bridge from the outside pads numbered 1-5 to the inside trace, the selected decimal will be lit. Example: gap 2 will light XXXX.XX. Only one fixed decimal point is permitted.

HEXADECIMAL		B-CODE	
Data 8421	Hex Display	Data 8421	B-Code Display
0000	0	0000	0
0001	1	0001	1
0010	2	0010	2
0011	3	0011	3
0100	4	0100	4
0101	5	0101	5
0110	6	0110	6
0111	7	0111	7
1000	8	1000	8
1001	9	1001	9
1010	A	1010	—
1011	b	1011	E
1100	C	1100	H
1101	d	1101	L
1110	E	1110	P
1111	F	1111	(Blank)

Programming for "B" Mode:
If the PC 9000 has been set for the Hexadecimal mode, it can be changed back to the "B" Mode. Follow the instructions for the Hexadecimal mode above and remove the solder bridge at gap #8 to make this change.

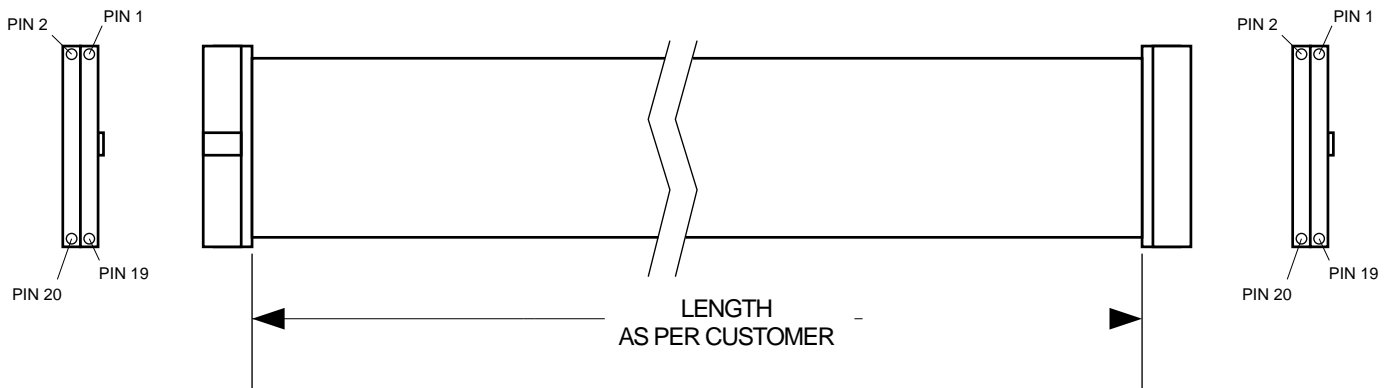# Daisy Chain - Solderless Interconnect for PC 9000:

Features

- Plug with Screw Terminal Connection to the Programmable Controller

- Interchangeable Wiring

- Easily Removed for Modification or Repair

- Wire up to Four PC 9000's in Less Than Ten Minutes.
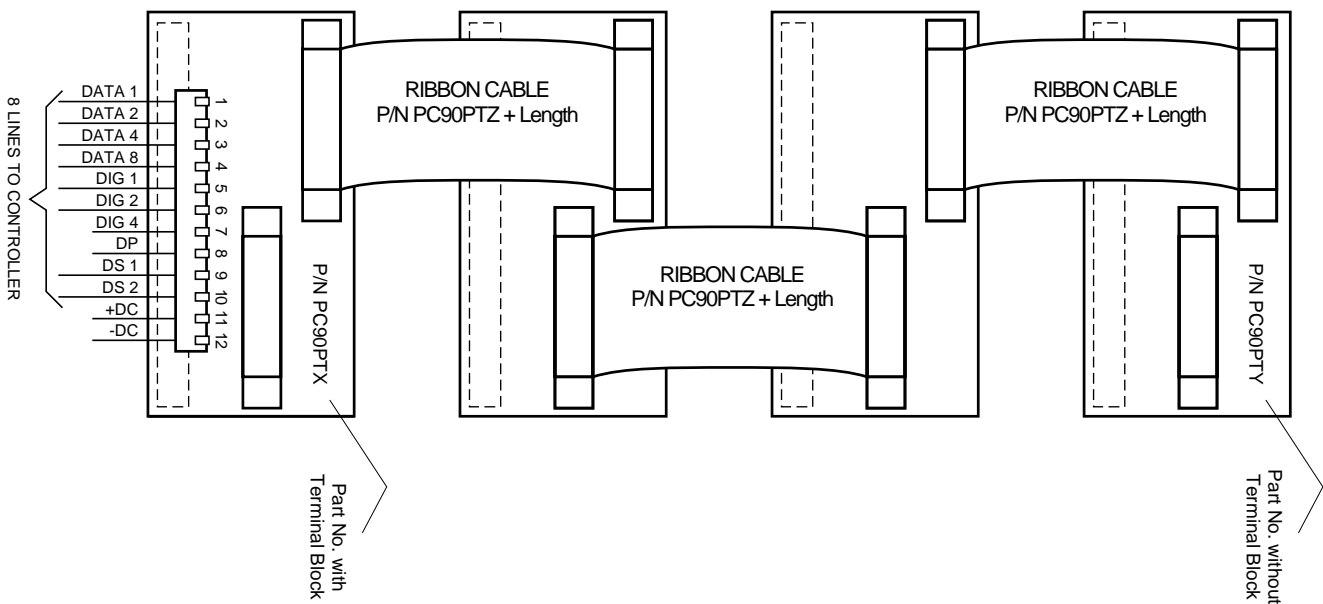
- No Soldering Required

Description:

The KEP Solderless Interconnect System for the PC 9000 consists of two versions of interface boards allowing different configurations and connections of up to four PC 9000 units with a minimum of wiring effort. Factory assembled wiring harnesses allow "plug-in" connections between the PC 9000 displays. Almost any cable length is available to permit custom-built panels.
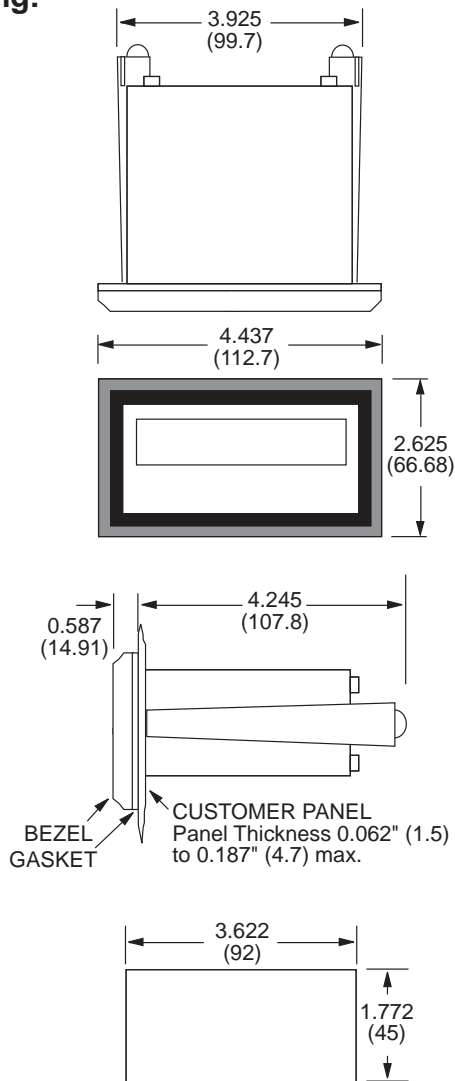
STANDARD RIBBON CABLE LENGTHS

ORDER	LENGTH
Z6	6"
Z12	12"
Z18	18"
Z24	24"
Z48	48"

PIN 2   PIN 1

PIN 20   PIN 19

PIN 2   PIN 1

PIN 20   PIN 19

LENGTH
AS PER CUSTOMER

Slave Displays

8 LINES TO CONTROLLER

DATA 1
DATA 2
DATA 4
DATA 8
DIG 1
DIG 2
DIG 4
DP
DS 1
DS 2
+DC
-DC

1 2 3 4 5 6 7 8 9 10 11 12

P/N PC90PTX

Part No. with Terminal Block

RIBBON CABLE
P/N PC90PTZ + Length

RIBBON CABLE
P/N PC90PTZ + Length

RIBBON CABLE
P/N PC90PTZ + Length

P/N PC90PTY

Part No. without Terminal Block

Mounting:

3.925
(99.7)

4.437
(112.7)

2.625
(66.68)

0.587
(14.91)

4.245
(107.8)

BEZEL
GASKET

CUSTOMER PANEL
Panel Thickness 0.062" (1.5)
to 0.187" (4.7) max.

3.622
(92)

1.772
(45)

NOTE: Allow an additional 0.75" in depth when using the "PC90PT" series ribbon adaptors

Wiring:
Each unit is shipped with a 12 terminal, two piece, male/ female connector.

1 • BCD Data 1
2 • BCD Data 2
3 • BCD Data 4
4 • BCD Data 8
5 • Digit Select 1
6 • Digit Select 2
7 • Digit Select 4
8 • Decimal Point
9 • Display Select 1
10 • Display Select 2
11 • (+) DC Power
12 • (-) DC Power

How To Order:

EXAMPLE: PC 9   7   B   7   4
Series

Power Supply
   7 = 5 VDC (regulated) ±5%
   9 = 10 to 24 VDC

Display Mode
   H = Hexadecimal 0-9, A, b, C, d, E, F
   B = B Code Standard 0-9, -, E, H. L, P. (blank)

Decimal Point
   1 = xxxxx.x
   2 = xxxx.xx
   3 = xxx.xxx
   4 = xx.xxxx
   5 = x.xxxxx
   7 = Software selectable

Options
   4 = "Sinking" input (for use with sinking output modules)

Accessories
   PC90PTX: To connect to Programmable
         Controller (must have 1)

   PC90PTY: To connect up to three
         additional PC_9000's

   PC90PTZ:
NOTE: Order sufficient quantity and lengths of cable.
See standard ribbon cable chart below.

**STANDARD RIBBON
CABLE LENGTHS**

ORDER	LENGTH
Z6	6"
Z12	12"
Z18	18"
Z24	24"
Z48	48"

10 Conductor Color-Coded Cable -

Slave Displays

REPORTER Series

Message Centers

Features

- Parallel or serial message request

- Serial interface with automatic baud-rate detection

- Easy Setup programming using PC software "report"

- Embedded data

- Prioritized messages and message queue

- Alarm output

- DIN standard bezel (144x72 mm), NEMA 4/IP65

Applications

Reporter message displays inform the operator about the current machine status during operation and failure. Useful applications include: displaying failure descriptions, failure clearance advice, process information and process data.

Description

"Reporter" Message Centers either work as a PLC peripheral or as individual message display centers in applications without a PLC. They are available as slave-versions to display ASCII-characters (reporter 670), transmitted from a PLC, a host computer etc. or as nonvolatile memory versions (reporter 680 and 690) capable of storing messages, that can be called up and displayed via serial or parallel interface. Variables can be embedded (temperature, pressure) in messages, too (reporter 690 only).

Reporter 670

The reporter 670 operates as a slave-display. It displays full alphanumeric information via a serial port. Information received may be messages from a master display (680 or 690 series), a computer, a PLC or information from other KEP products with serial interface.

Reporter 680

The reporter 680 is the standard version for price sensitive applications. Up to 100 messages can be programmed using the PC based set up software package. Each message may contain additional parameters such as energizing a built in alarm output, character blinking, message scrolling or programming a specific display time. A chained message parameter may be attributed to each message, allowing to link a message with other messages. The 680 may also serve as a master controller for slave units (670), allowing programmed messages in the 680 to be displayed in remote locations.

An important feature is the additional message queue memory that holds up to 16 consecutively requested messages in a batch memory.
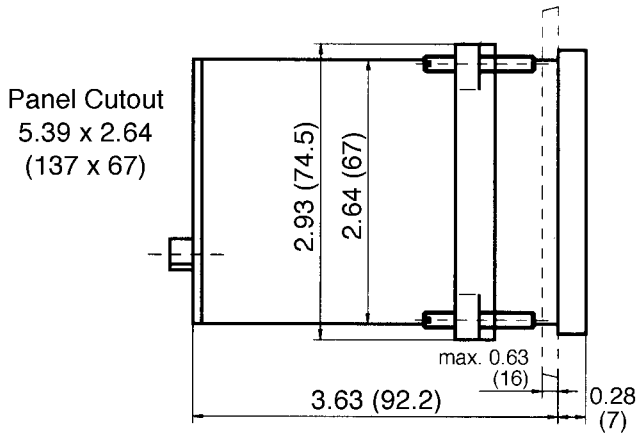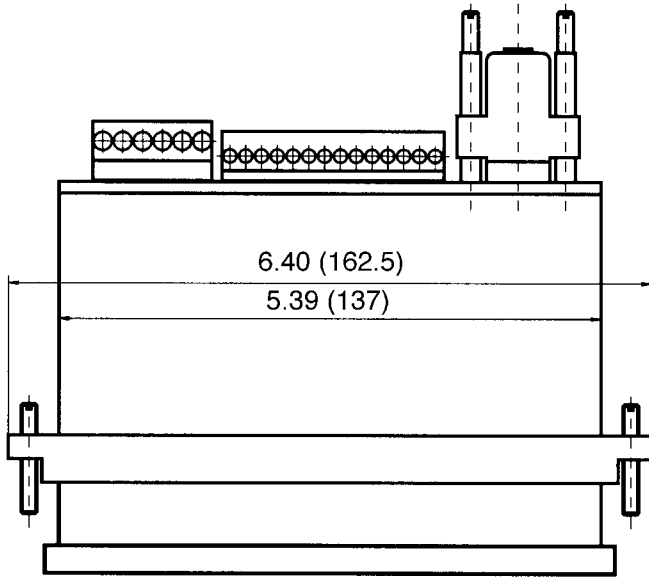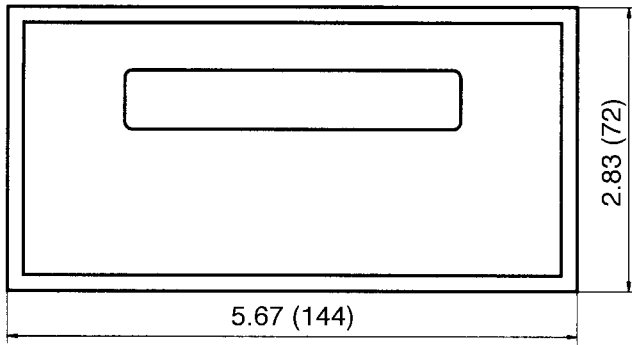
Reporter 690

Based on the 680 version, this unit offers more features for extended applications. The 690 can retrieve process data, and embed it into the body of a message. This ensures up to date process information.

Messages can be assigned priorities, which determine, in conjunction with two additional selectable display priority principles (first in/first out or last in/first out), the order in which queued messages will be displayed.

Specifications

Order Number	R670	R680	R690
Display	2x20 Char. LCD	2x20 Char. LCD	2x20 Char. LCD
Character Size	0.23" (5.5mm)	0.23" (5.5mm)	0.23" (5.5mm)
Memory	n/a	EEPROM	EEPROM
Max. Messages	n/a	100 messages	100 messages
Max. Message Queue memory	n/a	16 messages	16 messages
embedded data	n/a	n/a	max. 99 variables, 8 char. each
Message & Set Up Programming	no initial setup required (default setting may be modified using "reporter" software	"reporter" setup software required on PC via RS232	"reporter" setup software required on PC via RS232
Message Request Options 1 (RS422) & 2 (RS485)	via RS232 (RS422 or RS485 opt.)	8 parallel binary or BCD or via RS232 (RS422 or RS485 opt.)	8 parallel binary or BCD or via RS232 (RS422 or RS485 opt.)
Message Display	•text positioning in both lines • absolute cursor positioning • erase display • monitor mode	* direct message • cycle message queue • first in/first out message queue	• direct message • cycle message queue • first in/first out message queue • last in/first out message queue
Push-Button	n/a	n/a	1 user program-mable push-button
Alarm Output R Option $25.00	n/a	1 opto-isolated (relay optional)	1 opto-isolated (relay optional)
Power Supply	11-30 VDC 200 mA max.	11-30 VDC 200 mA max.	11-30 VDC 200 mA max.
Storage Temperature	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)
Operating Temperature	32° to 125° F (0° to 50° C)	32° to 125° F (0° to 50° C)	32° to 125° F (0° to 50° C)
Dimensions (W x H x D)	5.67" x 2.84" x 3.55" (DIN 144 x 72 x 90 mm)		
Environmental	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65

Slave Displays

KEP Kessler-Ellis Products • 800-631-2165

Dimensions:

5.67 (144)

2.83 (72)

6.40 (162.5)

5.39 (137)

Panel Cutout
5.39 x 2.64
(137 x 67)

2.93 (74.5)

2.64 (67)

max. 0.63
(16)

3.63 (92.2)

0.28
(7)

Dimensions are in inches (mm)

REP670

EXAMPLE: REP.670.012.3   05

Series
   REPORTER 670
Output
   05 = RS-232
   06 = RS-422
   07 = RS-485

REP680

EXAMPLE: REP.680.01   0.3   05

Series
   REPORTER 680
Output
   0.3 = Relay
   1.3 = Opto-coupler
Output
   05 = RS-232
   06 = RS-422
   07 = RS-485

REP690

EXAMPLE: REP.690.01   0.3   05

Series
   REPORTER 690
Output
   0.3 = Relay
   1.3 = Opto-coupler
Output
   05 = RS-232
   06 = RS-422
   07 = RS-485

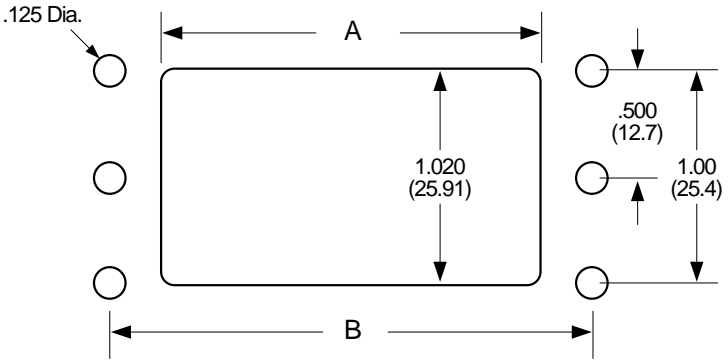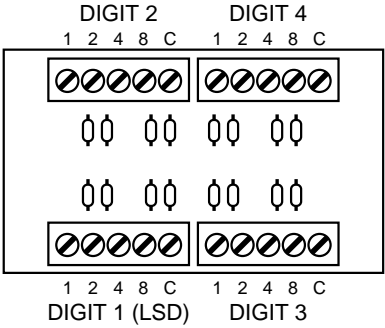**Slave Displays**

TWTB/TWSTB
## BCD Thumbwheel Switches

Description:

The TWTB Series is sealed internally to protect against dust, dirt, and moisture. The TWSTB thumbwheel switch is sealed against dust and dirt only. A plastic window covers each digit. Each .500" wide switch is sized for comfortable operation while saving space. They accept voltages up to 120 VAC. They are also available with diode isolation for use with multiplexing. Screw mounting hardware and screw terminal block connections are standard.

Specifications:

No. of switching positions	10, numbered 0 through 9
Life	Greater than 100,000 detent operations
Tangential Operating Force	6-20 oz.
Temperature Range	-10°C to +65°C
Electrical Ratings:	
Non-Switching Load	1 Amp/common terminal
Switching load	0.125 amps at 115 VAC or 28 VDC
Dielectric Withstanding Voltage	500 V (RMS)
Insulation Resistance	1000 MOhms (min.)
Switch Circuit Resistance	0.100 Ohms (max.)
Weight	0.40 oz. (Approx.) per decade
Standard Color	Black
MATERIALS: Plastic	ABS plastic
Circuit Board	Glass epoxy (g-10)
Contacts	
Rotary	Precious metal over copper alloy
Stator	Gold over nickel over copper
Form	BCD 1-2-4-8 with diodes for multiplexing

A	B
(.50xN) + .340	(.50xN) + .560
(12.7xN) + 8.64	(12.7xN) + 14.22

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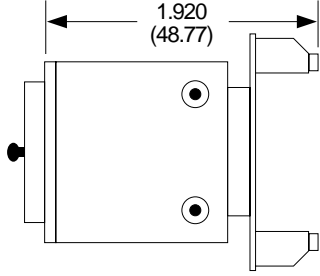
Dimensions:

RECOMMENDED CUTOUT DIMENSIONS

TW. SWITCHES	A	B	C	D	E*
2 TW SW	3.250	.625	2.000	—	3.625
3 TW SW	3.250	.157	2.937	—	3.625
4 TW SW	3.250	.157	2.937	—	3.625
5 TW SW	4.750	.470	3.812	—	5.125
6 TW SW	4.750	.470	3.812	—	5.125
7 TW SW	4.750	.063	4.625	—	5.125
8 TW SW	6.250	.625	5.000	3.125	6.625
9 TW SW	6.250	.188	5.875	3.125	6.625
10 TW SW	6.250	.188	5.875	3.125	6.625

NOTES:
SWITCH MOUNTING PLATE O.D. DIMENSIONS FOR REFERENCE ONLY MARKED WITH *

RECOMMENDED WHEN USING SWITCHES WITH MOUNTING PANEL OPTION (MP)

Polarities:

BCD SINKING

POLARITY 0

BCD SOURCING

POLARITY 1

BCD WITHOUT DIODES

POLARITY 2
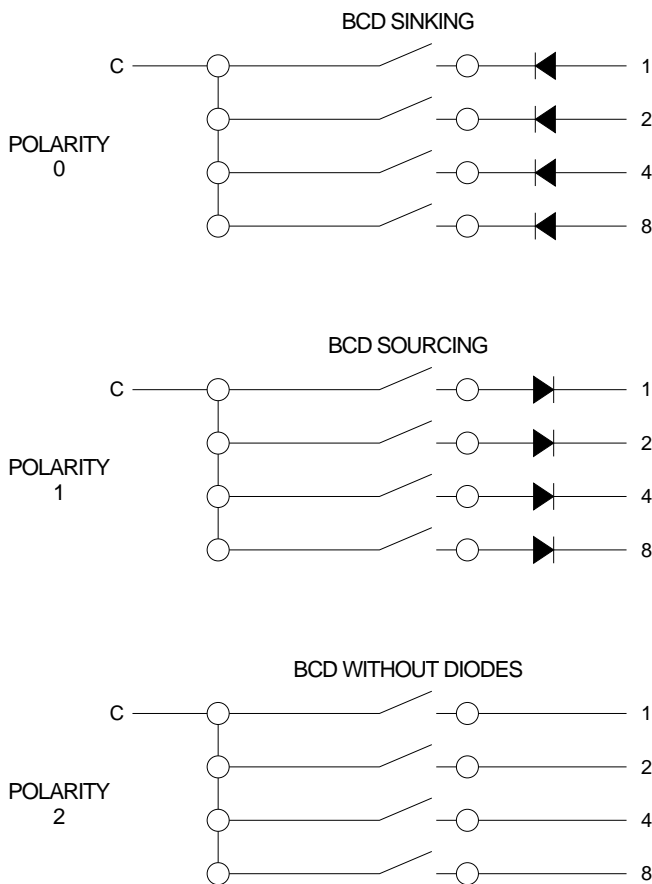
How To Order:

EXAMPLE:	TWTB	4	0	MP

Series
TWTB: Moisture sealed
TWSTB

Number of Digits
1 through 10

Blank To order blanks: state the # of digits before, "X" (blank), then the # of digits after. EX: TWTB 2X2 0 is a thumbwheel with 2 digits, a blank, 2 more digits & polarity 0

Decimal To order decimals: state the # of digits before, "." (decimal), then the # of digits after. EX: TWTB 2.2 0 is a thumbwheel with 2 digits, a decimal, 2 more digits & polarity 0

Polarity
0,1,2

Option
MP-Mounting Panel

Accessories

RSW

BCD Rotary Switches

Features

- Withstands hose down when enclosed by NEMA 4X / IP65 housing

- Nontoxic exposed parts

- BCD output with or without diode blocking

- Large knob, easy to operate

- Large number display

- Heavy duty

Application:

For inputting numerical data to counters and timers in PLC's. Suitable for all industries including food and pharmaceuticals.

Description:

The KEP rotary switches are available in 1 through 6 decades. They are heavy duty switches numbered 0 through 9, and meets NEMA 4X/IP65 ratings. The BCD outputs, complete with blocking diode, are suitable for input connection to almost any programmable controller.

The rotary switches are used to input production count, correction factors, times, etc. into registers. Large numbers, stainless steel shafts, large knobs and Buna-N seals permit use in a variety of environments.

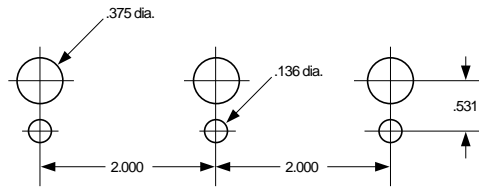The switches are not affected by hose down, even with most caustic additives.
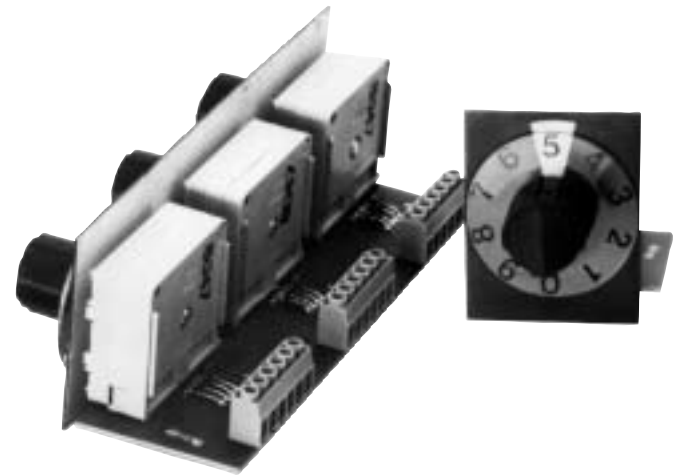
Specifications:

No. of switching positions	10, numbered 0 through 9
Life	Greater than 500,000 detent operations at 25° C for a resistive load of 0.125 Amps at 48 VDC
Rotational Operating Force	14 to 24 ounce-inches
Operating temp range	67°F (-55°C) to +185°F (+85°C)

Electrical Ratings:

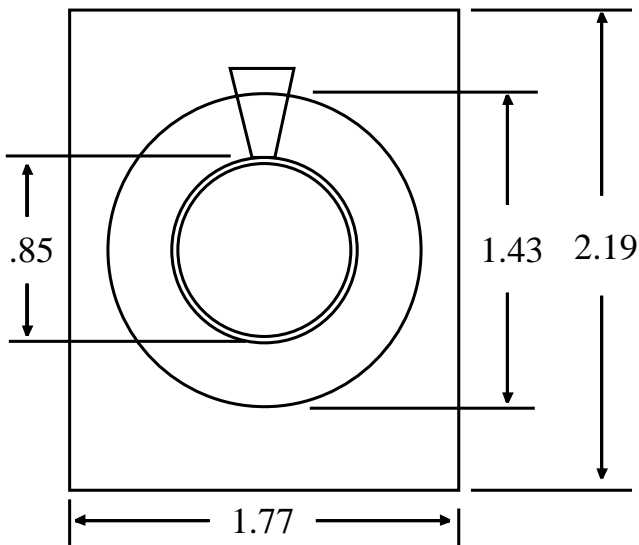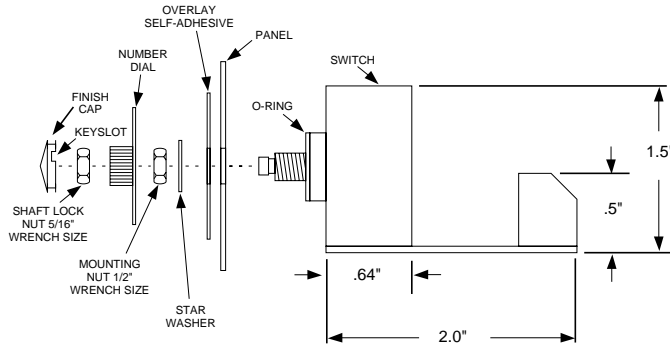|	
Max. Recommended non switching load	0.250 Amps at 115 VAC or 48 VDC
Min recommended switching load	0.125 Amps at 115 VAC or 48 VDC
Insulation resistance	100 MOhms (min. dry)
Switch circuit resistance	0.100 Ohms max. initial 0.200 Ohms max. after life test
Size of digit	0.22"h; numbered 0 through 9
Number of decades	1 through 6
Color of digits	Black on white background
Knob diameter	0.83"
Connection	Screw terminal block

MATERIALS

Seal	Buna-N Shaft Seals

Materials:

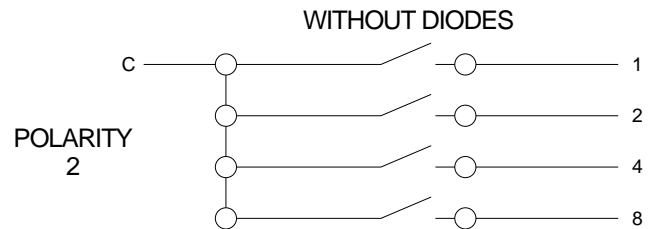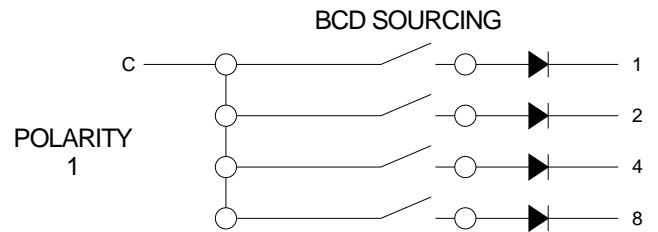|	
Plastic	Thermo-Plastic, meets U.L. 94V-0
Circuit Disc	Glass epoxy, gold over nickel
Metals	Corrosion resistant stainless steel
Number Dial	Luran
Overlay	Adhesive backed Mylar
Recommended maximum panel thickness	up to 14 gauge, .075" (1.9mm)

Mounting:

.375 dia.

.136 dia.

.531

2.000

2.000

DIMENSION IS TYPICAL FOR HOW MANY
SWITCHES ORDERED

OVERLAY
SELF-ADHESIVE

NUMBER
DIAL

PANEL

SWITCH

FINISH
CAP

O-RING

KEYSLOT

1.5"

SHAFT LOCK
NUT 5/16"
WRENCH SIZE

.5"

MOUNTING
NUT 1/2"
WRENCH SIZE

.64"

STAR
WASHER

2.0"

Polarities:

BCD SINKING

C

POLARITY
0

1

2

4

8

BCD SOURCING

C

POLARITY
1

1

2

4

8

WITHOUT DIODES

C

POLARITY
2

1

2

4

8

.85

1.43

2.19

1.77

How To Order:

EXAMPLE: RSW   06   1

Series
Rotary Switch

Number of Digits
1-6
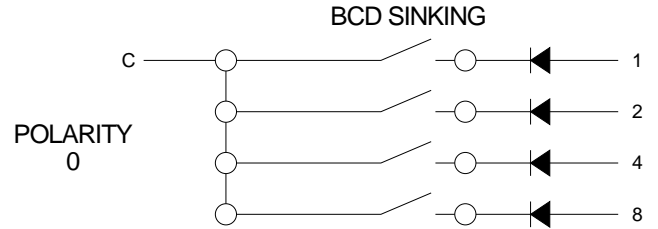
Polarity
0 = Sinking
1 = Sourcing
2 = (non-polar)
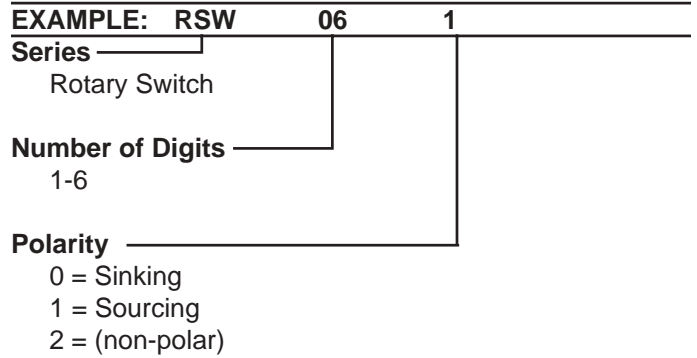
D Series

Inductive Proximity Sensors

Features:

- CE Approved
- Low Cost
- Non Contact Sensing of Any Metal
- No Magnets Needed
- Low Power Consumption
- Shock Resistant

The D Series comes in three sizes, all in the easy flush mount type. Both NPN (sinking) or PNP (sourcing) types are available. They sense any conductive metal surface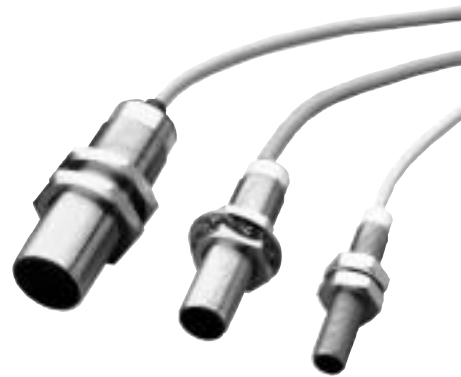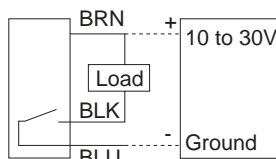 within range of their sensing coils. They do not require a magnetic target and are perfect for our ratemeters and counters. An LED indicator lights during activation.

|	(8mm Diameter)	(12mm Diameter)	(18mm Diameter)
NPN Type (SINK)	**#D08N**	**#D12N**	**#D18N**
PNP Type (SOURCE)	**#D08P**	**#D12P**	**#D18P**
Scanning Principle	Inductive	Inductive	Inductive
Mounting Type	Flush	Flush	Flush
Switch Function	Closer (N.O.)	Closer (N.O.)	Closer (N.O.)
Switch Range; Steel	1mm ± 10% STD	2mm ± 10% STD	5mm + 10% STD
Temperature Range	-25° to +70°C	- 25° to + 70°C	-25° to +70°C
Protection Class	NEMA 4 / IP67	NEMA 4 / IP67	NEMA 4 / IP67
Housing Diameter	M8x1	M12x1	M18x1
Housing Material	Stainless Steal	Chrome Plated Brass	Chrome Plated Brass
Cable	2m, 3 x 0.14mm2	2m, 3 x 0.14mm2	2m, 3 x 0.14mm2
Supply	10-30 VDC	10-30 VDC	10-30 VDC
Feed Current	~8 mA	~8 mA	~8 mA
Switch Current	1mA; Max. drop 0.7 V	1mA; Max. drop 0.7 V	1mA; Max. drop 0.7 V
Switch Current	100 mA; Max. drop 3 V	100 mA; Max. drop 3 V	100 mA; Max. drop 3 V
Frequency	2 kHz	2 kHz	1 kHz
Hysteresis, % of Range	< +15%	< +15%	< ±15%
Function Indicator	LED in Body	LED in Body	LED in Body

NPN Wiring

PNP Wiring

D08

M8 x 1

1.77 (45)

LED

D12

M12 x 1
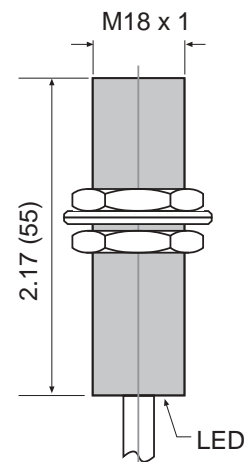
1.97 (50)

LED

D18
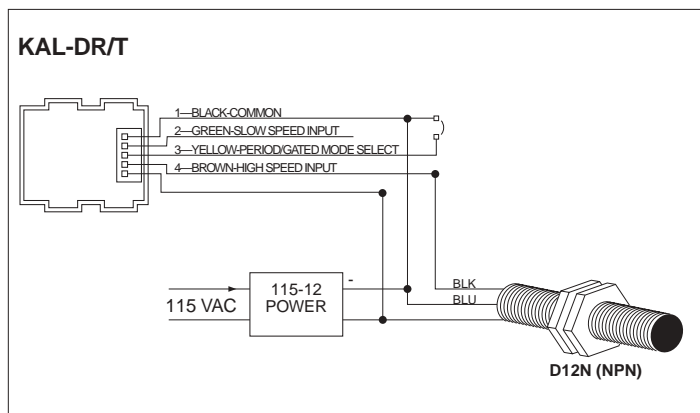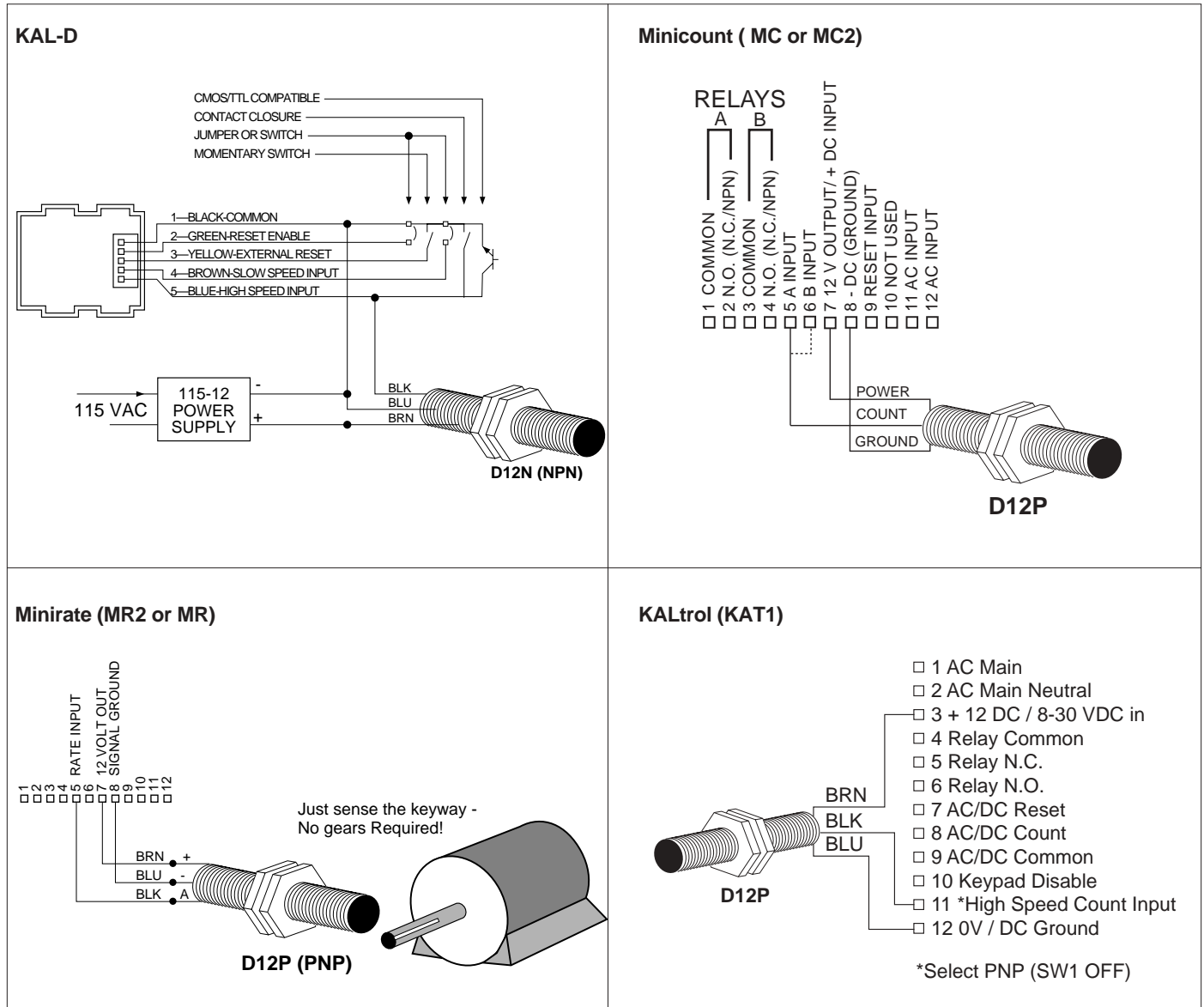
M18 x 1

2.17 (55)

LED

Accessories
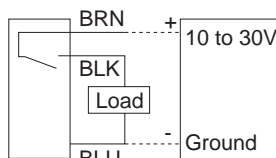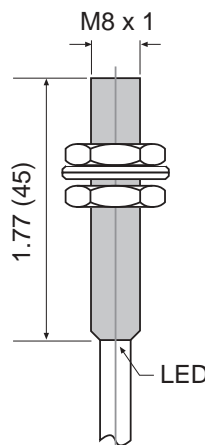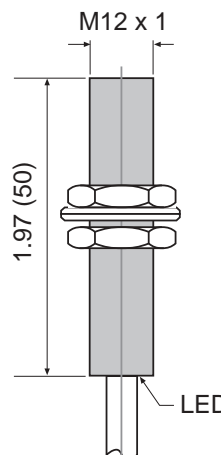
INDUCTIVE PROXIMITY SENSOR for use with KEP Counters and Ratemeters

Applications: Our D Series switches interface easily with our full line of counters and ratemeters. Use PNP switches (D_P) on all KEP units except KAL Series, which requires NPN (D_N) switches.

TYPICAL WIRING

KAL-D

CMOS/TTL COMPATIBLE
CONTACT CLOSURE
JUMPER OR SWITCH
MOMENTARY SWITCH

1—BLACK-COMMON
2—GREEN-RESET ENABLE
3—YELLOW-EXTERNAL RESET
4—BROWN-SLOW SPEED INPUT
5—BLUE-HIGH SPEED INPUT

115 VAC
115-12 POWER SUPPLY
BLK
BLU
BRN

D12N (NPN)

Minicount (MC or MC2)

RELAYS
A   B

1 COMMON
2 N.O. (N.C./NPN)
3 COMMON
4 N.O. (N.C./NPN)
5 A INPUT
6 B INPUT
7 12 V OUTPUT/ + DC INPUT
8 - DC (GROUND)
9 RESET INPUT
10 NOT USED
11 AC INPUT
12 AC INPUT

POWER
COUNT
GROUND

D12P

Minirate (MR2 or MR)

RATE INPUT
12 VOLT OUT
SIGNAL GROUND

1 2 3 4 5 6 7 8 9 10 11 12

Just sense the keyway - No gears Required!

BRN +
BLU -
BLK A

D12P (PNP)

KALtrol (KAT1)

1 AC Main
2 AC Main Neutral
3 + 12 DC / 8-30 VDC in
4 Relay Common
5 Relay N.C.
6 Relay N.O.
7 AC/DC Reset
8 AC/DC Count
9 AC/DC Common
10 Keypad Disable
11 *High Speed Count Input
12 0V / DC Ground

BRN
BLK
BLU

D12P

*Select PNP (SW1 OFF)

KAL-DR/T

1—BLACK-COMMON
2—GREEN-SLOW SPEED INPUT
3—YELLOW-PERIOD/GATED MODE SELECT
4—BROWN-HIGH SPEED INPUT

115 VAC
115-12 POWER
BLK
BLU

D12N (NPN)

How To Order:

TYPE	SIZE
NPN Type	D08N
(sink)	D12N
	D18N
PNP Type	D08P
(source)	D12P
	D18P

Accessories

PD Series

Photoelectric Sensors

Features:
- Low Cost
- Non Contact Sensing
- Various Sensing Types
- Low Power Consumption
- Shock Resistant

Description:

The PD Series photoelectric sensors offer superior optical performance in a miniature 18 mm package. Designed specifically for a wide variety of applications, including food processing, packaging, and materials handling. Their miniature size makes it easy to design into any system.

The PD Series provides flawless operation in the harshest environments. Rated NEMA 4, 6, and 13, the PD Series keeps working in wet and high-pressure washdown situations even under water. The PD Series is highly immune to extreme shock and vibration, and passes the NEMA ICS 1-109 showering arc test. Even walkie-talkies won't interfere with it's performance.

PD Series sensors are available in 10-30 VDC thru-beam reflex, and proximity configurations. Infrared, visible-beam, and polarized models are available, as is a complete line of fiber optic cables. Easy alignment is provided by a variable intensity indicator (patents pending) on all models, and by an additional forward-looking alignment indicator on thru-beam models.

The unique "round and square" profile makes installation easy. It can be screwed into standard 18 mm threaded brackets. Bulkhead mounts are mounted flush against any surface. Electrical connections are made via an all purpose cable.

New From KEP—Sensi Prox…

The PD Series introduces a photoelectric break-through: SENSI-PROX. Unlike other proximity sensors whose signal strengths drop off gradually, KEP's SENSI PROX proximity sensor has an extremely sharp cut-off. Because of this, SENSI PROX sensors provide superior background suppression and absolute detection at precise distances.

Accessories:

Retroreflectors and mounting brackets are available to complete the installation of your PD Series sensor.

Specifications:

ELECTRICAL (all models)

Input voltage: 10-30 VDC (above 55°C derate to 24 VDC at 70°C)

Power dissipation: 1W max

Response time:
Dark-to-light: 1 mS max
Light-to-dark: 1 mS max

Sensitivity adjustment: 20:1 ratio

Power on delay: <300 mS

Output type and rating:

Source and sink transistors:
Sourcing: 100 mA max
Sinking: 250 mA max (above 55°C, derate sinking output to 120 mA max at 70°C) Off-state voltage: 30 VDC max
Off-state leakage: 10 μA max

Light/Dark Operation: When the Lt/Dk control is in the Lt position (fully clockwise) the outputs turn on when the beam is complete. When in the Dk position, the outputs turn on when the beam is broken.

Alignment Indicator: LED intensity varies with signal strength to aid alignment. LED status:
OFF: power is off
DIM: power is on, but beam is broken
BRIGHT: power is on, and beam is complete (unbroken). Intensity varies with signal strength.

Mechanical/Environmental:

Operating temperature: -20°C to +70°C (-4°F to +158°F)

Storage temperature: -20°C to +70°C (-4°F to +158°F)

Humidity: 95% RH, noncondensing

Case material: Rigid Polyurethane

Lens material: Polycarbonate

Vibration: 30g or 0.06 in displacement, whichever is less, from 50 Hz to 2 kHz

Shock: 100g for 3 ms 1/2 sine wave pulse

Ratings: NEMA 4, 6, 13

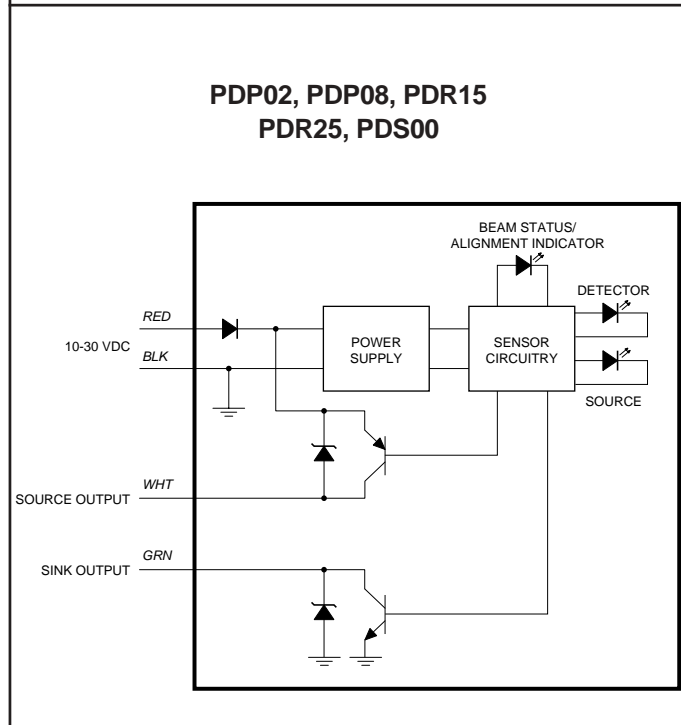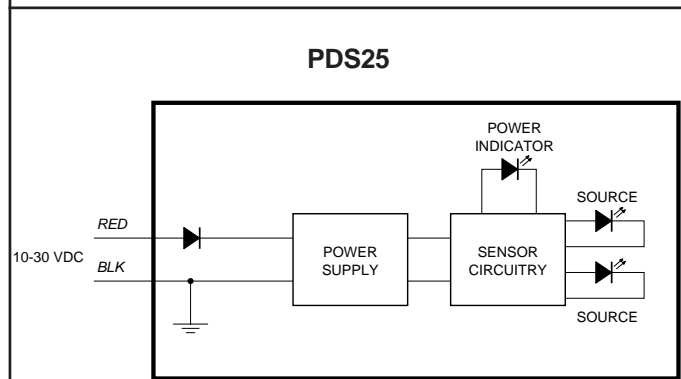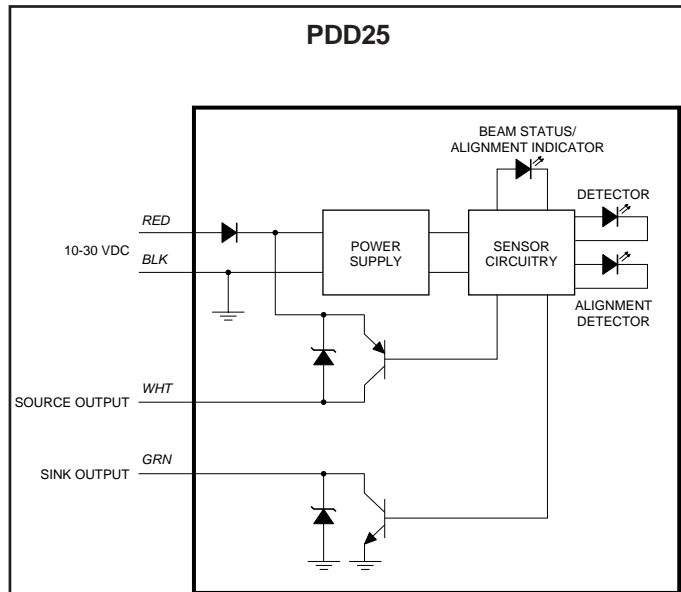**Mounting:** Side or 18 mm thru-hole (see dimensions).
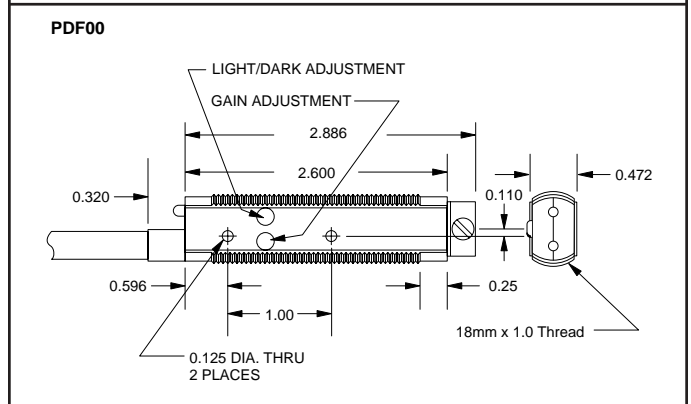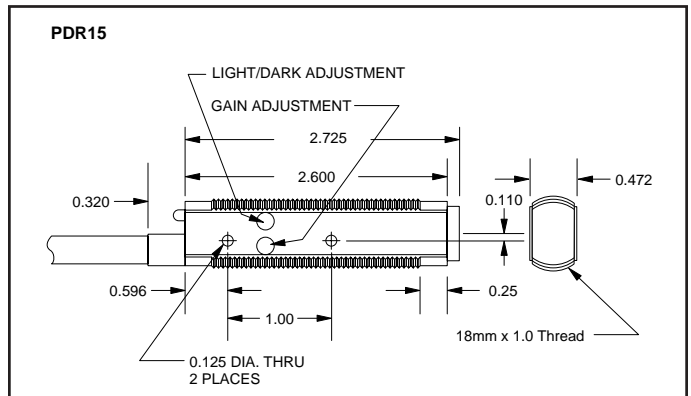
Cable Length: 6 feet

Side mounting: Use #4 screws to attach the sensor to a wall or mounting bracket. Thru-hole mounting: The sensor can be mounted through an 18 mm (0.71 in) diameter hole using nuts included with the sensor.

NOTE: All sensors UL and CSA approved.

Accessories

WIRING DIAGRAMS:

PDD25

PDS25

PDP02, PDP08, PDR15
PDR25, PDS00

DIMENSIONAL DIAGRAMS:

PDR15

LIGHT/DARK ADJUSTMENT
GAIN ADJUSTMENT
2.725
2.600
0.320
0.110
0.472
0.596
0.25
1.00
18mm x 1.0 Thread
0.125 DIA. THRU
2 PLACES

PDF00

LIGHT/DARK ADJUSTMENT
GAIN ADJUSTMENT
2.886
2.600
0.320
0.110
0.472
0.596
0.25
1.00
18mm x 1.0 Thread
0.125 DIA. THRU
2 PLACES

How To Order:

EXAMPLE: PD   R   25

Series
  Photo Detector

Style

S = Source	25
D = Detector	25
P = Prox (Sensi Prox)	02
PS = Prox (Short Range)	08
R = Reflex (Visible)	25
RP= Reflex (Polarized)	15
F = Fiber Optic	00

Maximum Range
  0X = (in inches)
  XX = (in feet)

ACCESSORIES:

EXAMPLE: PDA   T3.0

Series
  Photo Detector Accessories

Type
  F1 = Fiber Bifurcated Reflex
       78" long - cut to desired length
  F2 = Fiber Thru-beam (set of 2)
       78" long - cut to desired length
  T3.0 = Target - round reflector 3" dia. (2 per package)
  T.5 = Target - round reflector 0.5" dia. (2 per package)
  TX X = Target Tape - 2" (specify length _ _)
  BS = Bracket - swival
  BA = Bracket - 90° angle (2 per package)

Accessories

P1000

Desktop / Handheld Serial Printer

Features

- Dot Matrix Printer
- Uses Standard 2.25" Plain Paper Roll
- 24 or 40 Column Printing
- Standard Epson™ Ribbon
- Internal 2KB Buffer
- RS232 With Selectable Baud Rate
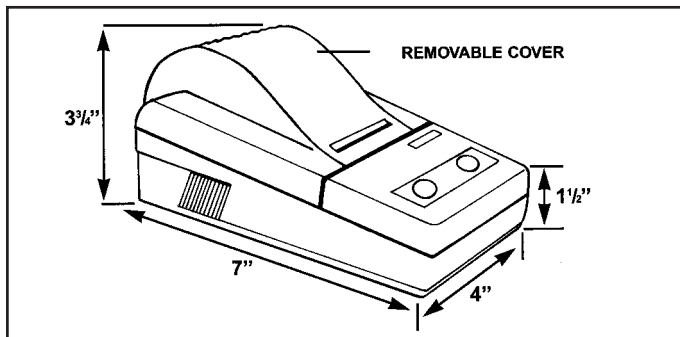- Will Operate for 2 Hours on Internal Batteries for Hand Held Applications

Applications:
- Logging data from KEP instruments
- Remote messages printing
- Real-time-clock (optional) for time and date stamp
- Plain paper for long lasting record keeping

Description:
The P1000 printer is a top quality, impact dot matrix micro printer. It is small, light weight, and low in cost, but extremely powerful in performance. This model is portable and designed for applications where regular desktop printers are unnecessary and space is limited. The P1000 is ideal for many uses such as logging data from KEP instruments, direct recording measurements from digital hand tools or electronic scales, remote message printing and more.

Dimensions:

REMOVABLE COVER

3¾"
1½"
7"
4"

Ordering Information

EXAMPLE	P1000	1	C

Series
P1000 Printer

Operating Voltage
1 = 110V AC adaptor
2 = 230V AC adaptor

Options
C = Real Time Clock

Accessories
P1AR = Ink Ribbon
P1AA230 = 230V Adapter
P1AA110 = 110VAdapter
P1AC25M9MC = 6', Printer cable for ST1 & ST2
P1AC25M9FC = 6', Printer cable for MRT & INT69
P1AC25M25MS = 6', Printer cable for all 'trols

Specifications:

Character Types:	448 defined characters include: 96 standard ASCII characters, Math symbols, Printing symbols, Block graphic characters, 32 user defined characters
Print Method:	Impact Dot Matrix
Character:	Standard characters 5x7 dot matrix *compositions:* Block graphic char. 6x8 dot matrix User definable char. 6x8 dot matrix
Dimension:	7" x 4" x 3.25"
Baud Rate:	Selectable baud rate & parity setting by key combinations (1200,2400,4800,9600)
Print Speed:	40 lines per minute
Control Commands:	35 codes, IBM/EPSON
Input Buffer:	2k bytes, expandable to 4k
Interface:	RS232C, 25 pin D-shape type connector
Power:	7.5 volt DC input, max. current 750mA with Internal Battery Pack 110V AC/DC to 7.5V DC adapter supplied.
Paper:	Plain adding machine type paper roll, internal mounting up to 130'x2.25" size roll
Ink Ribbon:	Porelon ERC 09 or equivalent
Options:	220V AC/DC adapter Real Time Clock for time and date stamp at command

SC Series

Signal Conditioners

Features:

- Two Year Warranty

- Loop Powered (SC-FI & SC-II only)

- Pulse, Contact Closure or Magnetic Pickup Inputs (SC-FI & SC-FF only)

- Various Mounting Styles

- LED Indicators

SC-FI *Frequency to Current Signal Conditioner*

Description:

The SC-FI is a two wire frequency to analog converter that converts a pulse rate input into a 4-20 mA output signal proportional to frequency or rate.

The input pulse rate is amplified and filtered by the input signal conditioning circuitry. Two forms of input signal conditioning are provided, one for magnetic pickups the other being an isolated pulse input.

The amplified frequency signal is then converted to an analog signal using a precision frequency to analog converter.

The output stage derives it's power from the output current loop. The output stage converts the analog input signal into the desired output range. Multi-turn potentiometers provide for the necessary trimming of span and zero.

Ordering Information

Example	SC-FI	D	ET

Series
FI= Frequency to Current

Mounting:
B= Nema 4X
C= Explosion Proof
D= DIN Rail

Options:
ET= Extended Temp: -4° to 185°F (-20° to 85° C)
L = Low Count Speed for Contact Closure Inputs

Accessories: (add to end of part number)
DR-4= 4" DIN Rail

SC-II *Current to Current Loop Powered Isolator*

Description:

The SC-II loop powered isolator provides a retransmitted, galvanically isolated 4-20 mA output signal in response to isolated 4-20 analog input. It may be applied in a similar manner as a conventional two wire transmitter. The SC-II appears to the input loop as a series shunt resistor. A small sense resistor is used to measure the input current. The input loop derives it's power from the input current loop. This input current signal is then scaled and converted to a 0 to 10,000 Hz frequency signal by a Current to Frequency Converter. This frequency signal is then transmitted across an opto-isolator to the output stage. The output stage derives it's power from the output current loop. The output stage converts the 0-10000 Hz frequency signal into a current flowing in the output loop equal to that flowing in the input current loop.

The 0 to 10 kHz output and the 10-50 mA range options are provided to enable the unit to perform range conversions as well as signal isolation.

Ordering Information

Example	SC-II	D	ET

Series
II= Current to Current
IF= Current to Frequency

Mounting:
B= Nema 4X
C= Explosion Proof
D= DIN Rail

Options:
ET= Extended Temp: -4° to 185°F (-20° to 85° C)

Accessories: (add to end of part number)
DR-4= 4" DIN Rail

SC-FF *Frequency to Frequency Pulse Isolator & Scaler*

Description:

The model SC-FF is a signal conditioner which permits the user to condition and scale the input pulses from a pulse producing sensor into a high level output where each pulse represents a engineering unit of measure. Several pulse input types are supported including magnetic pickup, contact closure, and an isolated pulse input. The pulse scaling permits a user to apply a scaling multiplier with a value of .0001 to .9999 with additional multipliers of 1, .1, .01, .001 and .0001. Pulse scaling is accomplished by rotary encoded and dip switch selections. The pulse output is available in isolated, non-isolated and relay versions. User selections include output pulse duration and internal pullup resistors. The user may select his pulse output configuration by means of a dip switch. The unit is powered to 8 - 35 VDC. Reverse polarity protection is provided. Power and Pulse input/ output indicators are provided. The unit is available in enclosures intended for either DIN rail, NEMA4X or Explosion Proof.

Ordering Information

Example	SC-FF	1	B	ET

Series
FF= Frequency to Frequency

Output Type
1 = Open Collector & Isolated Pulse (STD)
2 = Open Collector & Relay Output

Mounting:
B= Nema 4X
C= Explosion Proof
D= DIN Rail

Options:
ET= Extended Temp: -4° to 185°F (-20° to 85° C)

Accessories: (add to end of part number)
DR-4= 4" DIN Rail

Accessories

SMIC Cables

Smart Interface Cables for KEP Operator Interfaces

Product Overview:
The SMIC cable is designed for connecting a ZOIDDX, IMC2 or MMI series to a PLC.

Networking:
The SMIC cable is designed to communicate as a one to one device. Networking is not supported with standard SMIC cables. If networking is needed for more than one Operator Interface, consult factory for special cable requirements.

Caution:
Restrict cable length to less than 500' (150m) for RS485/422 devices and 50' (15m) for RS-232 devices to avoid communications problems. Communications problems cause the ZOIDDX, IMC2 and MMI display to hold until communications can be established.

Shielded cable must be used for long lengths or cables run in an electrically noisy environment. Do not run cables next to AC power lines or near sources of electrical noise.

Be sure that the cable ends have been inserted all of the way into mating connectors and are secure.

Note:
The SMIC cables with electronics, should only be extended at the PLC end of the cable.

Ordering Information
The KEP part numbers have the SMIC prefix followed by the PLC driver name and the length of cable in feet.

Example: SMIC MOD -05

Prefix Type
    SMIC
    SMIC15

PLC Type
    (see following page)

Cable Length
    -05 = 5 feet
    -10 = 10 feet
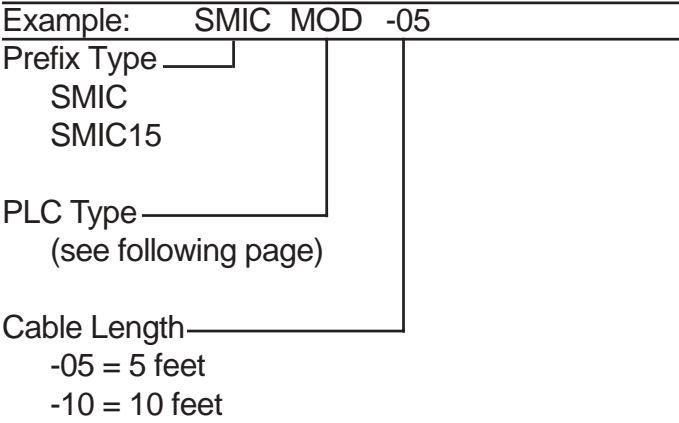
NOTE:
Refer to the following page for a complete list of SMIC cable compatible devices.

Accessories

SMIC Production Possibilities

Cable	PLC Compatibility	MMI-1XX/2XX	MMI-720, 750, 850, 1050, 1500T, 1500S	ZOID-DX
SMICAB500	All Allen Bradley SLC500 types with DH485 port	X		X
SMIC15AB500	All Allen Bradley SLC500 types with DH485 port		X	
SMICABMICRO	Allen Bradley MicroLogix only	X	X	X
SMICABAIC	For use with Allen Bradley AIC Modules	X		X
SMICABDF1	Allen Bradley SLC5/03, 5/04 with DF1 port	X	X	X
SMICARO	All Aromat FP1 Series PLC's	X		X
SMICENT	All Entertron PLC's (Not for sale by KEP)	X		X
SMICFUJI	Fuji Flex Series NB, NJ and NS	X		X
SMICGE90	All GE 90 Series SNP Port	X		X
SMIC15GE90	All GE 90 Series SNP-X Port		X	
SMICIDECM1	IDEC Micro 1 Series only	X		
SMICIDECM3	IDEC Micro 3 Series only	X		X
SMIC15IDECM3	IDEC Micro 3 Series only		X	
SMICIDECM3C	IDEC Micro 3C Series only	X	X	X
SMICK205	Koyo DL230, 240, 250	X	X	X
SMICK305	Koyo 340, Siemens 335, 337	X		X
SMICK405	Koyo 440, Siemens 425, 435	X	X	X
SMICKEY	All Keyence KV series	X		X
SMICMOD	All PLC's and controllers with DB9 MODBUS RTU ports	X	X	X
SMICMODMICRO	Modicon Micro 984	X	X	X
500_AnS	Mitsubishi A Series		X	
SMICMITFX	Mitsubishi FX Series	X		X
SMIC15MITFX	Mitsubishi FX Series		X	
SMICMITFXO	Mitsubishi FXo only	X		X
SMIC15MITFXO	Mitsubishi FXo only		X	
SMICOMCK25	Omron C series (Host Link Modules)	X		X
SMICOMCH9	Omron CH Series	X		X
SMICOMCQM	Omron CQM1 Series	X	X	X
SMICSIS5	Siemens S5 Series	X		X
SMICSIS7	Siemens S7 200 Series only	X		X
SMIC15SIS7	Siemens S7 200 Series only		X	
SMICTSBEX	Toshiba EX Series and Mseries, program port only	X		X
SMICTSB485	Toshiba EX and M Sereis, Link port only	X		X
SMICTSBT1	Toshiba T Series T1 only	X	X	X
SMICTSBT2	Toshiba T Series T2, T3	X		X
SMICTSX07	Telemechanique TSX 07 (nano) Series	X		X
SMIC15TSX07	Telemechanique TSX 07 (nano) Series		X	
SMICTSX17	Telemechanique TSX 17 Series	X		X
SMICTSX47	Telemechanique TSX 47-40, 47-20	X		X

Accessories

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Accessories

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Accessories