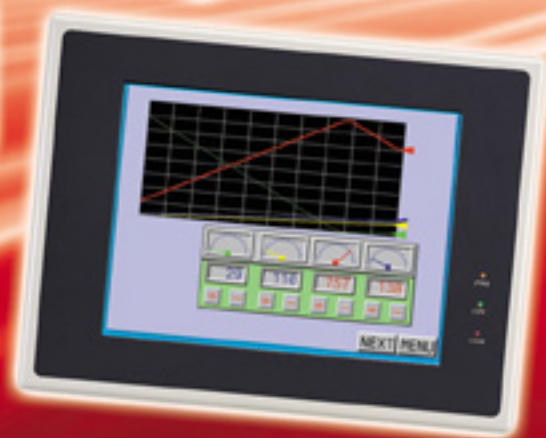


Product Catalog

Operator Interfaces



KEET



KEP PLC Interfaces INDEX

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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	8k EEPROM expandable to 32k
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 32

Series

MMI -10

Display Type

L= LCD

V=VFD

Options (add to part number)

32 = 32k of storage

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-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	8k EEPROM expandable to 32k
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	32
Series	MMI -40		
Display Type	L= LCD		
Options (add to part number)	32 = 32k of storage		

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)

IMC2 Series

Features

- Windows™ Based MMISoft Setup Software
- 6 Programmable Multipurpose Function Keys
- Numeric Data Entry Via Front Panel Keypad
- 2 x 16 Character, Backlit LCD Display
- Smart Cable Hookup
- Serial Printer Output
- 1/8 DIN Mounting, NEMA 4/IP65

Description

The IMC2 intelligent message center provides a convenient way for machine operators to view and modify machine status and parameters. The six multipurpose function keys allow the operator to turn bits ON/OFF, hold bits ON/OFF or Toggle. The function keys can also be programmed to call up critical messages, download constants or be used for numeric data entry. The unit is equipped with a serial printer output for interfacing printers or slave displays.

The IMC2 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!

Setup -- The IMC2 is programmed with a Personal Computer. Using the Windows based MMISoft setup software, parameters can be defined and downloaded to the IMC2.

Annunciator LED's -- The IMC2 has two LED indicators for the purpose of annunciation. The LED indicators will turn ON when a bit in a user designated register of the PLC turns ON.

Data Entry -- The operator can change the values of PLC registers by pressing the ENT key while viewing a special message with register data embedded in the message. The UP arrow key is used to increment the selected "flashing" digit and the LEFT arrow key is used to select the next digit to the left. Bit/coil status may also be changed by pressing the UP key to toggle the bit ON or OFF.

Intelligent Message Centers



Messages -- The IMC2 can store a large amount of message data. Message numbers can range from 1 to 65518. The user defines a register in the PLC called the Message Triggering Register (MTR). The IMC2 reads the contents of the MTR and displays the message that corresponds to the number in the MTR.

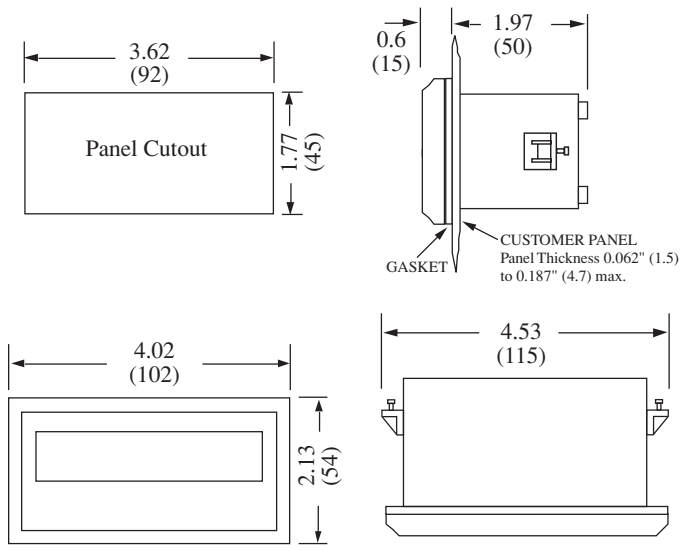
A message can be assigned to each line of the IMC2 display. Messages can scroll, flash, have a minimum time for display, be chained to other messages and be sent to the serial port for output to printers or other devices. They can also be designated to be linked together to form menus or lists (links) which the operator can scroll through using the NEXT or PREV keys.

Specifications

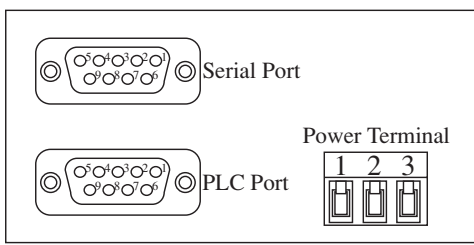
Display	2 x 16 Character Backlit LCD
Character Size	0.23" (5.5mm)
Memory	EEPROM
Set-Up	PC software supplied (Windows based)
Programming	via RS-232
Message Request	via message triggering register or function key
Function Keys	6 user programmable function keys
Power Supply	8-30 VDC
Power Consumption	3 W maximum
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 4.02" (102), H= 2.13" (54), D= 1.97" (50)
Cutout	W= 3.62" (92), H= 1.77" (45)
Environmental	NEMA4 / IP65
Approvals	CE Pending

Mounting:

Dimensions in Inches (mm)



Termination:



Rear View

- 1• DC+ (8 to 30 VDC Supply)
- 2• DC- (DC Supply Return)
- 3• EARTH

How To Order:

EXAMPLE: **IMC2** **C**

Series _____
IMC-2

Operating Voltage _____
C = 8-30 VDC

For PLC Type

Use Smart cable part number as indicated below. Also refer to SMIC Cables in the Accessories Section of this catalog. The IMC2 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
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), TSX37
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-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	8k EEPROM expandable to 32k
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 32

Series
MMI -100

Display Type
L= LCD
V=VFD

Options (add to part number)
32 = 32k of storage

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

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.

Message Center with Function Keys & Data Access



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	8k EEPROM expandable to 32k
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: MMI110 V 32

Series
MMI-110

Display Type
L = LCD
V = VFD

Options (add to part number)
32 = 32k of storage

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	8k EEPROM expandable to 32k
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 32

Series ———
MMI -140

Display Type ———
L= LCD

Options (add to part number) ———
32 = 32k of storage

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)

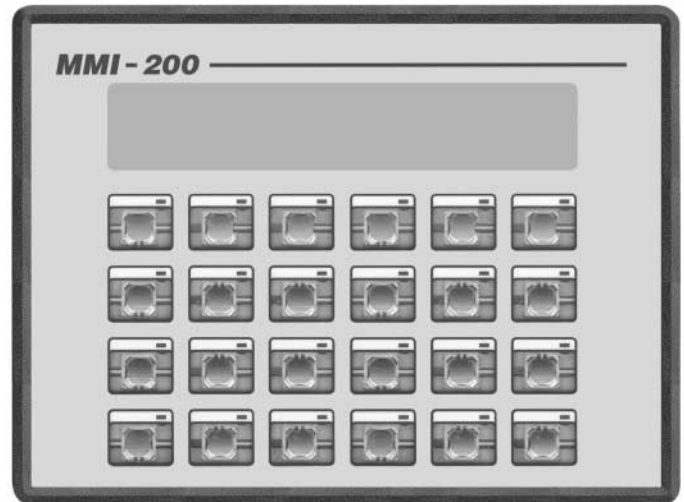
ZA9M25F - Five feet of cable with DB9 male connector and DB25 female connector.
(PC end, normally used for "XT" or "AT" COM2)

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.

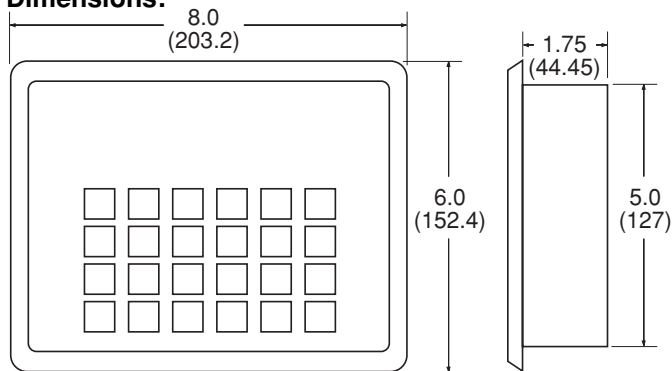
Register Bit designations

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 Emissions	10 Volts/meter as per 1EC801-3
Approvals	EN5501,1 CISPR A 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 SMIC- GE90- 05

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

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!

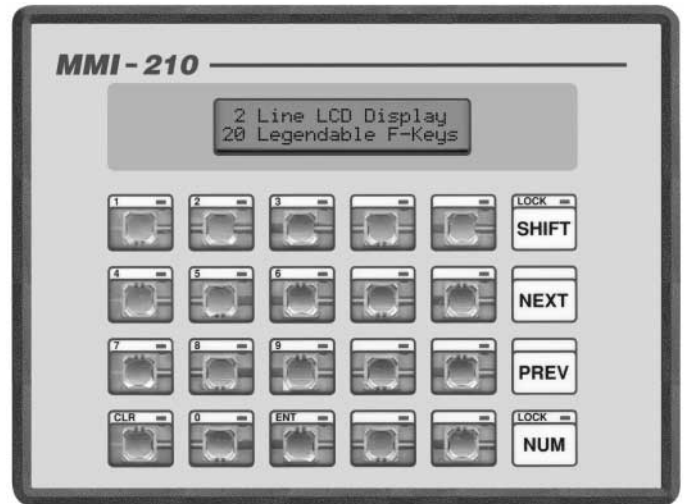
Application:

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 Open Collector Alarm Output
- Beeper for Audio Feedback of Key Presses and Alarms.

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-programmed 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:

- The register is not Password protected; or
- 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.

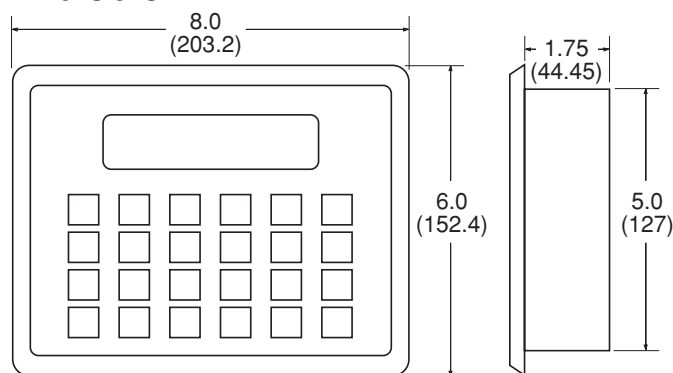


Our software makes Function Key setup a snap! Create, Edit and View messages with Point & Click Ease!

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
FUJJI	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-220

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

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.

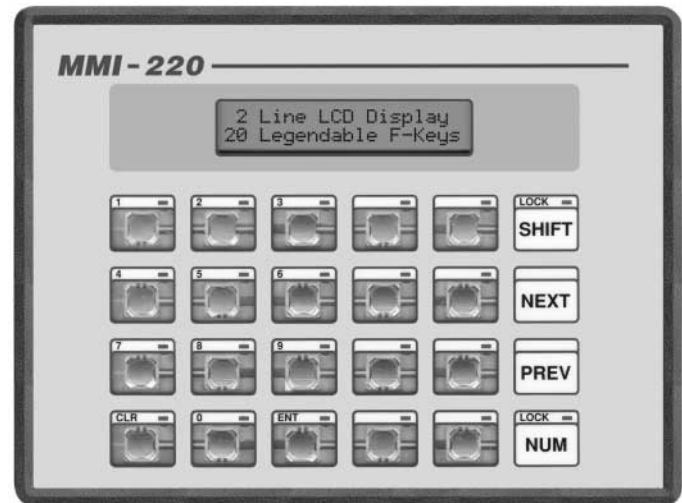
ANNUNCIATOR LEDS

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.

Programmable Push Button and Message Panel



- Message Chaining and Linking
- Serial Printer Port, Beeper and Open Collector Output

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.

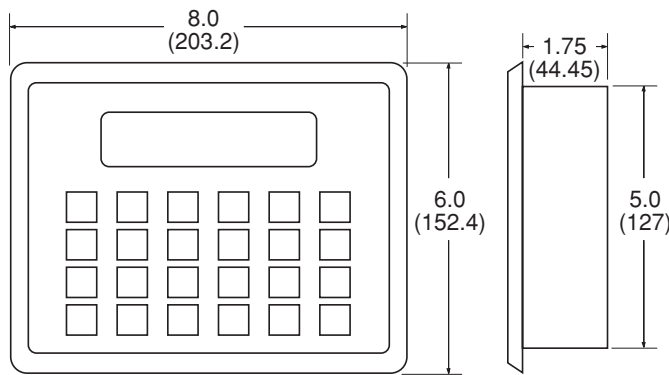
SETUP

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 IEC801-3
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

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.

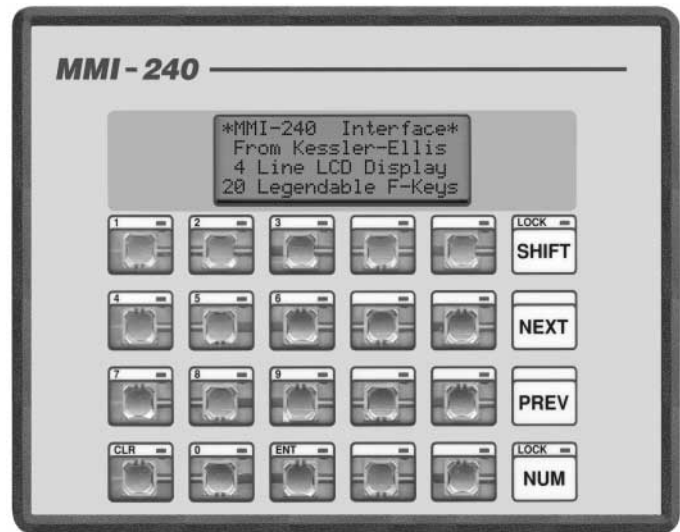
ANNUNCIATOR LEDs

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.

Programmable Push Button and Message Panel



- Message Chaining and Linking
- Serial Printer Port, Beeper and Open Collector Output

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.

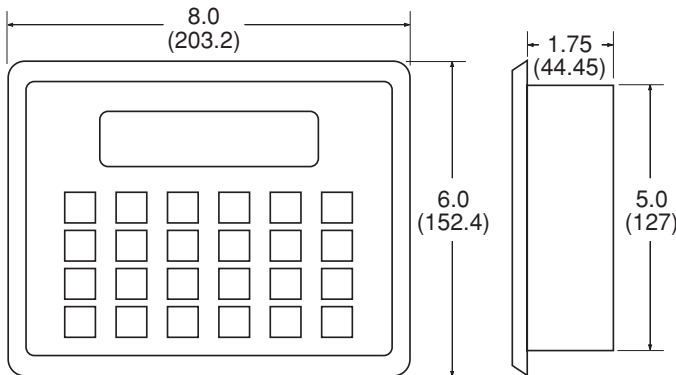
SETUP

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

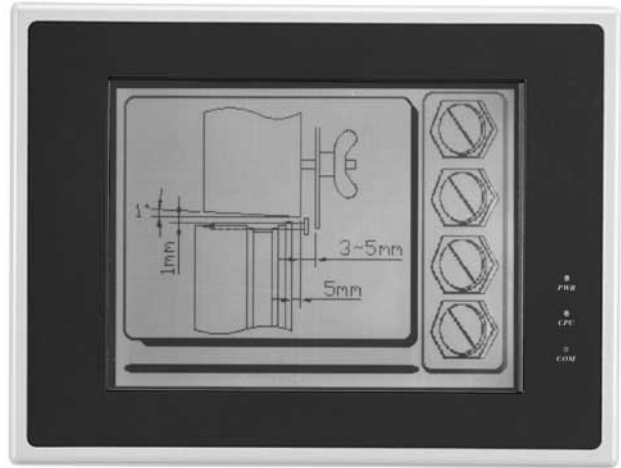
Our software makes Function Key setup a snap!
Create, Edit and View messages with Point & Click Ease!

MMI-720/750

Graphic Display Panel and Touch Screen

Features

- LCD Graphic Display with Touch Panel
- 5.7" Displays, 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-720/750 is a touch screen interface for programmable controllers. It displays pictorial information, data and messages that are preloaded into it using a Personal Computer. Touch screen areas can be programmed to perform various functions. The MMI-720/750 is equipped with a 5.7" blue mode (MMI-720) or STN Color (MMI-750) LCD with resistive type touch panel. It is designed especially for harsh working environments. 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. 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.

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.

Specifications

Input Power:	24 VDC \pm 5%, 700 mA
Noise Immunity:	IEC1000-4-4, level 2 (2KV, 100kHz)
Voltage Resistance:	500VAC (1 minute)
Isolation Resistance:	Exceed 50M Ω at 500VDC
FCC:	FCC Class A
CE:	EN50081-2 & EN50082-2 Standards
Environmental:	NEMA4/IP65 front panel
Operating Temp.:	32~113° F (0~45° C)
Humidity:	5-95%, non-condensing
Weight:	2.7kg
Display:	MMI-720: 5.7" high contrast, blue mode LCD (4 grey scale) MMI-750: 5.7" high contrast, STN LCD (256 color)
Resolution:	320(W) x 240(H) pixels
Backlight:	CCFT (w/ auto shutdown)
Dot Size:	0.30(W) x 0.30(H) mm

Touch Panel:	resistive type, audible feedback on touch
Touch Resolution:	320(W) x 240(H)
Surface Hardness:	4H
Serial Port:	One RS232 and one RS232/485
Memory:	4MB DRAM, 1MB flash memory (2MB option available)
System Diagnostic:	watch dog timer, power failure detect
Bezel Dimensions:	8.03W x 5.91H x 2.95D in (204 x 150 x 75 mm)
Cutout Dimensions:	7.6 W x 5.43 Hin (192 x 138 mm)

Functional Specifications

No. of Screens: 1999 max. (limited by memory)

Type of Objects:

Line	Set Word	Alarm Display
Rectangle	Toggle Switch	Trend Graph
Ellipse	MultiState Switch	BarGraph
Arc	Function Button	Meter
Polygon	Numeric Input	Scrolling Alarm
Text	Numeric Display	Event Display
Scale	ASCII Input	Recipe Transfer
Shape	ASCII Display	(requires option card)
Bitmap	X,Y Move Animation	PLC Controls: Screen,
Bit Lamp	Spot Move Animation	backlight, printer
Word Lamp	Popup Window on Bit	Data Transfer
Set Bit	Popup Window on Register	

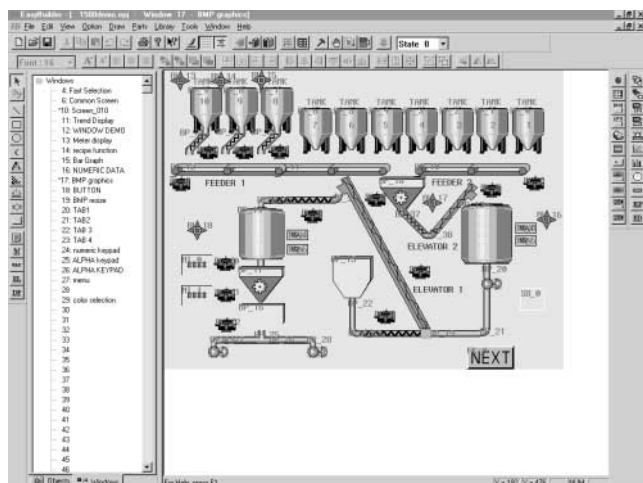
No. of Objects: Limited by memory

PLC Driver:

AB DF1	MITSUBISHI AJ71
AB DH485	MITSUBISHI FXon/2/2n COM
AB PLC5	MITSUBISHI FXon/FX2
DELTA DVP	MITSUBISHI FX2n
FACON FB	MITSUBISHI J2-S100
GE Fanuc SNP-X	MODBUS RTU
HITACHI	Matsushita FP
IDEC Micro	MemoryMap_Master
IDEC Micro3	MemoryMap_Slave
IIS ESC	OMRON
KOYO DIRECT	OMRON(485 2W)
LG GLOFA Cnet	P MAC
LG K60S	SIEMENS S7/200
LG MASTER-K Cnet	SIEMENS S7/300 HMI adapter
LG MASTER-K300S CPU	SIEMENS S7/300 PC adapter
MITSUBISHI A1S	Samsung SPC-10
MITSUBISHI A2A	TELEMECANIQUE UniTelWay
MITSUBISHI A2US	Toshiba T serial
MITSUBISHI A3N/A1SH	VIGOR

More supporting device drivers are being developed every day.

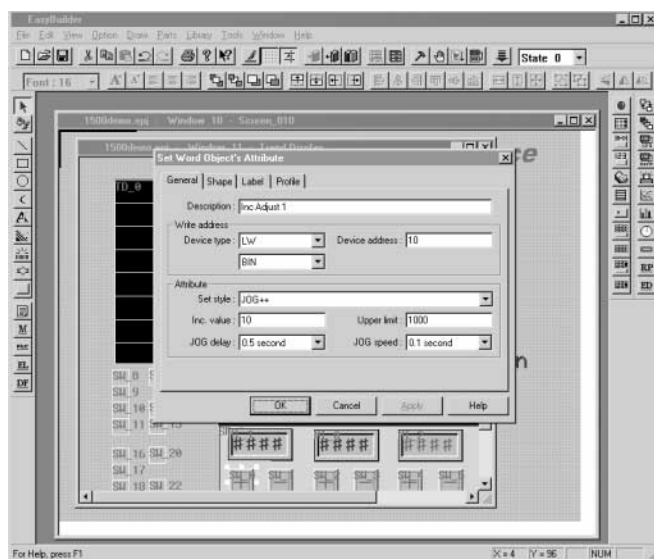
Easy Setup with EasyBuilder Software



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). Each screen is composed of a variety of elements called objects. There are drawing objects: line, ellipse, rectangle, text, graphics, etc. And Part objects: annunciators, data displays, animations, push buttons, trend graphs, alarm displays, popup window areas, meters 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 straight forward, simple, and consistent process.

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. Custom graphics libraries with over 300 commonly used graphics is included with EasyBuilder Software.



Other convenient features include: The ability to copy windows and objects between projects. Windows can be stacked (overlapped) to reduce duplicate objects. 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 and uses 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.

ORDERING INFORMATION:

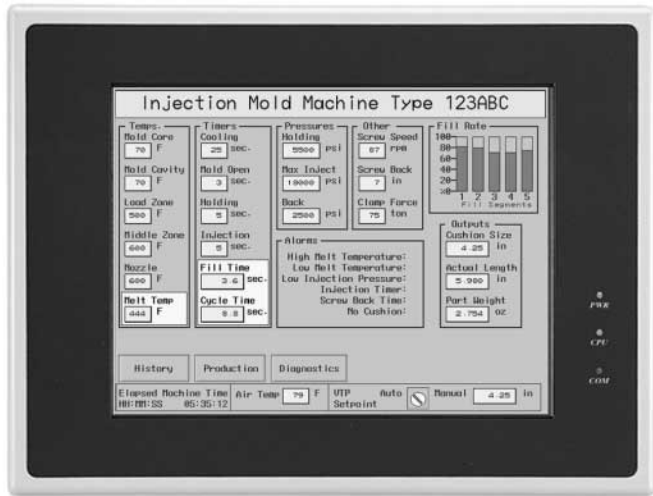
Part Number	Description
MMI-720	Graphic Interface with 5.7" blue, 4 gray scale, LCD display and Touchscreen
MMI-750	Graphic Interface with 5.7" STN, 256 color, LCD display and Touchscreen
Options:	
EM	Expands Project Memory to 2 MB

MMI-850

Color Graphic Display Panel and Touch Screen

Features

- Color Display with Expanded Graphics
- Parallel Printer Port
- 7.7" 640x480 256 color Display
- Connects to Today's Popular PLC's via Single Cable to Programming Port
- FREE Design Mode, Windows™ based Setup Software Included
- 24 VDC Powered



Large LCD with Touch Panel

The MMI-850 is a touch screen interface for programmable controllers. It displays pictorial information, data and messages that are preloaded into it using a Personal Computer. Touch screen areas can be programmed to perform various functions. The MMI-850 is equipped with a 256 color 7.7" LCD with analog resistive touch screen. It is designed especially for harsh working environments. 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. Free setup software program for configuring the MMI-850 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.

Connect directly to most PLCs

The MMI-850 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-850 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.

Specifications

Input Power:	24 VDC ± 5%, 700 mA
Noise Immunity:	IEC1000-4-4, level 2 (2KV, 100kHz)
Voltage Resistance:	500VAC (1 minute)
Isolation Resistance:	Exceed 50MΩ at 500VDC
FCC:	FCC Class A
CE:	EN50081-2 & EN50082-2 Standards
Environmental:	NEMA4/IP65 front panel
Operating Temp.:	32~113° F (0~45° C)
Humidity:	5-95%, non-condensing
Weight:	2.7kg
Display:	7.7" STN, 256 color LCD
Resolution:	640(W) x 480(H) pixels
Backlight:	CCFT (w/ auto shutdown)
Dot Size:	0.30(W) x 0.30(H) mm

Touch Panel:

resistive type, audible feedback on touch

Touch Resolution:

640(W) x 480(H)

Surface Hardness:

4H

Serial Port:

One RS232 and one RS232/485

Memory:

4MB DRAM, 1MB flash memory (2MB option available)

Parallel Port:

Standard parallel printer port

RTC:

EPSON 72421B (optional)

System Diagnostic:

watch dog timer, power failure detect

Bezel Dimensions:

9.09W x 6.93H x 2.16D in (231 x 176 x 55 mm)

Cutout Dimensions:

8.75W x 6.57H in (222 x 167 mm)

Functional Specifications

No. of Screens: 1999 max. (limited by memory)

Type of Objects:

Line	Set Word	Register
Rectangle	Toggle Switch	Alarm Display
Ellipse	MultiState Switch	Trend Graph
Arc	Function Button	BarGraph
Polygon	Numeric Input	Meter
Text	Numeric Display	Scrolling Alarm
Scale	ASCII Input	Event Display
Shape	ASCII Display	Recipe Transfer
Bitmap	X,Y Move Animation	(requires option card)
Bit Lamp	Spot Move Animation	PLC Controls: Screen,
Word Lamp	Popup Window on Bit	backlight, printer
Set Bit	Popup Window on	Data Transfer

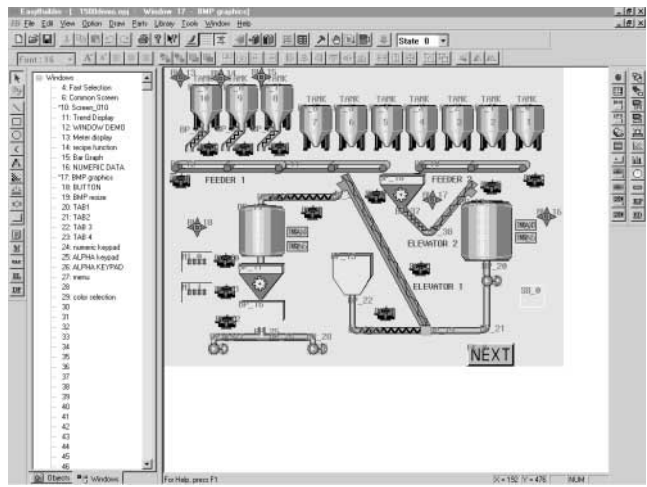
No. of Objects: Limited by memory

PLC Driver:

AB DF1	MITSUBISHI AJ71
AB DH485	MITSUBISHI FXon/2/2n COM
AB PLC5	MITSUBISHI FX0n/FX2
DELTA DVP	MITSUBISHI FX2n
FACON FB	MITSUBISHI J2-S100
GE Fanuc SNP-X	MODBUS RTU
HITACHI	Matsushita FP
IDEC Micro	MemoryMap_Master
IDEC Micro3	MemoryMap_Slave
IIS ESC	OMRON
KOYO DIRECT	OMRON(485 2W)
LG GLOFA Cnet	P MAC
LG K60S	SIEMENS S7/200
LG MASTER-K Cnet	SIEMENS S7/300 HMI adapter
LG MASTER-K300S CPU	SIEMENS S7/300 PC adapter
MITSUBISHI A1S	Samsung SPC-10
MITSUBISHI A2A	TELEMECANIQUE UniTelWay
MITSUBISHI A2US	Toshiba T serial
MITSUBISHI A3N/A1SH	VIGOR

More supporting device drivers are being developed every day.

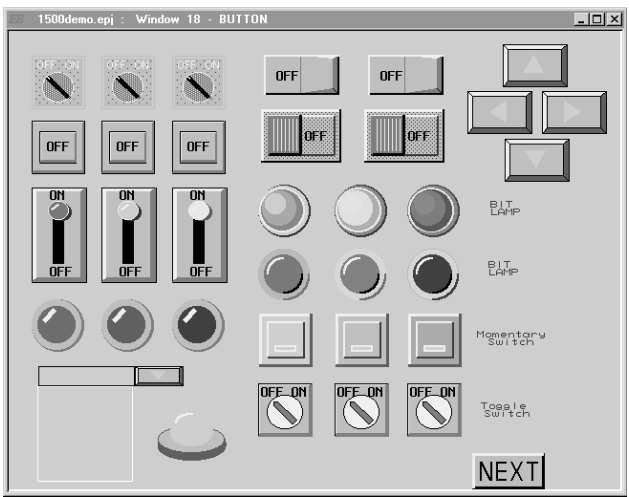
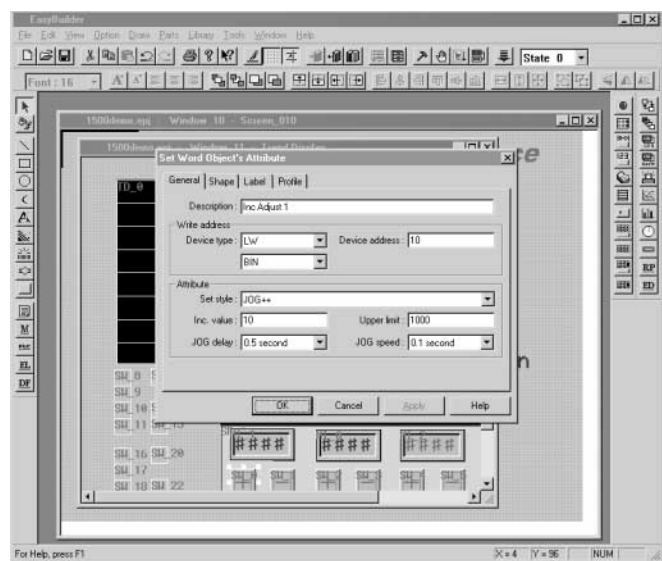
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Configuration of the MMI-720/750 is easy. To setup objects, select an icon from the toolbox, a dialog box appears. Fill in object attributes requested by the dialog to complete the object setup process. Move the object to the right position and drag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

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. Custom graphics libraries with over 300 commonly used graphics is included with EasyBuilder Software.



Other convenient features include: The ability to copy windows and objects between projects. Windows can be stacked (overlapped) to reduce duplicate objects. 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 and uses 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-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-850's flash memory.

ORDERING INFORMATION:

Part Number	Description
MMI-850	Graphic Interface with 7.7" STN Color LCD display and Touchscreen

- Options:**
- RTC Real Time Clock & Recipe Memory
 - EM Expands Project Memory to 2 MB

MMI-1500

Features

- Color Display with Expanded Graphics
- Parallel Printer Port
- 10.4" 256 color Display
- Connects to Today's Popular PLC's via Single Cable to Programming Port
- FREE Design Mode, Windows™ based Setup Software Included
- 24 VDC Powered

Large LCD with Touch Panel

The MMI-1500 is a touch screen interface for programmable controllers. It displays pictorial information, data and messages that are preloaded into it using a Personal Computer. Touch screen areas can be programmed to perform various functions. The MMI-1500 is equipped with a 256 color 10.4" LCD with analog resistive touch screen. It is designed especially for harsh working environments. 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. Free setup software program for configuring the MMI-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.

Connect directly to most PLCs

The MMI-1500 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-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.

Specifications

Input Power:	24 VDC ± 5%, 700 mA
Noise Immunity:	IEC1000-4-4, level 2 (2KV, 100kHz)
Voltage Resistance:	500VAC (1 minute)
Isolation Resistance:	Exceed 50MΩ at 500VDC
FCC:	FCC Class A
CE:	EN50081-2 & EN50082-2 Standards
Environmental:	NEMA4/IP65 front panel
Operating Temp.:	32~113° F (0~45° C)
Humidity:	5-95%, non-condensing
Weight:	2.7kg
Display:	10.4" TFT or DSTN, 256 color LCD
Resolution:	640(W) x 480(H) pixels
Backlight:	CCFT (w/ auto shutdown)
Dot Size:	0.30(W) x 0.30(H) mm
Touch Panel:	resistive type, audible feedback on touch
Touch Resolution:	640(W) x 480(H)
Surface Hardness:	4H

Color Graphic Display Panel and Touch Screen



Serial Port:	One RS232 and one RS232/485
Memory:	4MB DRAM, 1MB flash memory (2MB option available)
Parallel Port:	Standard parallel printer port
RTC:	EPSON 72421B (optional)
System Diagnostic:	watch dog timer, power failure detect
Bezel Dimensions:	12.40W x 9.37H x 2.44D in (315 x 238 x 62 mm)
Cutout Dimensions:	11.89W x 10.04H in (302 x 255mm)

Functional Specifications

No. of Screens: 1999 max. (limited by memory)

Type of Objects:

Line	Set Word	Register
Rectangle	Toggle Switch	Alarm Display
Ellipse	MultiState Switch	Trend Graph
Arc	Function Button	BarGraph
Polygon	Numeric Input	Meter
Text	Numeric Display	Scrolling Alarm
Scale	ASCII Input	Event Display
Shape	ASCII Display	Recipe Transfer
Bitmap	X,Y Move Animation	(requires option card)
Bit Lamp	Spot Move Animation	PLC Controls: Screen,
Word Lamp	Popup Window on Bit	backlight, printer
Set Bit	Popup Window on	Data Transfer

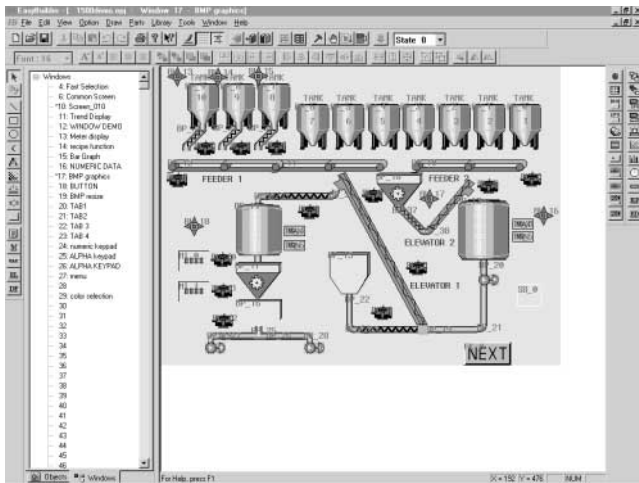
No. of Objects: Limited by memory

PLC Driver:

AB DF1	MITSUBISHI AJ71
AB DH485	MITSUBISHI FXon/2/2n COM
AB PLC5	MITSUBISHI FX0n/FX2
DELTA DVP	MITSUBISHI FX2n
FACON FB	MITSUBISHI J2-S100
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LG K60S	SIEMENS S7/200
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LG MASTER-K300S CPU	SIEMENS S7/300 PC adapter
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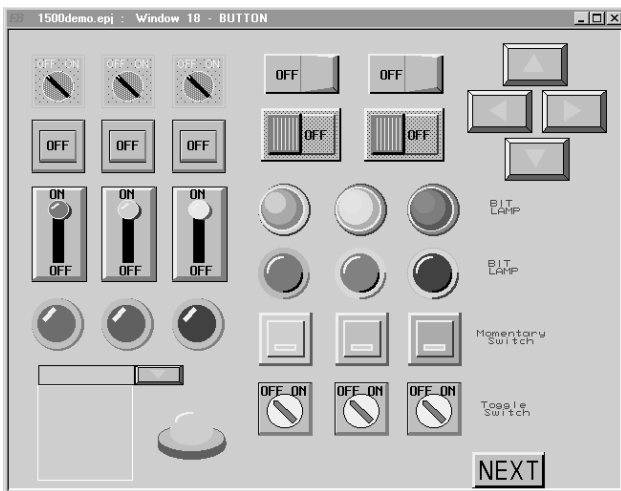
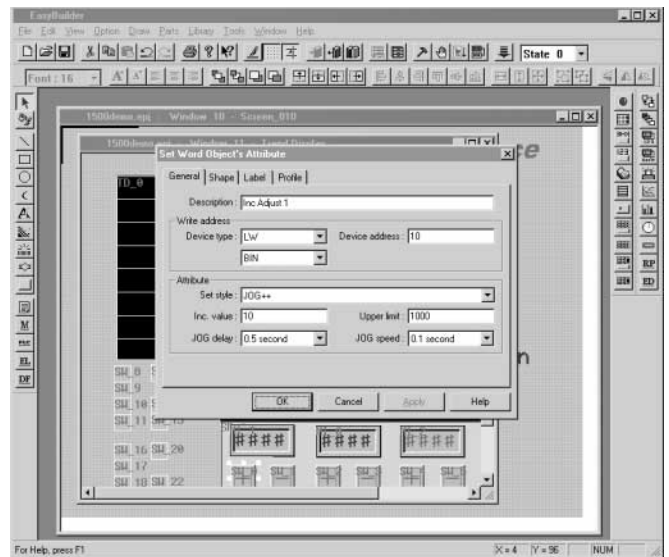
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Configuration of the MMI-850 is easy. To setup objects, select an icon from the toolbox, a dialog box appears. Fill in object attributes requested by the dialog to complete the object setup process. Move the object to the right position and drag the boundary of the object. It's a straight forward, simple, and consistent process.

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. Custom graphics libraries with over 300 commonly used graphics is included with EasyBuilder Software.



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To download a project, connect the MMI-1500 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's flash memory.

ORDERING INFORMATION:

Part Number	Description
MMI-1500T	Graphic Interface with 10.4" TFT Color LCD display and Touchscreen.
MMI-1500S	Graphic Interface with 10.4" DSTN Color LCD display and Touchscreen.
Options:	
RTC	Real Time Clock & Recipe Memory
EM	Expands Project Memory to 2 MB

AMB-513

Industrial Panel PC with Flat-Panel Display

Features

- Heavy Duty Steel Chassis with NEMA 4/12 Plastic Front Panel
- 10.4" Color TFT LCD Display
- 4-Slot (2 available) ISA-Bus Passive Backplane
- Comes with an Internal 3.5" FDD, 4.3GB HDD & CD-ROM (optional)
- 30 CFM Cooling Fan
- Universal 70W Power Supply or Other Options (Refer to The Selection Table)
- Analog Resistive Touchscreen (option)



Introduction:

The AMB-513 series industrial panel PC's are IBM PC/AT compatible computers specially designed to meet all the requirements for a human-machine interface (HMI). They come equipped with a 10.4" color TFT LCD display. All are enclosed with a heavy duty steel chassis and a plastic front panel which meets NEMA 4 / 12 industrial and environmental protection standards.

Display Selection Table

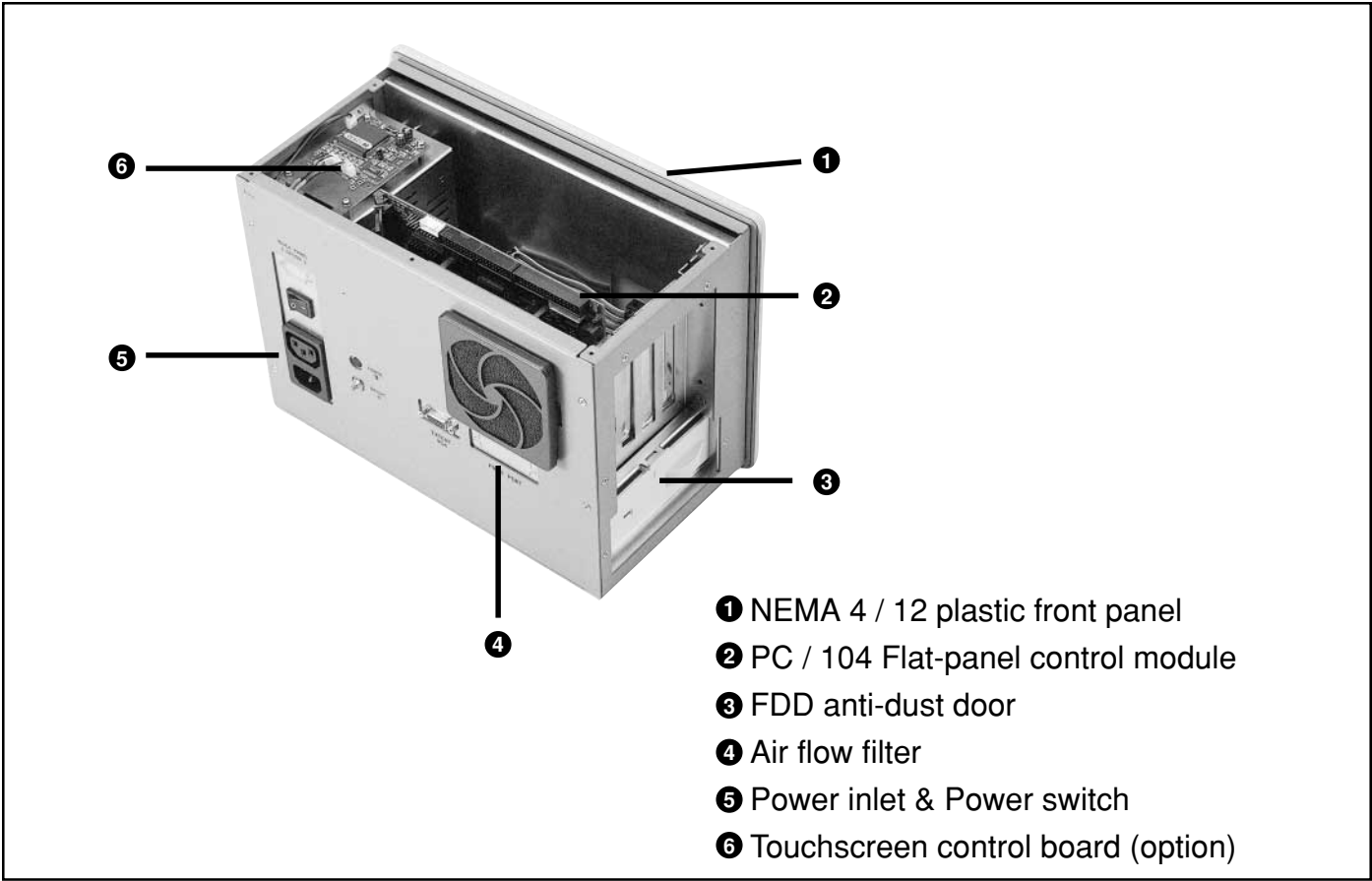
Item	Color TFT
Diagonal	10.4
Display Area	211.2 (H) x 158.4 V
Resolution	640 x 480
Color	64K colors
Display Life	25,000 Hrs.

Power Supply Selection Table

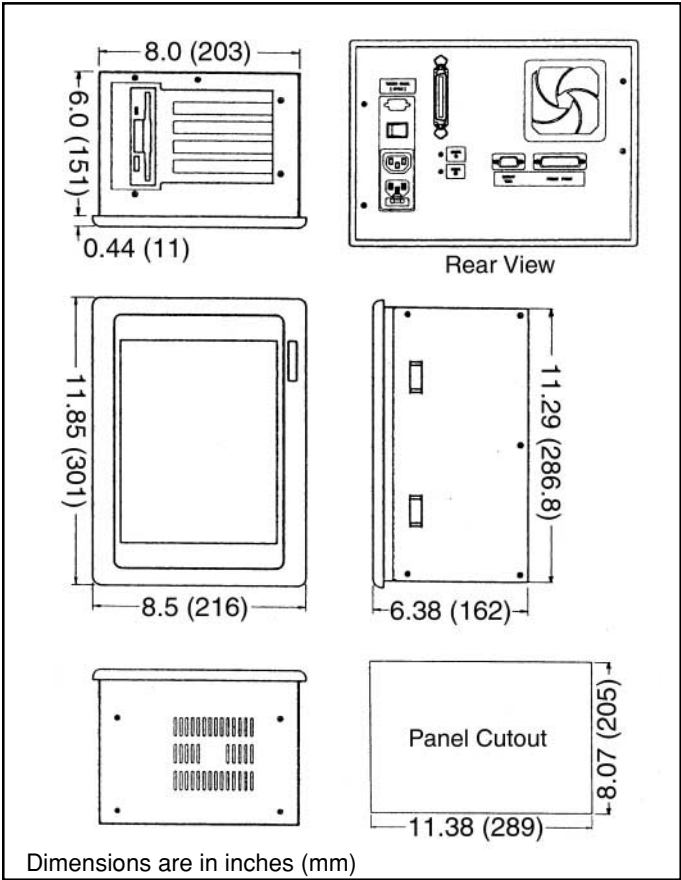
Model	Input Voltage	Max. Output Current			
		+5V	+12V	-5V	-12V
Universal/70W	90-260VAC	7A	2.5A	0.3A	0.3A
48VDC/70W	36 to 72VDC	7A	2.5A	0.3A	0.5A
24VDC/70W	19 to 30VDC	7A	2.5A	0.3A	0.5A
12VDC/65W	8.5 to 16VDC	6A	2A	0.3A	0.5A

Specifications:

Construction:	Heavy Duty steel chassis & NEMA 4/12 plastic front panel
I/O Ports:	1 High speed serial port, 1 bi-directional parallel port
Ethernet:	10/100 BaseT, RTL8139 chipset
CPU:	Celeron 366MHz through 800MHz Pentium III
Disk drives:	Internal 3.5" FDD & Internal 3.5" 4.3 GB (or higher) HDD
Flash Disk:	Disk On Chip
Touch Screen:	Analog Resistive
Cooling system:	30 CFM cooling fan
Weight:	6Kgs
Power supply:	Universal (90-260 VAC) standard (refer to the selection table)
Passive backplane:	1 open PCI, 1 open ISA 1/2 length
Operating Temp:	0°C to 50°C
Storage Temp:	-20°C to 60°C
Relative humidity:	5 to 95%, non condensing
Altitude:	10,000 ft. (3000 meters)
Vibration:	5 to 17Hz, 0.1 " double-amplitude displacement 17 to 500 Hz, 1.5G peak to peak
Shock:	10G peak acceleration (11 msec. duration)
Safety:	CE
EMI:	meets FCC/VDE Class A
Operating system:	Windows 98SE, NT, 2000
RAM:	64MB STD; Expandable to 128MB
Cache:	512k
VGA controller:	C & T Chips 65535T LCD/CRT
System BIOS:	Award BIOS
I/O chipset:	ALI Alladin 4 + Chipset
IDE/PCI support:	Ultima PMA/33
Mouse connector:	PS/2
Keyboard connector:	PS/2



Dimensions:



Ordering Information:

How To Order:
EXAMPLE **AMB-513** **HT** **T**
 Series _____
 Display Type _____
 HT = 10.4" high brightness color TFT LCD display
 Options _____
 T = Touchscreen option
 -48VDC = -40 to -65 VDC input power supply
 24VDC = 19 to 30 VDC input power supply
 12VDC = 8.5 to 16 VDC input power supply

Accessories
 EXTCD = External CD-ROM Drive
 AMB-106 = 20 function key sealed membrane keyboard
 AMB-107 = 56 data entry key sealed membrane keyboard

For additional RAM consult factory

AMB-541

Industrial Panel PC with 14" Flat-Panel Display

Features

- NEMA 4/12 Painted Aluminum Alloy Front Panel
- 14" XGA Color TFT LCD Display
- 5-Slot (4 available) ISA/PCI-Bus Passive Backplane
- PCI-Bus MBC-266B Graphic Card
- 3-Disk Drive Housing: a 3.5" FDD & HDD and a CD-ROM Drive (optional)
- Hold-Down Clamp Protects Cards from Vibration
- Universal 250W Power Supply (or DC options)
- Analog Resistive Touchscreen (option)



Introduction:

The compact size, painted metal steel chassis, bigger panel size and higher brightness makes the AMB-541 the ideal human-machine interface. The AMB-541 supports XGA (1024x768) resolution with a 14" XGA color TFT LCD display. The PC includes a PCI-Bus MBC-266B graphic card, 5-slot ISA/PCI-Bus passive backplane and also a 3-disk drive housing provided for a 3.5" FDD & HDD and a CD-ROM drive (optional). Other available optional items for this series are a touchscreen and DC input power supply.

Display Selection Table

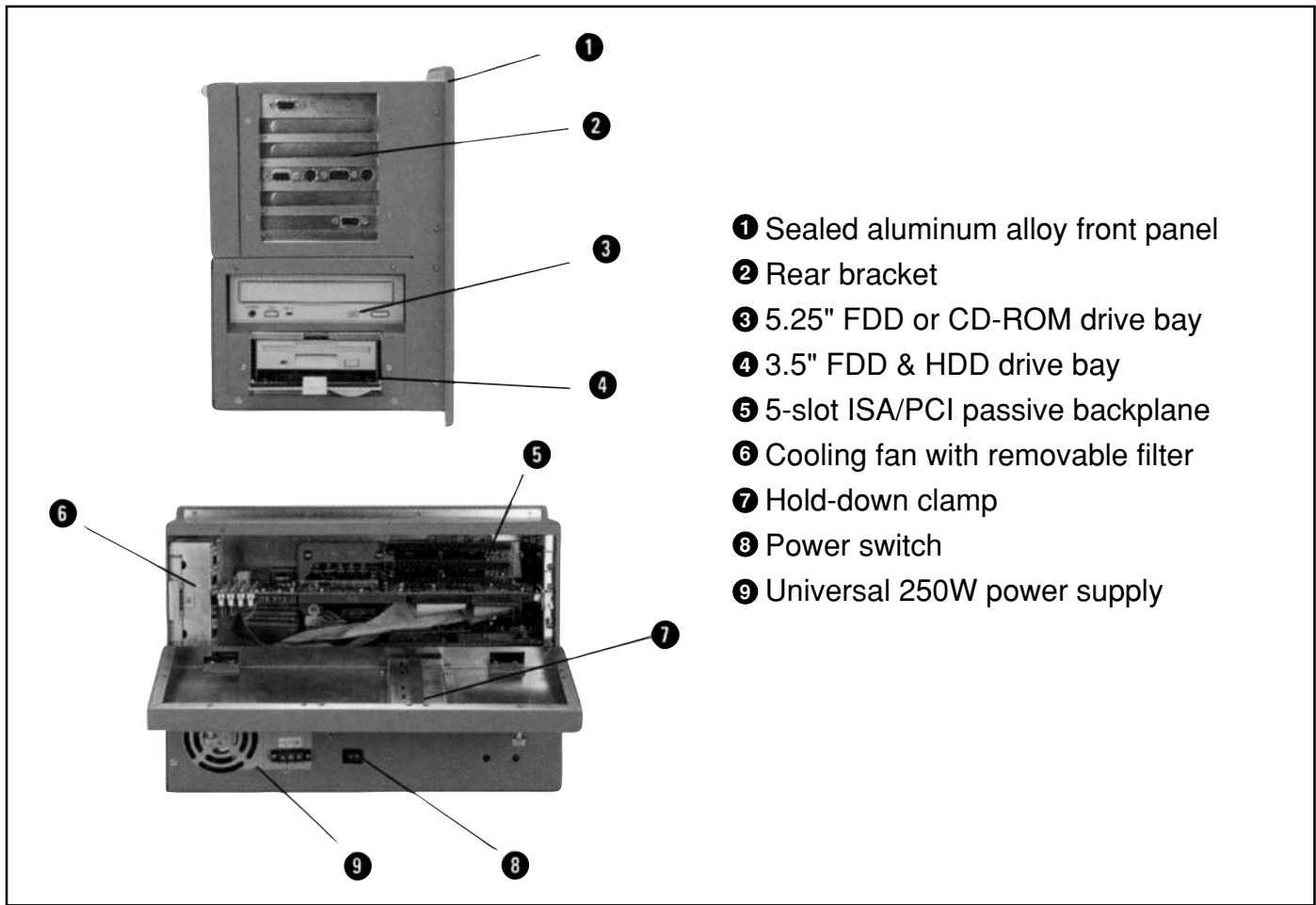
Item	Color TFT
Diagonal	14" (XGA)
Display Area	279.5(H) x 209.6(V)
Resolution	1024 x 768
Color	64K colors
Display Life	25,000 Hrs.

Power Supply Selection Table

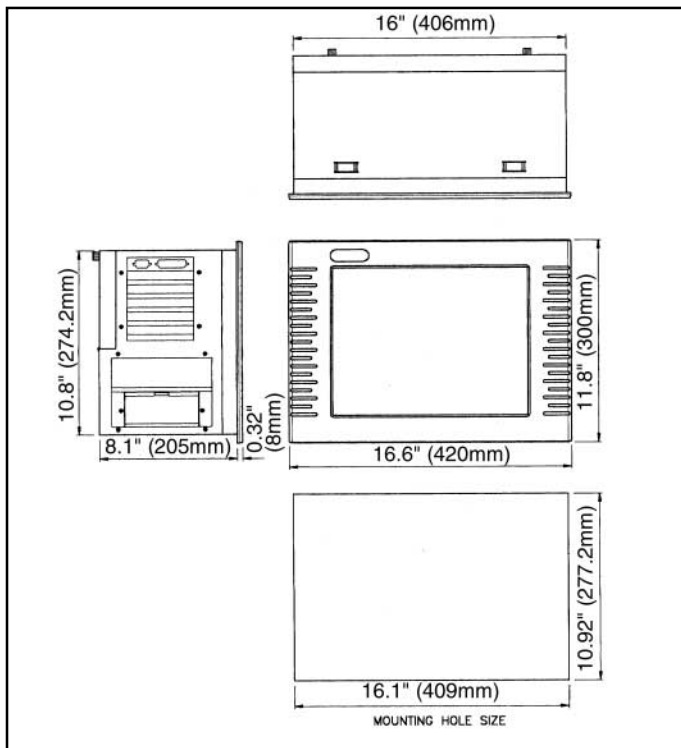
Model	Input Voltage	Max. Output Current			
		+5V	+12V	-5V	-12V
Universal/250W	85-265VAC	22A	7A	0.5A	0.7A
-48VDC/250W	-40 to -65VDC	25A	8A	1A	2A
24VDC/250W	19 to 30VDC	25A	6A	1A	2A
12VDC/160W	8.5 to 16VDC	20A	4A	0.5A	0.5A

Specifications:

- Construction:** Painted metal steel chassis & NEMA 4/12 aluminum alloy front panel
- I/O Ports:** 1 High speed serial port, 1 bi-directional parallel port
- Ethernet:** 10/100 BaseT, RTL8139 chipset
- CPU:** Celeron 366MHz through 800MHz
Pentium III
- Disk drives:** Internal 3.5" FDD & Internal 3.5" 4.3 GB (min) HDD
- Flash Disk:** Disk On Chip
- Touch Screen:** Analog Resistive
- Cooling system:** 30 CFM cooling fan
- Weight:** 12.3Kgs
- Power supply:** Universal (85-265 VAC) standard (refer to the selection table)
- Passive backplane:** 5-slot ISA/PCI-Bus, (1 used by CPU, 4 Available) 4-layer PCB with power plane for noise reduction and power supply impedance. LED power indicators for +5V, -5V, +12V, -12V
- Operating Temp:** 0°C to 50°C
- Storage Temp:** -20°C to 60°C
- Relative humidity:** 5 to 95%, non condensing
- Altitude:** 10,000 ft. (3000 meters)
- Vibration:** 5 to 17Hz, 0.1 " double-amplitude displacement 17 to 500 Hz, 1.5G peak to peak
- Shock:** 10G peak acceleration (11 msec. duration)
- EMI:** meets FCC/VDE Class A
- Operating system:** Windows 98SE, NT, 2000
- RAM:** 64MB STD; Expandable to 128MB
- Cache:** 512k
- VGA controller:** C & T Chips 65535T LCD/CRT
- System BIOS:** Award BIOS
- I/O chipset:** ALI Alladin 4 + Chipset
- IDE/PCI support:** Ultima PMA/33
- Mouse connector:** PS/2
- Keyboard connector:** PS/2



Dimensions:



Ordering Information:

How To Order:

EXAMPLE	AMB-5411	T	T
Series	AMB-541 Series includes: 14" TFT Color LCD, Metal bezel 250W Universal 85-256 VAC power supply 4.3+ GB HDD 3.5" 1.44MB FDD 32 MB RAM 5 slot backplane ISA/PCI Accepts full size cards. 366 MHz Celeron CPU SBC VGA driver card Windows 98 installed		
Display Type	T = 14" XGA color TFT LCD display		

Options

- T = Touchscreen
- 12V = 12 VDC, 160W power supply
- 24V = 24 VDC, 250W power supply
- 64M = Memory expanded to 64MB
- 128M = Memory expanded to 128MB
- INTCD = Internal CDROM drive
- 400MHZ = 400 MHz Celeron CPU
- NTW = Windows NT 4.0 Workstation installed
- NTS = Windows NT 4.0 Server (5 lic.) installed
- ILINK = Infilink Software installed as an option

AMB-655

Industrial Workstation with 14" or 15" Flat-Panel Display

Features

- 19" Rackmount
- NEMA 4/12 Aluminum Alloy Front Panel
- MBC-266 Graphic Card
- 13.8" or 15" XGA Color TFT LCD Display
- 10-Slot (9 available) ISA-Bus Passive Backplane or Mother board
- Comes with an Internal 3.5" FDD, 4.3GB HDD & CD-ROM (optional)
- Universal 250W Power Supply
- Analog Resistive Touchscreen (option)

Introduction:

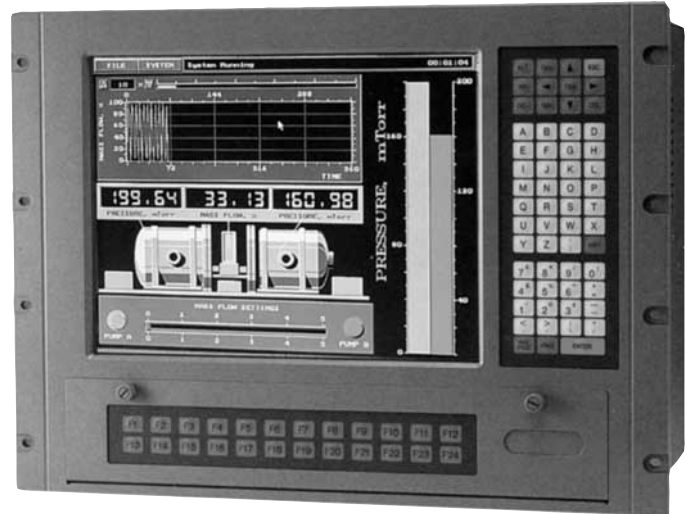
The MMI-655 series with 15" XGA color TFT LCD display industrial workstations are much lighter and slimmer than traditional 14" and 15" CRT workstations. They are supplied with a 3.5" FDD and 4.3GB HDD (CD-ROM drive optional). Both have two sealed membrane keypads on the front panel providing 24 function keys and 59 data entry keys. The MMI-650/655 series includes a 10-slot (9 available) ISA/PCI-Bus passive backplane, a PCI-bus MBC-266B and a universal 250W power supply. Available optional items for this series are a touchscreen and DC input power supply.

Display Selection Table

Item	Color TFT
Diagonal	15" (XGA)
Display Area	304.1(H) x 228.1(V)
Resolution	1024 x 768
Color	64K Colors
Display Life	25,000 Hrs.

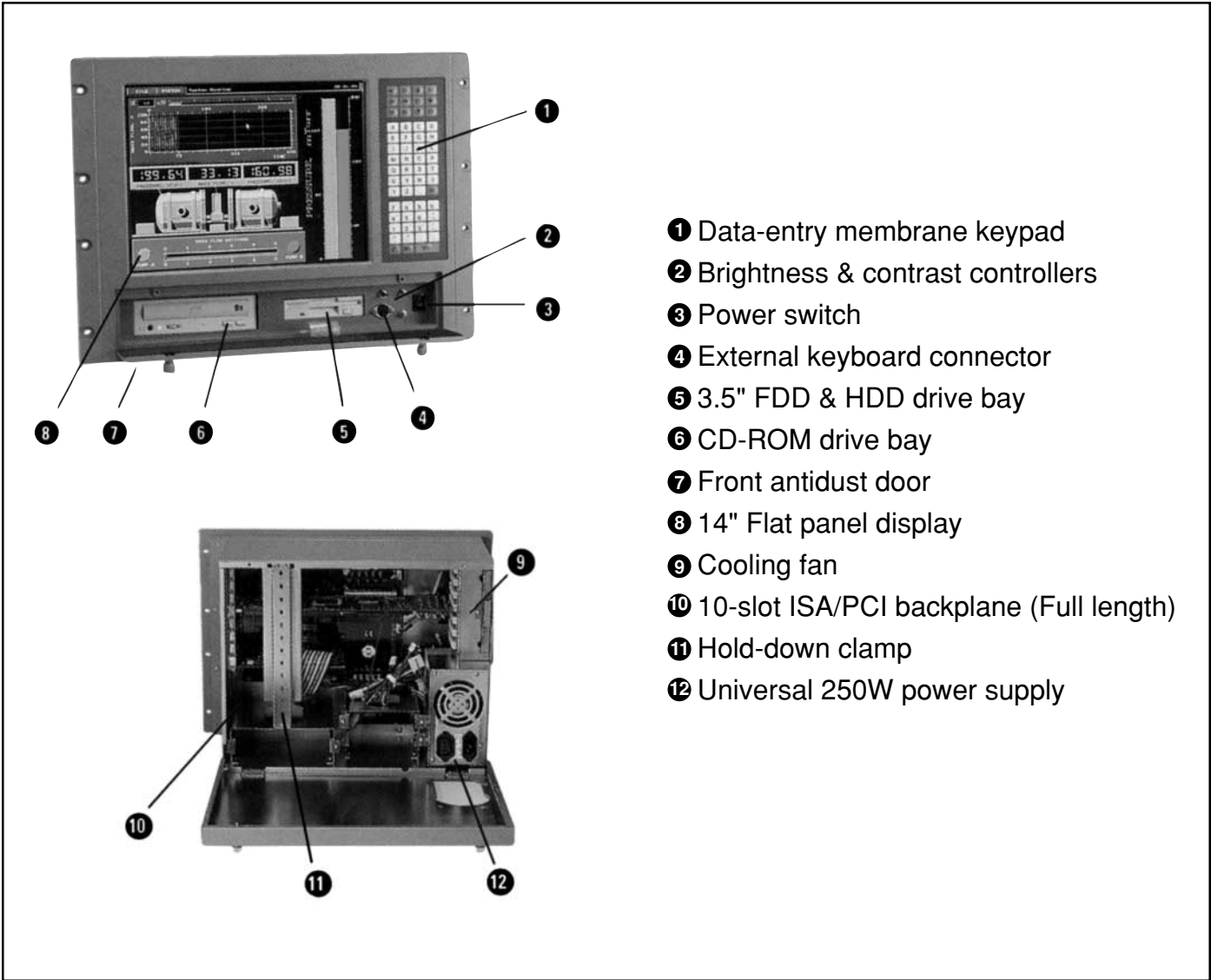
Power Supply Selection Table

Model	Input Voltage	Max. Output Current			
		+5V	+12V	-5V	-12V
Universal/250W	85-265VAC	24A	10A	0.5A	0.7A
-48VDC/250W	-40 to -65VDC	25A	8A	1A	2A
24VDC/250W	18 to 30VDC	25A	6A	1A	2A
12VDC/160W	8.5 to 16VDC	20A	4A	0.5A	0.5A



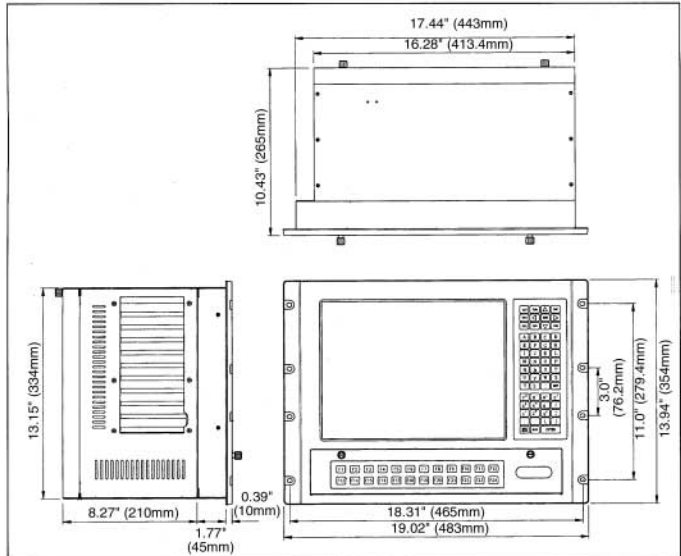
Specifications:

- Construction:** Painted metal steel chassis & aluminum alloy front panel
- I/O Ports:** 1 High speed serial port, 1 bi-directional parallel port
- Ethernet:** 10/100 BaseT, RTL8139 chipset
- CPU:** Celeron 366MHz through 800MHz Pentium III
- Disk drives:** Internal 3.5" FDD & Internal 3.5" 4.3 GB (min) HDD
- Flash Disk:** Disk On Chip
- Touch Screen:** Analog Resistive
- Cooling system:** 64 CFM cooling fan
- Weight:** 16Kgs
- Keypad:** 59 data-entry keys and 24 function-key Two-screw-on door on the front panel covering the brightness and contrast controllers, power switch, drive bays and keyboard connector
- Power supply:** Universal (85-265 VAC) standard (refer to the selection table)
- Passive backplane:** 10-slot ISA/PCI-Bus (1 used by CPU, 9 Available) 4-layer PCB with ground/power-plane for noise reduction and power supply impedance LED power indicators for +5V, -5V, +12V, -12V
- Operating Temp:** 0°C to 50°C
- Storage Temp:** -20°C to 60°C
- Relative humidity:** 5 to 95%, non condensing
- Altitude:** 10,000 ft. (3000 meters)
- Vibration:** 5 to 17Hz, 0.1 " double-amplitude displacement 17 to 500 Hz, 1.5G peak to peak
- Shock:** 10G peak acceleration (11 msec. duration)
- Safety:** CE
- EMI:** meets FCC/VDE Class A
- Operating system:** Windows 98, NT, 2000
- RAM:** 64MB STD; Expandable to 128MB
- Cache:** 512k
- VGA controller:** C & T Chips 65535T LCD/CRT
- System BIOS:** Award BIOS
- I/O chipset:** ALI Alladin 4 + Chipset
- IDE/PCI support:** Ultima PMA/33
- Mouse connector:** PS/2
- Keyboard connector:** AT



- ① Data-entry membrane keypad
- ② Brightness & contrast controllers
- ③ Power switch
- ④ External keyboard connector
- ⑤ 3.5" FDD & HDD drive bay
- ⑥ CD-ROM drive bay
- ⑦ Front antidust door
- ⑧ 14" Flat panel display
- ⑨ Cooling fan
- ⑩ 10-slot ISA/PCI backplane (Full length)
- ⑪ Hold-down clamp
- ⑫ Universal 250W power supply

Dimensions:



Ordering Information:

How To Order:

EXAMPLE **AMB-6501** T T

Series _____
 655 = AMB-655 Series includes:
 15" color display, PCI-Bus MBC-266B graphic card,
 a 10-slot ISA/PCI-Bus passive backplane and a
 universal 250W switching power supply

Display Type _____
 T = XGA color TFT LCD display

Options _____
 T = Touchscreen option
 -48VDC = -40 to -65 VDC input power supply
 24VDC = 18 to 30 VDC input power supply
 12VDC = 8.5 to 16 VDC input power supply
 CD = 40X CD-ROM Drive
 For additional RAM consult factory

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

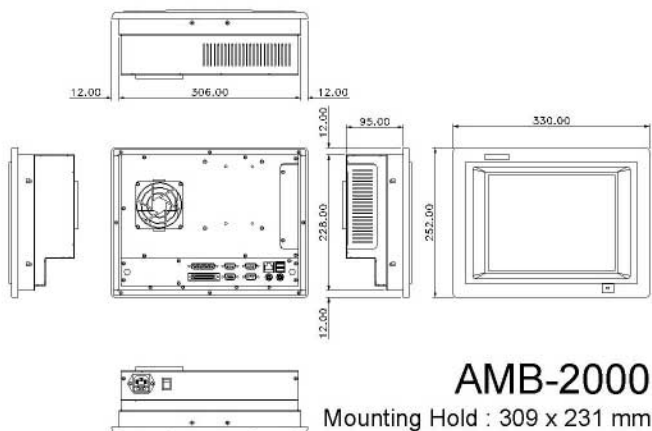
Specifications for AMB-2020

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

Dimensions



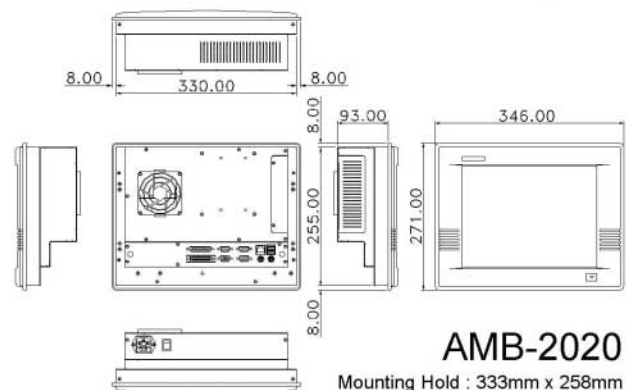
Ordering Information

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



AMB-2003/2023

10.4" or 12.1" Modular System Industrial Panel PC

Features

- 10.4" or 12.1" SVGA color TFT LCD display
- Heavy-duty steel chassis and NEMA 4/12 compliant plastic front panel
- All-in-one Celeron 366MHz SBC
- Brightness and LCD power on/off controller on the aluminum alloy front panel (aluminum front panel optional)
- 16-bit stereo digital audio (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 & HDD
- DiskOnChip flash disk socket
- Two PCI or One ISA and One PCI

Introduction

The AMB-2003/2023 series panel PC's are industrial computers that are designed for industrial environments. They are a full function PC-base system with a 12.1" SVGA (800 x 600) 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-2003/2023 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-2003

Construction: Heavy-duty steel chassis & NEMA 4/12

CPU: Celeron 366MHz through 800MHz Pentium III

Memory: 64M DRAM

Display: 10.4" VGA (640 x 480) TFT color LCD

LCD/CRT controller: Chips 69000 VGA controller 2MB SDRAM embedded. CRT & LCD panel support.

I/O ports: 2 serial ports: one 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

CD-ROM: Optional CD-ROM space

USB connector: Pin head for Dual USB port

Expansion: Two PCI or one ISA, one PCI

Mounting: Panel mount

Power supply: Universal 70W switching power supply

Dimension: (W x H x D) 306 x 228 x 128 mm

Gross Weight: 6.5 Kg

Specifications for AMB-2023

(12.1" LCD+ACS-2303)

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

CPU: Celeron 366MHz through 800MHz Pentium III

Memory: 64M DRAM

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

LCD/CRT controller: Chips 69000 VGA controller 2MB SDRAM embedded. CRT & LCD panel support.

I/O ports: 2 serial ports: one 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

CD-ROM: Optional CD-ROM space

USB connector: Pin head for Dual USB port

Expansion: Two PCI or one ISA, one PCI (1/2 length)

Mounting: Panel mount or Wall mount (ACS-2303 control Box only, optional)

Power supply: Universal 70W switching power supply

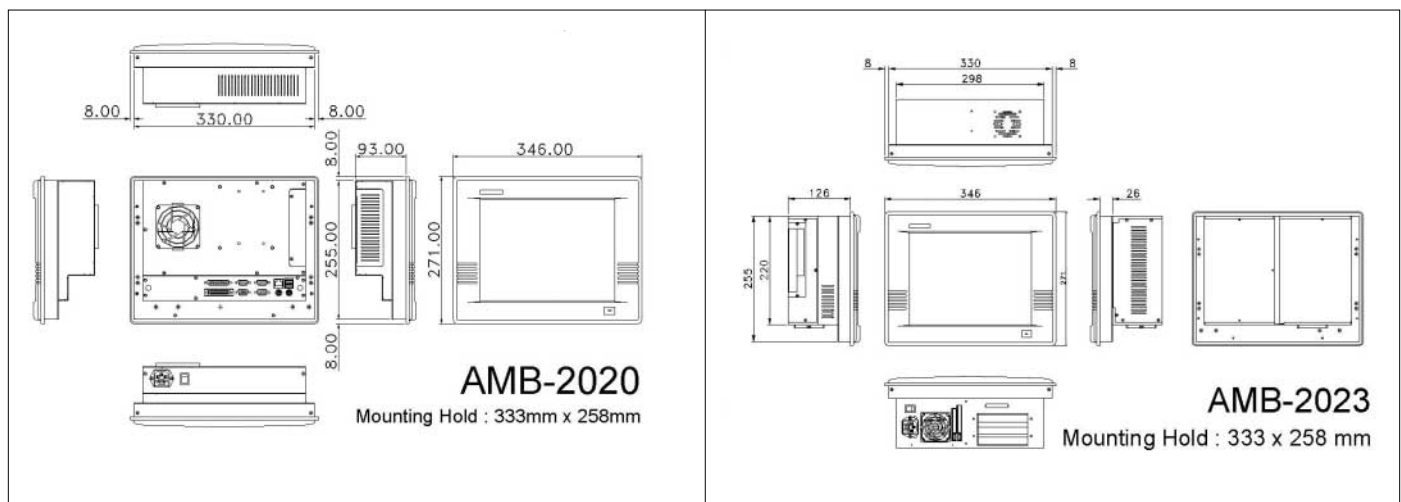
Dimension: (W x H x D) 330 x 255 x 126 mm

Gross Weight: 6.5 Kg

LCD Specifications

Model:	AMB-2003	2023
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

Dimensions



Ordering Information

AMB 2003

Part Number	Description
2003HT	10.4" TFT Color LCD (200 cd/m) Intel Celeron 366MHz 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
256M	Memory expanded to 256MB
NTW	Windows NT 4.0 Workstation Installed
NTS	Windows NT 4.0 Server (5 lic.) Installed
INTCD	Internal Slim CDROM
EXTCD	External CDROM Drive
ILINK	Infilink Software Installed. Unlimited Tags, Any Driver

AMB 2023

Part Number	Description
2003HT	12.1" TFT Color LCD (250 cd/m) Intel Celeron 366MHz CPU

Options (add to end of Part Number)

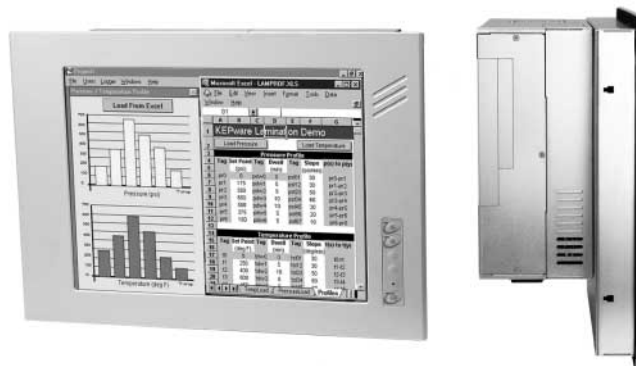
T	Touchscreen
24V	24V power instead of 120VAC power
12V	12V power instead of 120VAC power
64M	Memory expanded to 64MB
128M	Memory expanded to 128MB
NTW	Windows NT 4.0 Workstation Installed
NTS	Windows NT 4.0 Server (5 lic.) Installed
INTCD	Internal Slim CDROM
EXTCD	External CDROM Drive
ILINK	Infilink Software Installed. Unlimited Tags, Any Driver

AMB-2053 Series

15" Modular System Industrial Panel PC

Features

- 15" XGA color TFT LCD display
- Heavy-duty steel chassis and NEMA 4/12 compliant plastic front panel
- All-in-one Celeron 366MHz SBC
- Brightness and LCD power on/off controller on the aluminum alloy front panel
- Disk Driver Space for CD-ROM, FDD & HDD
- DiskOnChip flash disk socket
- Two Free Slots for ISA/PCI or ISA
- PC/104 expansion connector



Introduction

The AMB-2053 series panel PC's are industrial computers that are designed for industrial environments.. They are a full function PC-base system with a 15" XGA (1024x 768) 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-2053 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-2053

(15" LCD+ACS-2303)

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

CPU: Celeron 366MHz through 800MHz Pentium III

Memory: 64M DRAM

Display: 15" XGA (1024x 768) TFT color LCD

LCD/CRT controller: Chips 69000 VGA controller 2MB SDRAM embedded. CRT & LCD panel support.

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

HDD: 2.5" HDD space or 3.5"HDD

FDD: Slim-type FDD space

CD-ROM: Slim-type CD-ROM space

USB connector: Pin head for Dual USB port

Expansion: One PCI and one ISA (1/2 length)

Mounting: Panel mount

Power supply: Universal 70W switching power supply

Dimension: (W x H x D) 395 x 277.4 x 134.2 mm

Gross Weight: 6.5 Kg

LCD Specifications

Model:	AMB-2053
Display type:	15" TFT color LCD
Max. resolution:	1024x 768
Max. colors:	256K
Dot size (mm):	0.313 x 0.329
Luminance (cd/m2):	250
Viewing angle:	160°
Temperature:	0° ~50° C
VR Controller:	Yes
LCD MTBF (Hrs):	50,000
Back Light MTBF (Hrs):	25,000

Ordering Information

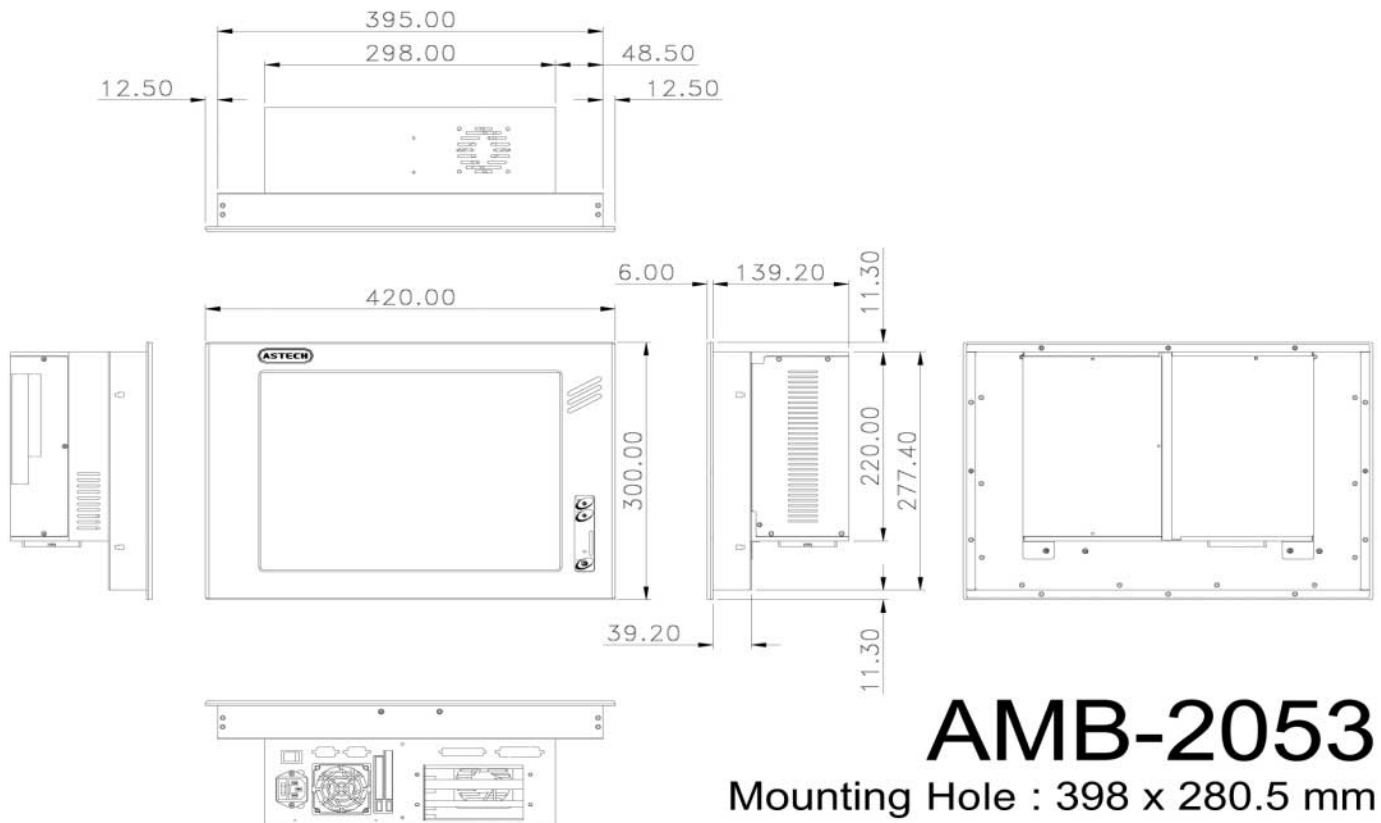
AMB 2053

Part Number	Description
2003HT	15" TFT Color LCD (250 cd/m) Intel Celeron 366MHz CPU

Options (add to end of Part Number)

T	Touchscreen
24V	24V power instead of 120VAC power
12V	12V power instead of 120VAC power
64M	Memory expanded to 64MB
128M	Memory expanded to 128MB
256M	Memory expanded to 256MB
NTW	Windows NT 4.0 Workstation Installed
NTS	Windows NT 4.0 Server (5 lic.) Installed
INTCD	Internal Slim CDROM
EXTCD	External CDROM Drive
ILINK	Infilink Software Installed. Unlimited Tags, Any Driver

Dimensions



AMB-2053

Mounting Hole : 398 x 280.5 mm

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



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.

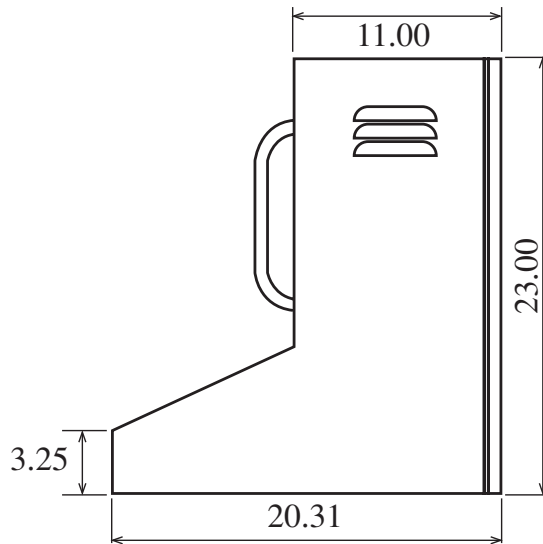
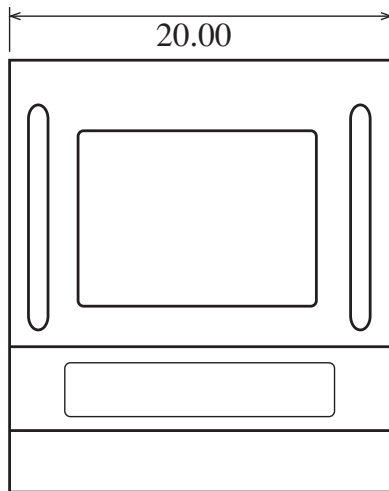
Cooling:

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:



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

FPM Series

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

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.

Industrial Flat Panel Touch-Screen Monitors



- 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.

Ordering Information

<u>Part Number</u>	<u>Description</u>
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							

FLAT PANEL MONITORS

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
- Y2K Compliant Real time clock and calendar

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 -)

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.

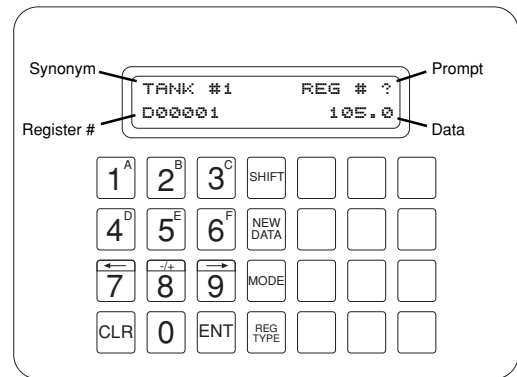
The ZOID DC makes communication to a PLC controlled machine easy and is great for troubleshooting. Input, Output and Data registers can be easily viewed by maintenance personnel. Printed messages, with the time and date embedded, can be used to log downtime and alarms.

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:

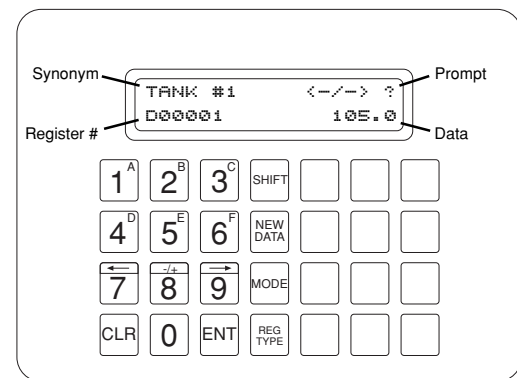
The Number Mode allows direct access to any register by entering the desired register number. The display shows the register number, the register data, the synonym assigned (if applicable) and a "REG# ?" prompt. Press the NEW DATA key to change the register data.



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 (→) or backup (←) 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 characters per line; character height is 0.2"
 LCD Backlit Liquid Crystal Display; 2 lines; 20 characters 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:

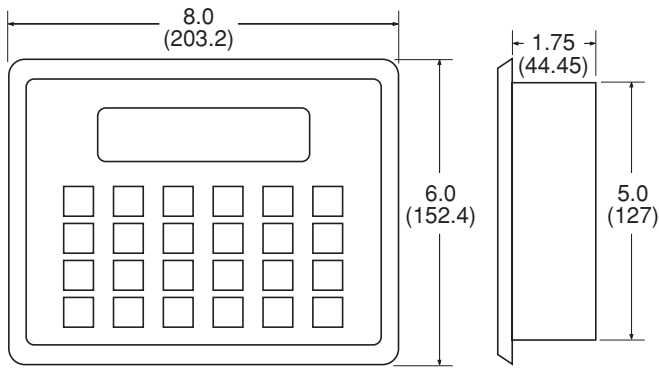
NEMA 4X/IP65

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 connections



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

All Dimensions in inches (mm)

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)

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.

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		

K/PC

Keyboard Entry Device

Features

- 16 position raised tactile keyboard
- 6 digit LED display
- 8 line multiplexed input
- 5 line binary output
- 11 to 26 VDC operation
- NEMA 4X / IP65 Front Panel
- Screw terminal termination

Applications:

For use in communicating with any programmable controller using I/O dedicated to input and read data, make adjustments or corrections to presets and to set and read parameters.

Description:

The K/PC 9000 is a two way communications device. It has sixteen large, raised, tactile keys and a six digit, 0.55 inch high, 7 segment, LED display. It is intended to be used with standard low cost I/O modules and almost any programmable controller in use today. The K/PC 9000 enables the programmable controller user to input and read data, ask questions, make corrections and set and read parameters. Standard, low cost I/O modules are used for interface. Lines from output cards providing +3 to 27 volts DC may be used to drive the display section. Also lines to DC input cards may be used to interface the keypad. Since the keypad and the display are totally independent of each other, any desired method of reading and writing can be used, depending on the application. Special ASCII modules or shielded multiconductor cables are not required for interfacing the K/PC 9000. When properly installed in an appropriate enclosure, the gasketed bezel will insure that the keypad meets NEMA 4 environmental requirements.

Specifications:

Display: .55" high LED, six digits

Display Modes: Hexadecimal or "B code".

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. Typical current consumption @ 12 VDC. 200 mA, impedance 15K Ohms. All inputs are buffered and filtered. Standard input rate is 1 kHz. Additional filtering is user programmable. All inputs are active high.



Operation: The K/PC 9000 is a positive (true) logic device. A logic 1 or ON is always a 3 to 27 VDC signal level, whether sourcing or sinking inputs and outputs are used. Binary data is entered on the binary input lines and directed to the appropriate digit on the display by the digit select lines. The lines are filtered for noise immunity by selecting the appropriate settings on DIP switches three and four. If the decimal point is software selectable and the decimal input is activated, a decimal point will appear at the selected digit. If multiple K/PC's are used, the data could appear on any one of four displays depending on the information on the display select lines and the settings on DIP switches one and two (see table). Operating independently from the display, binary data is operated by the keypad and output to a suitable device.

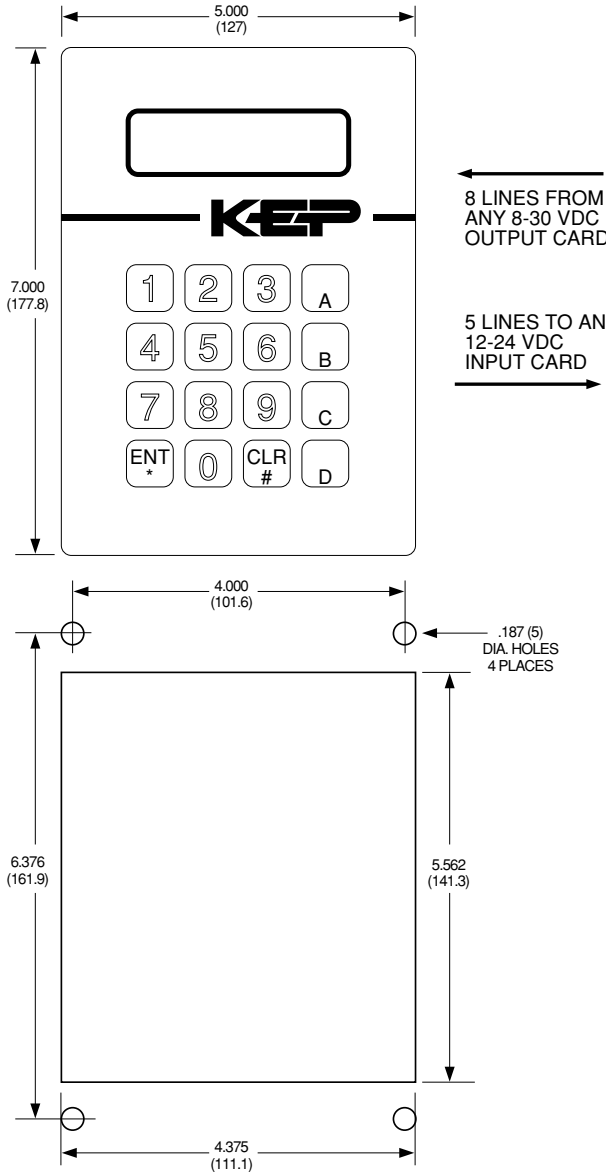
Keypad: The keypad is a switch activated diode matrix. The commons (pins J3,5 and J3,11) to the keypad should be connected to the input voltage for sourcing inputs or to ground (zero volts reference) for sinking input devices data appears on the binary output lines. In this case, the strobe line is the only indication that a zero is being entered. The binary output of the keypad is shown in the table below.

Display: The six digit display is a multiplexed device capable of a number of configurations. Once data is entered, it is displayed until it is replaced by new data or power to it is lost.

Binary Inputs: The four BCD data lines tell the display what character to display. See table below.

Digit Select Inputs: The three digit select inputs (pins J1,5-7) are used to direct the binary data to the appropriate display location. They are coded in binary from 0 to 5 (0 being the least significant or right-most digit).

Mounting:



Display Modes Table:

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)

Keypad Output Table:

KEYPAD	BINARY OUTPUT	KEYPAD	BINARY OUTPUT
1	0001	9	1001
2	0010	0	0000
3	0011	A	1010
4	0100	B	1011
5	0101	C	1100
6	0110	D	1101
7	0111	CLR	1110
8	1000	ENT	1111

How To Order:

EXAMPLE: K/PC 9 7 B 7 B

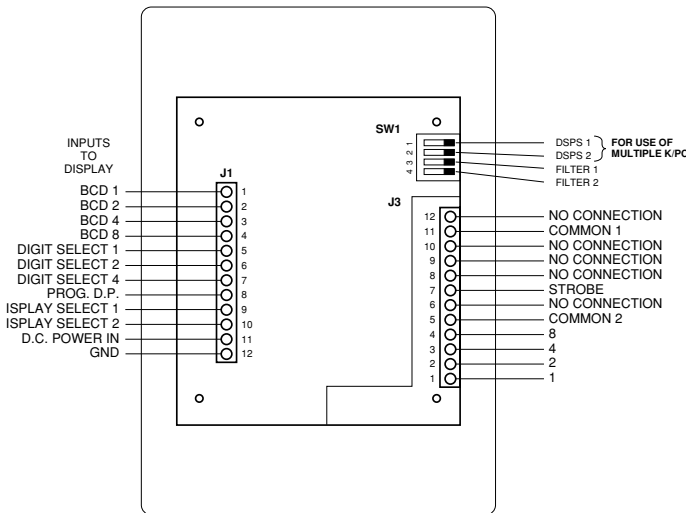
Series _____

Power Supply _____
 7 = 5 VDC (regulated) +5%
 9 = 11 to 26 VDC

Display Mode _____
 H = Hexadecimal 0-9, A, b, C, d, E, F
 B = B code (STD) 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" (for use with sinking input and output modules)
 B = indicates binary output version



Depth behind panel: 1.5" (38 mm)

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:

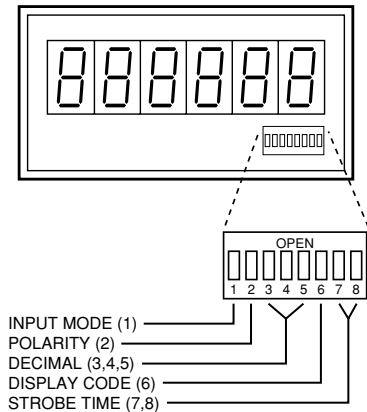
Data can be entered full parallel (24 lines for 6 digits). When driving a single display, strobe inputs do not need to be connected if A: S12 has INPUT TYPE 1 and SW1 is ON or B: S12 has INPUT TYPE 4 and SW1 is open.

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)

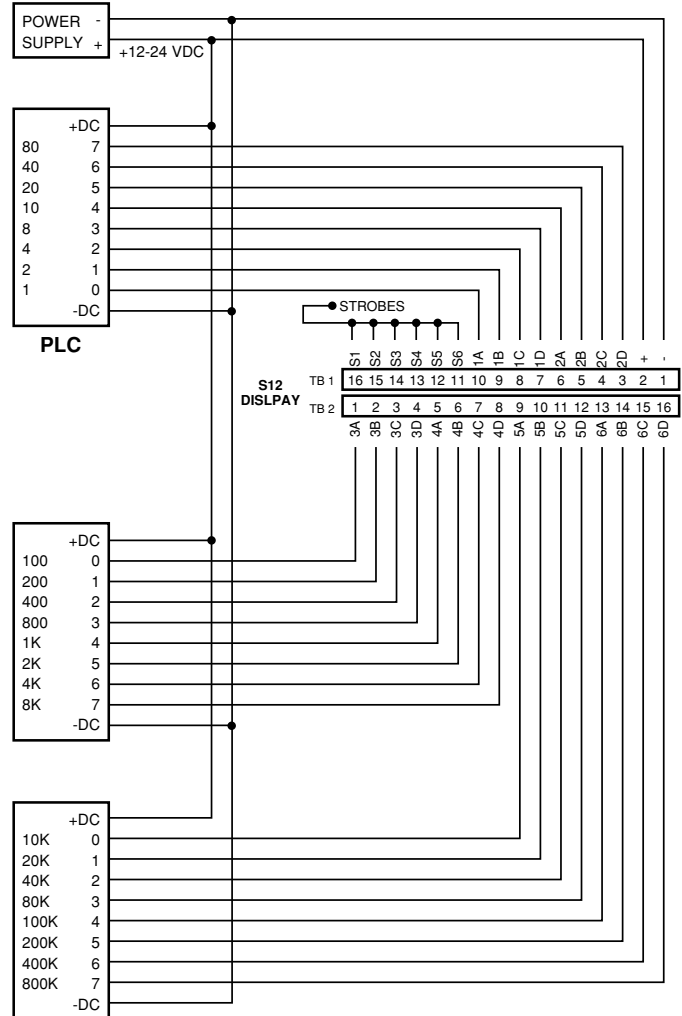
- 1=Hex Code
- 0="B" Code

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:

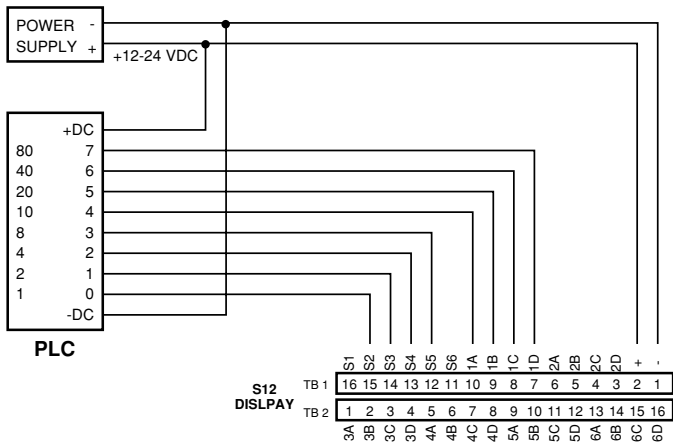
DATA	HEX CODE DISPLAY	"B" CODE DISPLAY
8421		
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	A	-
1011	b	E
1100	c	H
1101	d	L
1110	E	P
1111	F	(BLANK)

SLAVE DISPLAYS

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.

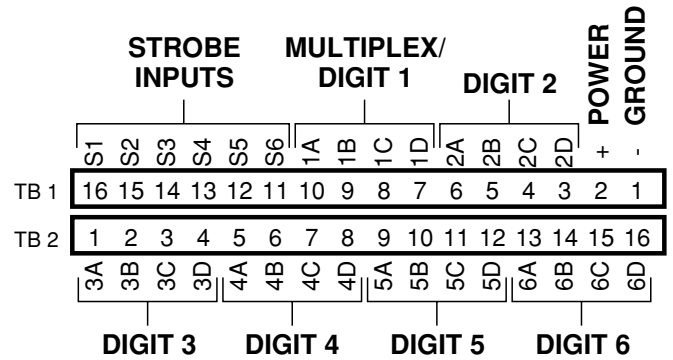
Sample Wiring: 4 Digit Multiplex Input



RIBBON CABLE FOR MULTIPLE UNITS OF S12

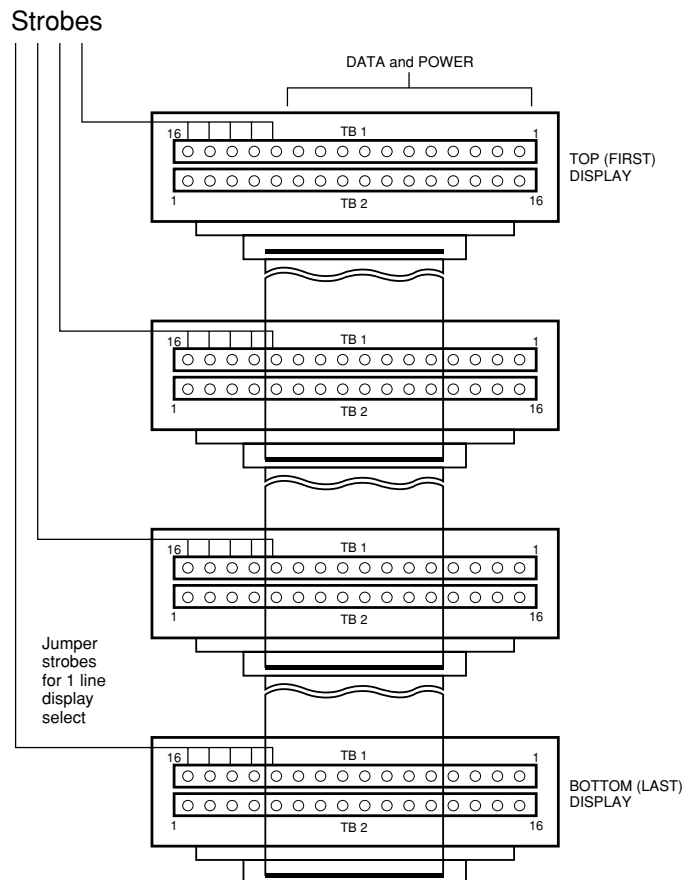
Wiring

Terminal Adapter "X"



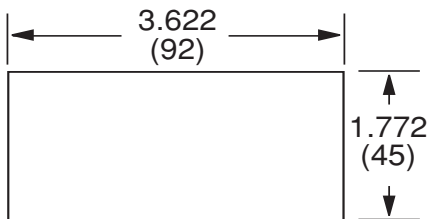
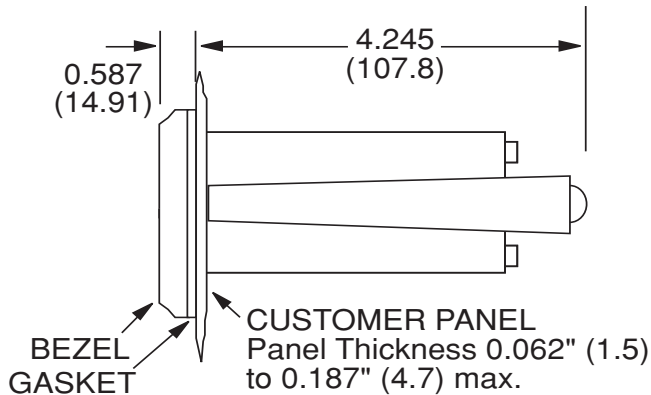
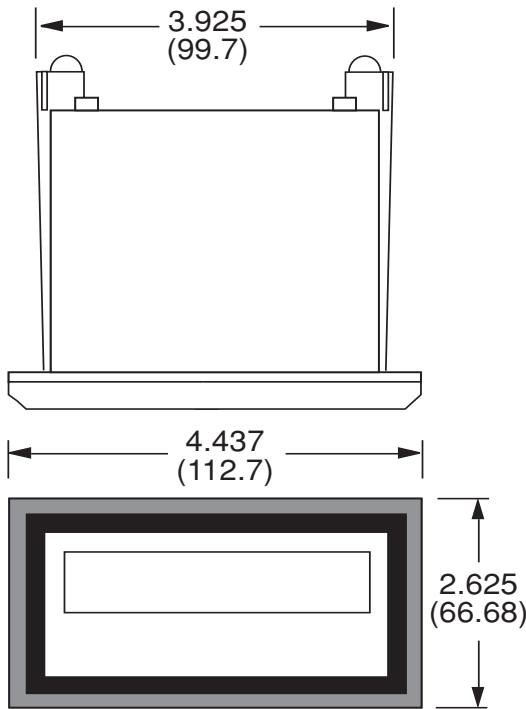
4 digit units have display centered wire data and strobes to digit 2 through 5.

Ribbon Cable Wiring:



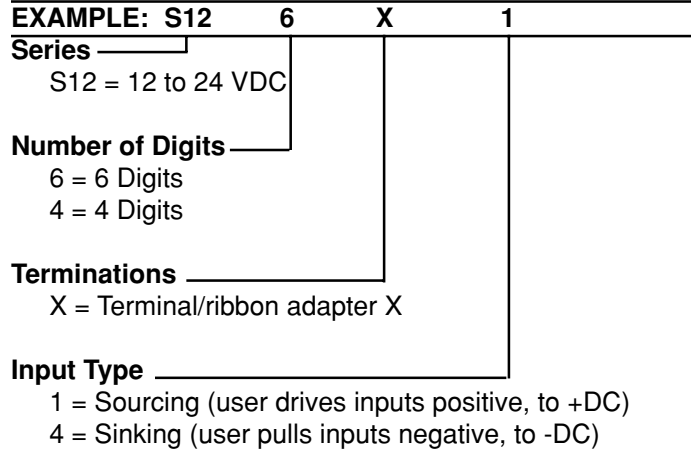
SLAVE DISPLAYS

Dimensions:



SLAVE DISPLAYS

How To Order:



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).

PC 9000

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

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.

BCD to 7 Segment Display Requires Only 8 Output Lines



- Uses fewer lines than any other slave display
- All data input self-latching
- Sealed NEMA 4X/IP65 front panel

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 (DSPA): "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

Data	Hex
8421	Display

0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	b
1100	C
1101	d
1110	E
1111	F

B-CODE

Data	B-Code
8421	Display

0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	—
1011	E
1100	H
1101	L
1110	P
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

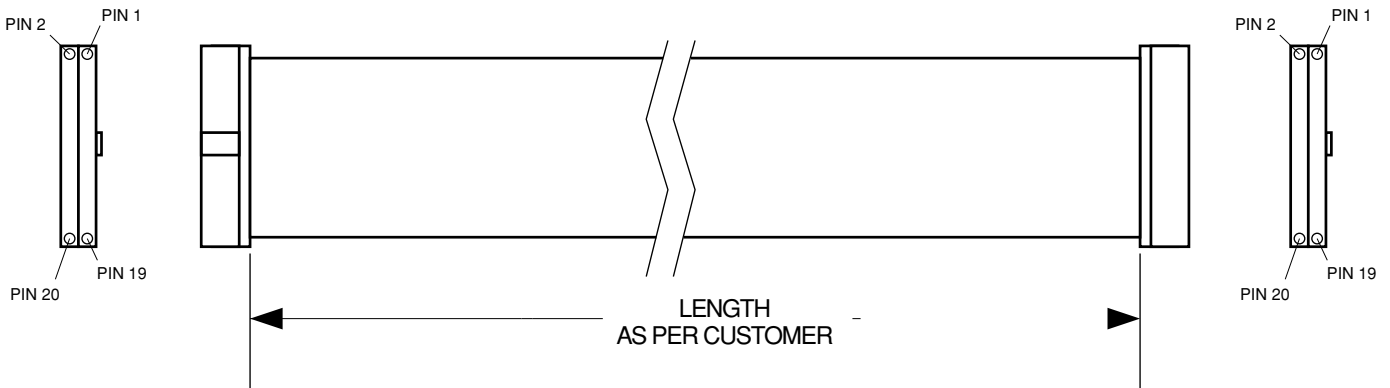
- Plug with Screw Terminal Connection to the Programmable Controller
- Interchangeable Wiring
- Easily Removed for Modification or Repair
- Wire up to Four PC 9000's in Less Than Ten Minutes.
- No Soldering Required

Description:

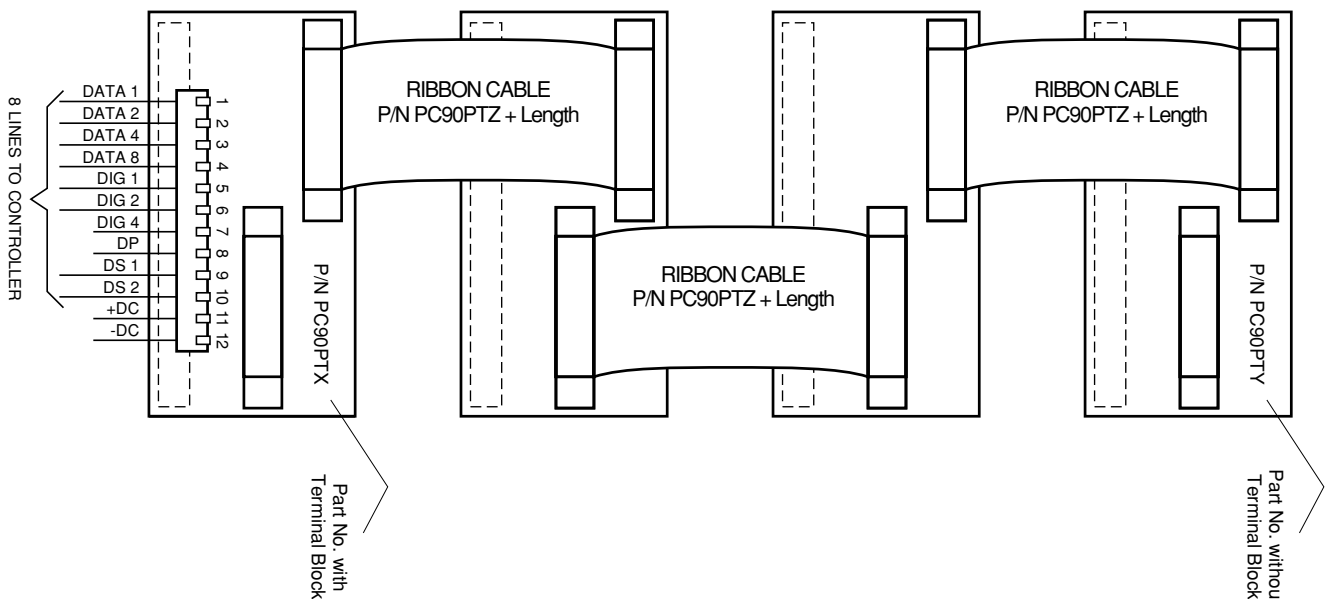
The KEP Solderless Interconnect System for the PC 9000 consists of two versions of interface boards allowing different configurations and connections of up to four PC 9000 units with a minimum of wiring effort. Factory assembled wiring harnesses allow "plug-in" connections between the PC 9000 displays.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

STANDARD RIBBON CABLE LENGTHS

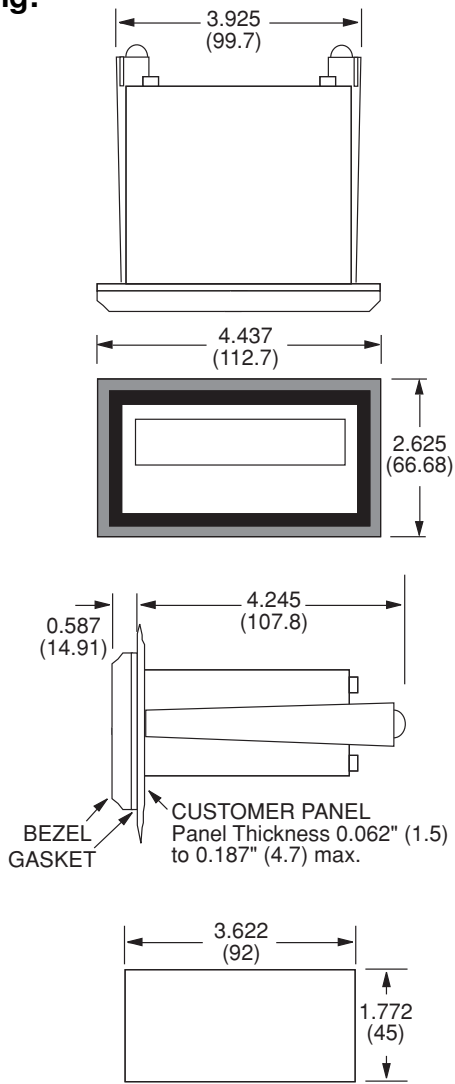
ORDER	LENGTH
Z6	6"
Z12	12"
Z18	18"
Z24	24"
Z48	48"



SLAVE DISPLAYS



Mounting:



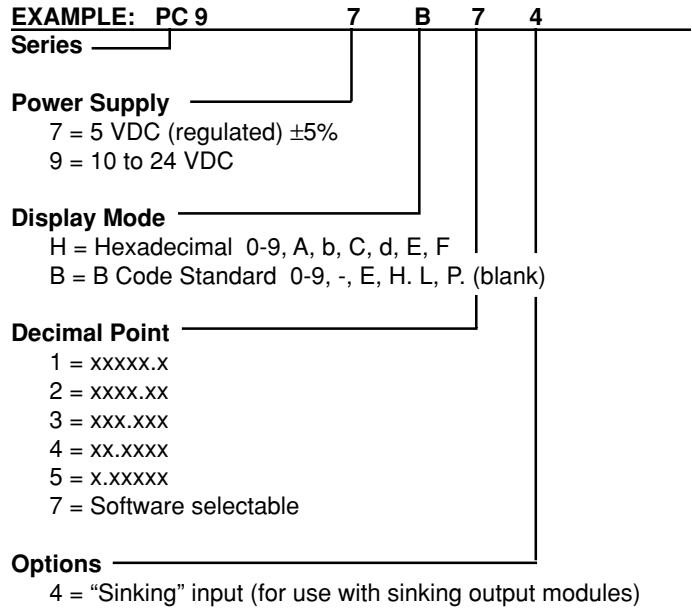
NOTE: Allow an additional 0.75" in depth when using the "PC90PT" series ribbon adaptors

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:



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 -

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.

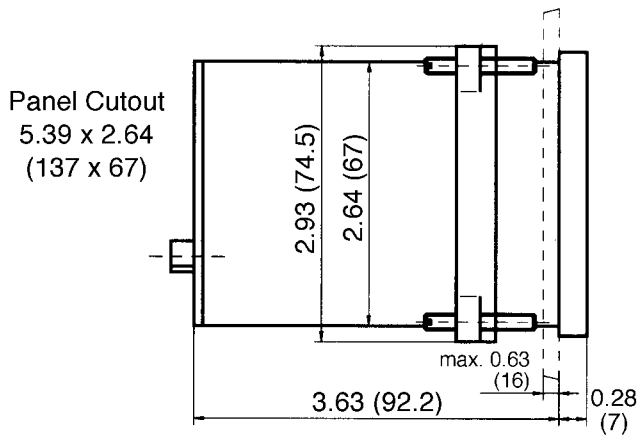
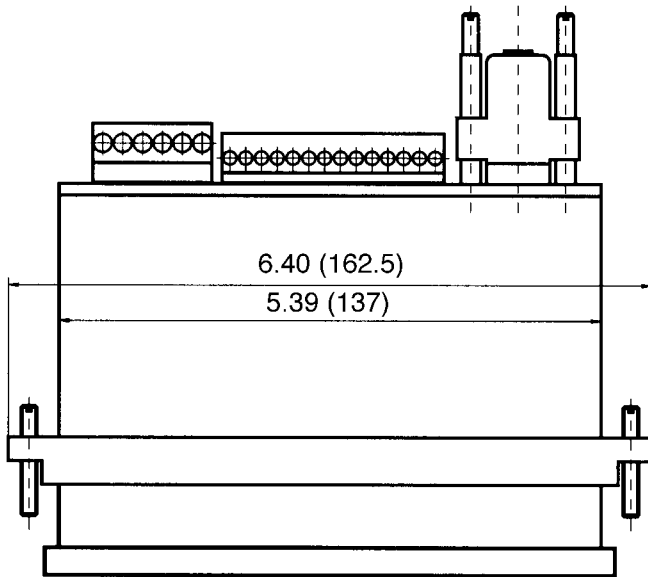
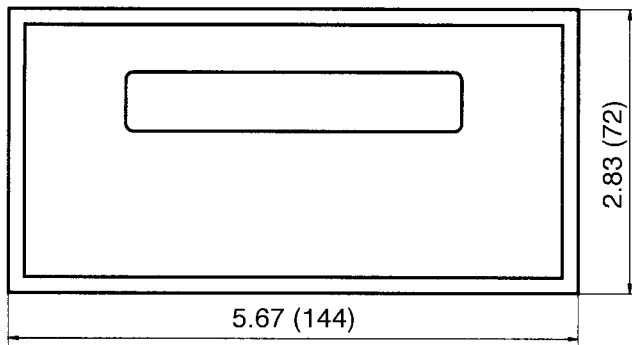
Messages can be assigned priorities, which determine, in conjunction with two additional selectable display priority principles (first in/first out or last in/first out), the order in which queued messages will be displayed.

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	n/a	16 messages	16 messages
Queue memory 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 programmable 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

Dimensions:



Dimensions are in inches (mm)

HOW TO ORDER

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

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

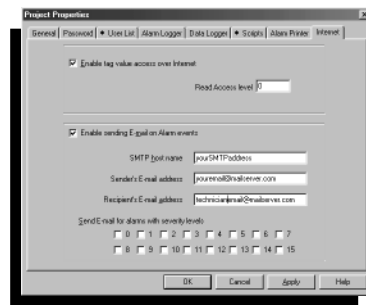
- OPC Client Functionality
- E-mail and Web Enabled: Send e-mail and View tag data over the Internet
- Historical and Alarm Data Logging to MS Access (MDB) Files

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

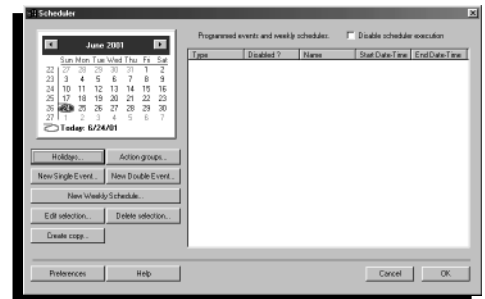
Infilink-HMI can send email messages based on alarm conditions. This can be a regular email message, or it could be sent to a technician's alphanumeric pager.



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 Inviewer 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.

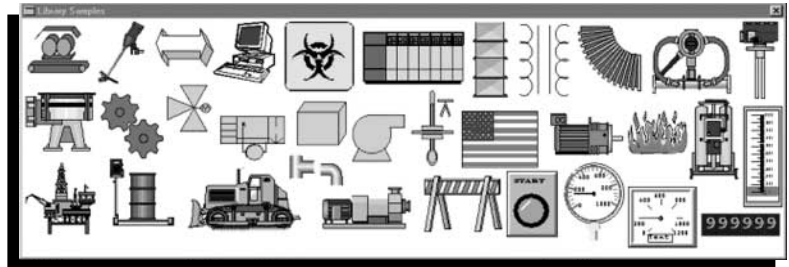


Graphic Objects and Editing Features

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:

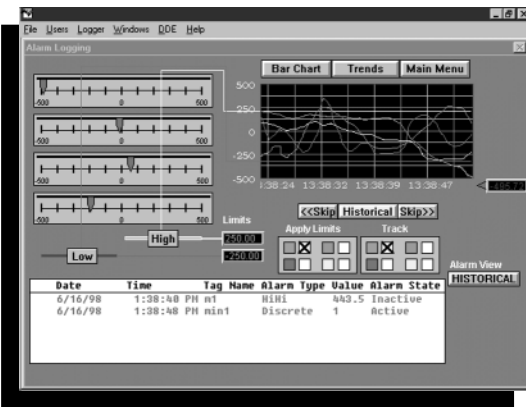
- Lines
- Polylines
- Polygons
- Rectangles
- Rounded Rectangles
- Ellipses & Circles
- Arcs, Pies, Chords
- Text
- Bitmaps
- Buttons
- Windows Metafile Import
- Alarm Displays
- Alarm Logger
- Trend Displays
- Object Grouping
- Editing of Group Objects
- Align ~ Left, Right, Top, Bottom
- Align Middle ~ 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

Key Trend Functions Include:

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

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:

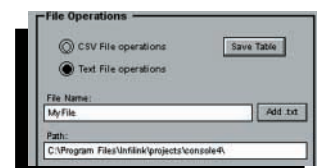
- Project Script ~ (Before, While, After) Open
- Window Scripts ~ (Before, While, After) Open
- Tag Scripts ~ On Data Change
- Conditionals ~ IF, THEN, ELSE
- Logical Operators ~ AND, OR, NOT
- Comments
- File Functions ~ Read, Write, Text, CSV
- Object Property Access
- Conditional Operators
- Full 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 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	SSSSSSSSSS
ACK	12/31/97	12:00:00 pm	99999999	SSSSSSSSSS
ACK	12/31/97	12:00:00 pm	99999999	SSSSSSSSSS

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 KEPSWare 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

KEP ServerEX is the latest generation of KEPware's OPC server technology. Building upon the original KEPserver, KEP ServerEX 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 KEP ServerEX.

Application Connectivity

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

Device Connectivity

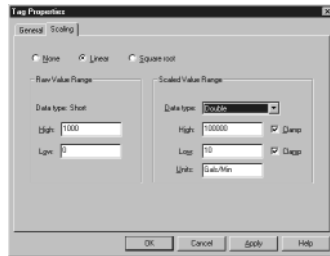
KEP ServerEX allows you to use a number of communications drivers concurrently.

Runs as NT Service

KEP ServerEX 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.

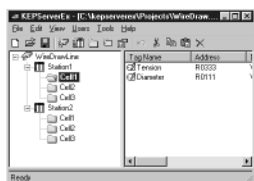
Data Scaling

KEP ServerEX now supports direct scaling of device data. Scaling allows raw device data to be converted to engineering units for OPC client applications. KEP ServerEX 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 KEP ServerEX 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.



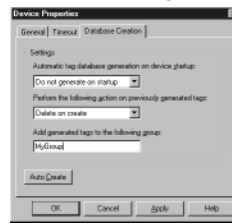
User Management

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

Tag Management

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

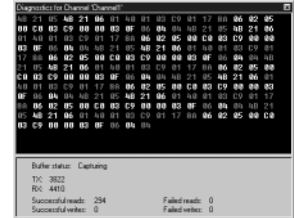
Automatic Tag Database Generation



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

KEP ServerEX'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 KEP ServerEX or can be tracked directly in your OPC client application by using its built-in diagnostic tags.

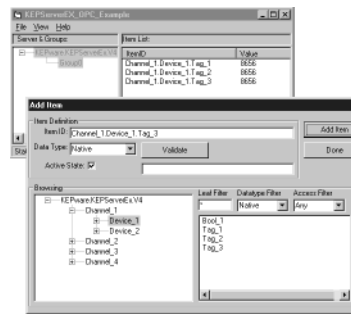
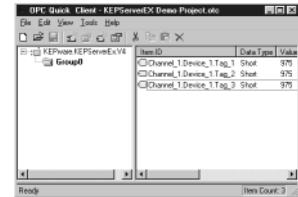


Modem Support

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

OPC Quick Client

KEP ServerEX 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 KEP ServerEX 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 KEP ServerEX 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.

For More Information call KEPware, Inc.

KEPware • 81 Bridge Street • Yarmouth, Maine 04096
 Phone: 207-846-5881 • Fax: 207-846-5947 • <http://www.OPCSource.com>

TWTB/TWSTB

BCD Thumbwheel Switches

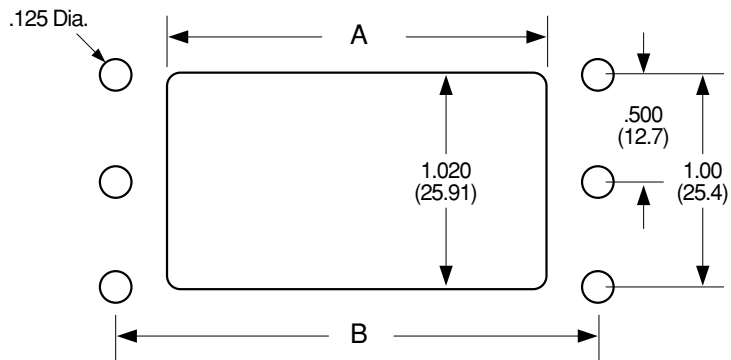
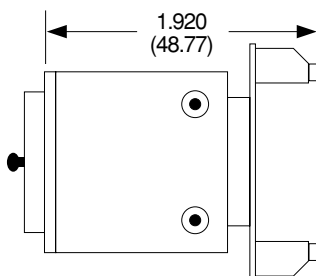
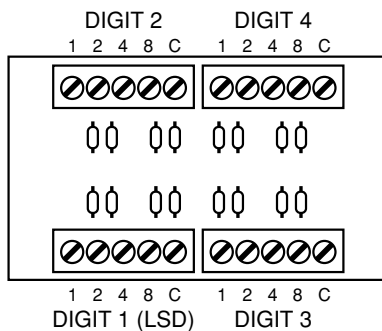


Description:

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
$(.50 \times N) + .340$ $(12.7 \times N) + 8.64$	$(.50 \times N) + .560$ $(12.7 \times N) + 14.22$

ACCESSORIES

Dimensions:

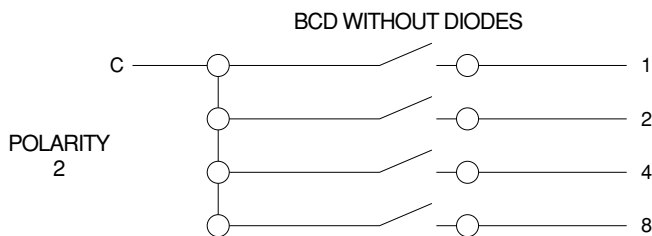
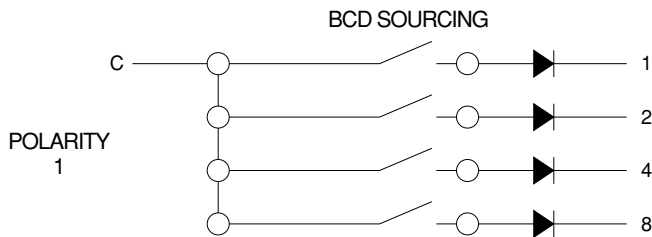
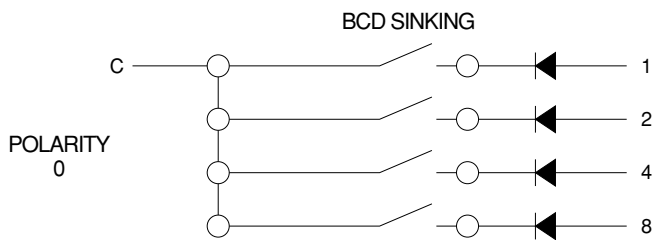
RECOMMENDED CUTOUT DIMENSIONS

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:



ACCESSORIES

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

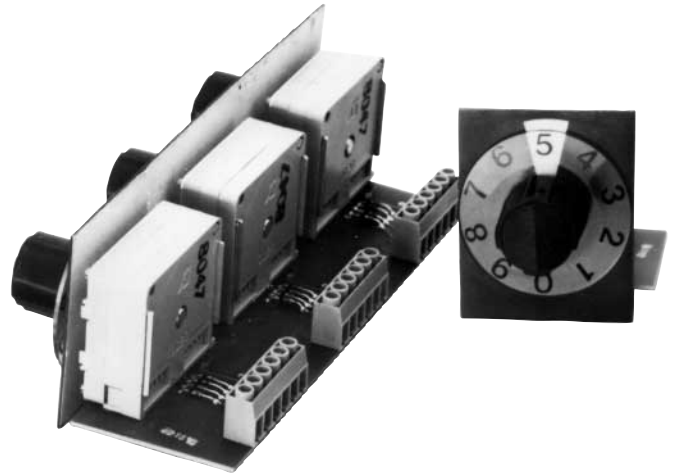
Option _____
MP-Mounting Panel

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.

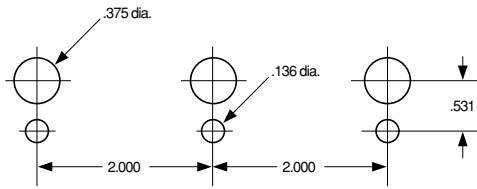
Specifications:

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

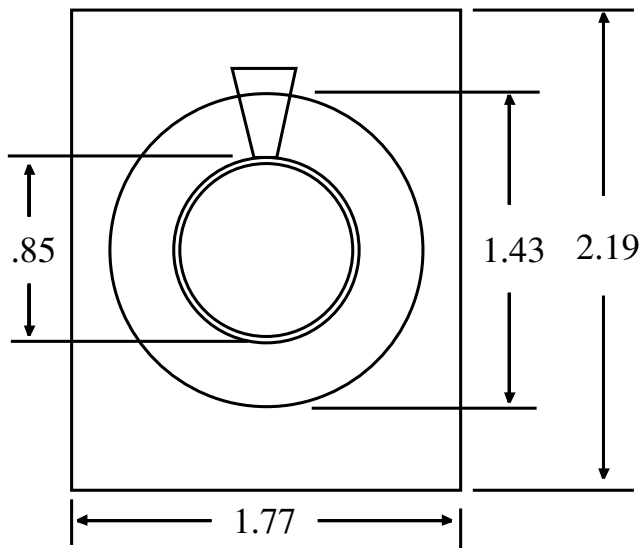
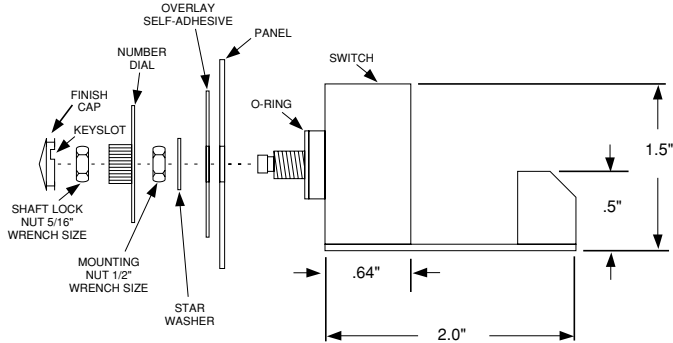
MATERIALS

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)

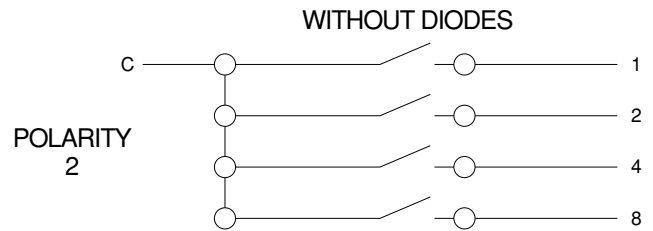
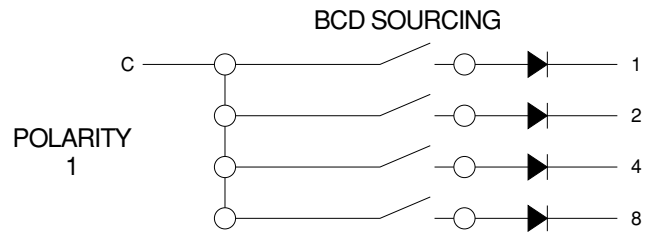
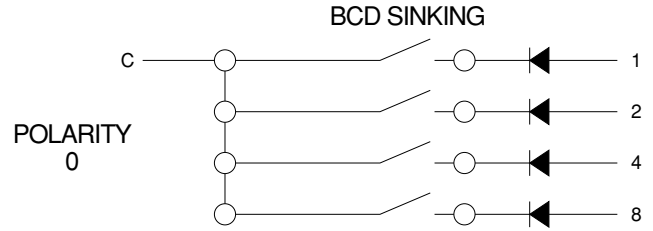
Mounting:



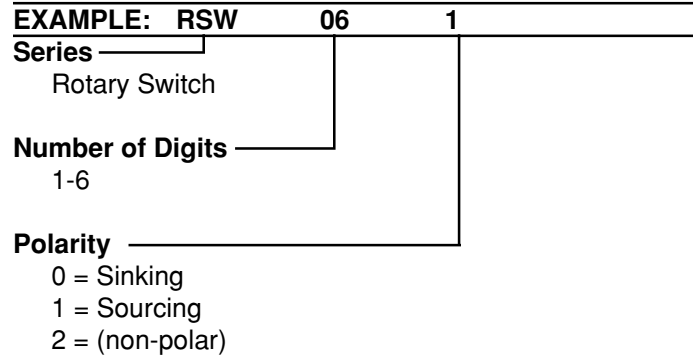
DIMENSION IS TYPICAL FOR HOW MANY SWITCHES ORDERED



Polarities:



How To Order:



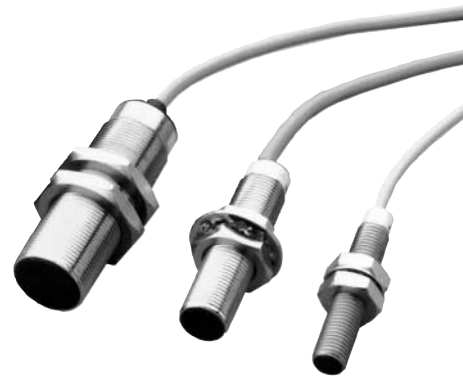
ACCESSORIES

D Series

Inductive Proximity Sensors

Features:

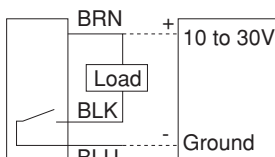
- CE Approved
- Low Cost
- Non Contact Sensing of Any Metal
- No Magnets Needed
- Low Power Consumption
- Shock Resistant



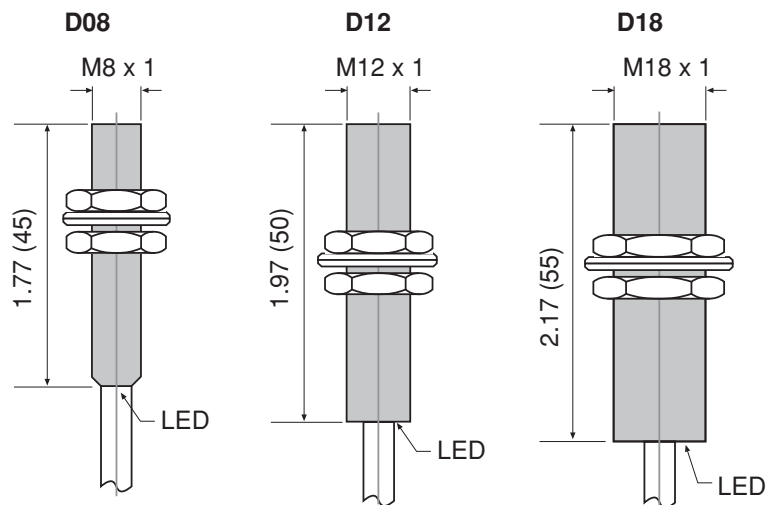
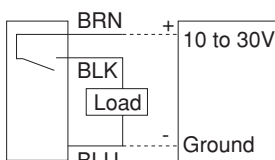
The D Series comes in three sizes, all in the easy flush mount type. Both NPN (sinking) or PNP (sourcing) types are available. They sense any conductive metal surface within range of their sensing coils. They do not require a magnetic target and are perfect for our ratemeters and counters. An LED indicator 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 Steel	Chrome Plated Brass	Chrome Plated Brass
Cable	2m, 3 x 0.14mm ²	2m, 3 x 0.14mm ²	2m, 3 x 0.14mm ²
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



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

115-12 POWER SUPPLY

115 VAC

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)

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

RATE INPUT
12VOLT OUT
SIGNAL GROUND

BRN +
BLU -
BLK A

Just sense the keyway -
No gears Required!

D12P (PNP)

KALtrol (KAT1)

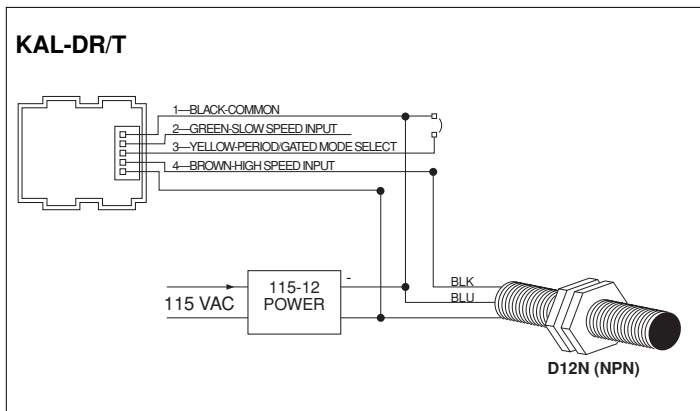
BRN
BLK
BLU

D12P

- 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

*Select PNP (SW1 OFF)

ACCESSORIES



How To Order:

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

PD Series

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 its 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 breakthrough: 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.

Photoelectric Sensors



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 μ A 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

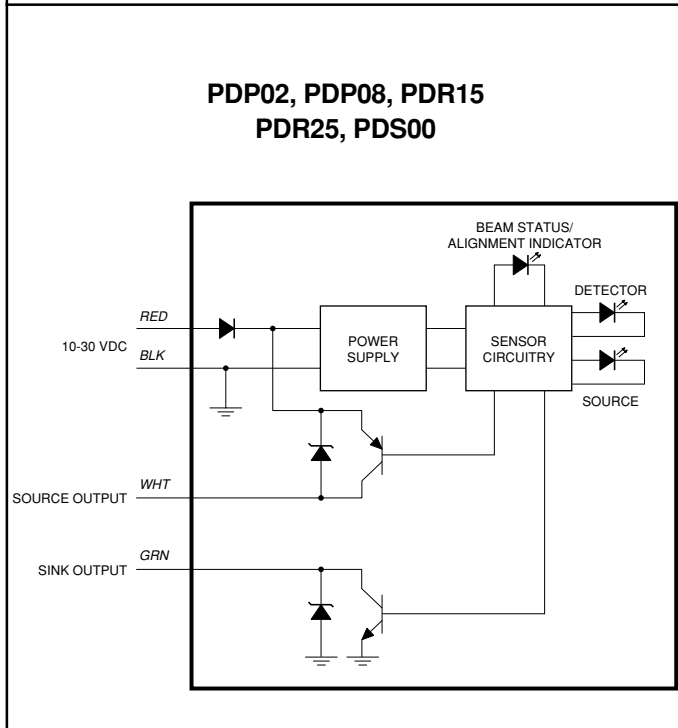
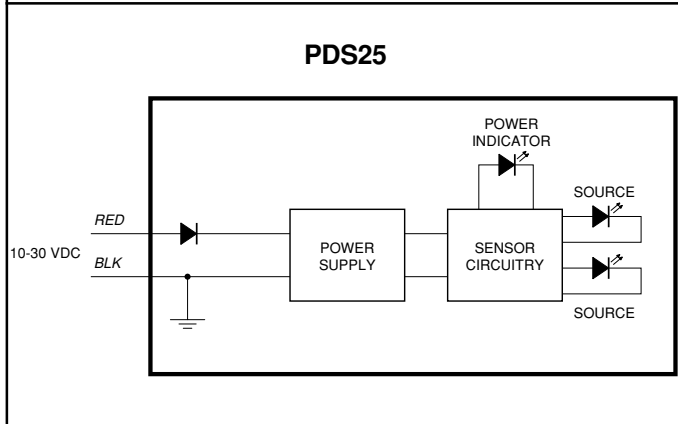
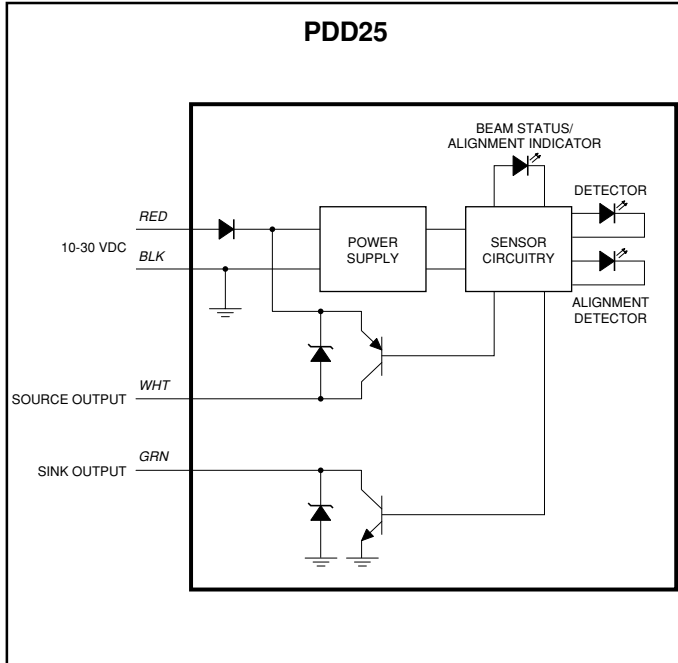
Mounting: Side or 18 mm thru-hole (see dimensions).

Cable Length: 6 feet

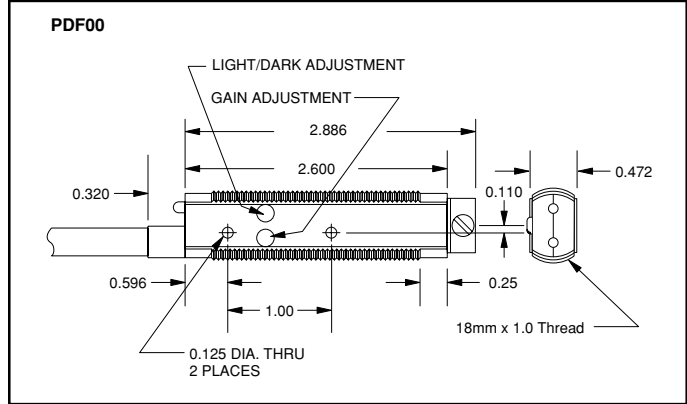
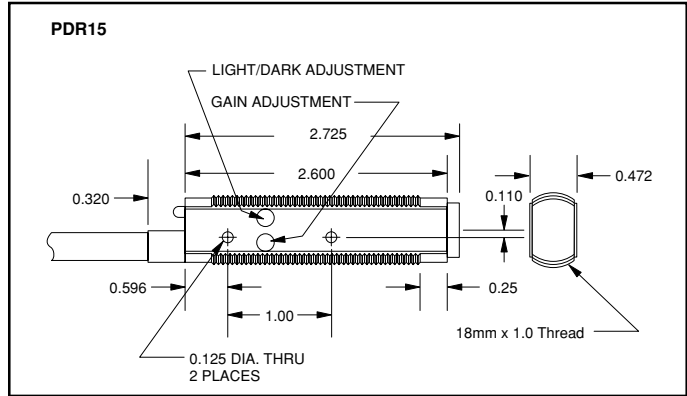
Side mounting: Use #4 screws to attach the sensor to a wall or mounting bracket. Thru-hole mounting: The sensor can be mounted through an 18 mm (0.71 in) diameter hole using nuts included with the sensor.

NOTE: All sensors UL and CSA approved.

WIRING DIAGRAMS:



DIMENSIONAL DIAGRAMS:



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

OX = (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

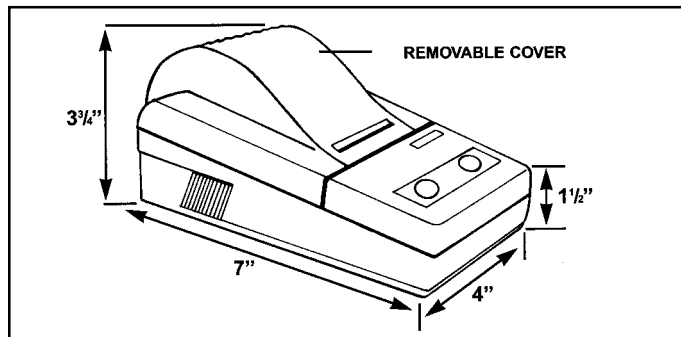
Applications:

- 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:



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 = 110V Adapter P1AC25M9MC = 6', Printer cable for ST1 & ST2 P1AC25M9FC = 6', Printer cable for MRT & INT69 P1AC25M25MS = 6', Printer cable for all 'trolls		



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 its 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 its 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 its 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			

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.

SMIC Production Possibilities

Cable	PLC Compatibility	MMI-1XX/2XX	MMI-720, 750, 850, 1500TS	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
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
SMIC5S5	Siemens S5 Series	X		X
SMIC5S7	Siemens S7 200 Series only	X		X
SMIC15S7	Siemens S7 200 Series only		X	
SMICTSBEX	Toshiba EX Series and Mseries, program port only	X		X
SMICTSB485	Toshiba EX and M Series, Link port only	X		X
SMICTSBT1	Toshiba T Series T1 only	X	X	X
SMICTSBT2	Toshiba T Series T2, T3	X		X
SMICTSX07	Telemecanique TSX 07 (nano) Series	X		X
SMIC15TSX07	Telemecanique TSX 07 (nano) Series		X	
SMICTSX17	Telemecanique TSX 17 Series	X		X
SMICTSX47	Telemecanique TSX 47-40, 47-20	X		X