

SMARTLINE HMI

A Smart Connectivity

Available with Connectivity to
Mitsubishi FX and Messung PLC Series



SMART HMI Sr.

The conventional Operator Panels use push buttons, indicating lamps, key-boards, displays. These are individually wired-up to Input / Output Modules. This arrangement requires complex ladder programming, resulting in limited flexibility and expandability.

Messung's **SMARTLINE^{Sr.}** Series of Human Machine Interface (HMI) offers an innovative solution to replace conventional Operator Panels. It also exploits the power of today's industrial controllers, in the form of data entry/storage, display of production related information.

The **SMARTLINE^{Sr.}** HMI is an advanced Microprocessor based device which serially communicates with a Programmable Logic Controller. It is a Panel mounted, industrially hardened Operator Panel with a choice of 20 ch x 4 Line Displays : LCD (Back-lit), Vacuum Fluorescent Display (VFD).



Smartline Sr. HMIs



USER FRIENDLY SOFTWARE - "SOFTLINE"

- Menu-driven and user-friendly Software designed to run on IBM PC/AT
- Allows to select Key-functionalities and their position
- Allows addressing of Built-in LEDs mapped in PLC Logic
- Facilitates message programming from 1 Line to 4 Lines (Upto 40 Characters)
- Facilitates programming of production data and attributes in messages
- Comprehensive documentation facility
- Serial connection to **SMARTLINE** HMI Series allows direct transfer of configuration and messages

SMART FEATURES

CONSTRUCTION

- Housed in aesthetically and ergonomically designed plastic moulded box.
- Battery-free operation due to Onboard EEPROM for message storage.
- Specially designed to withstand electrically noisy environment.

FLEXIBLE KEY FUNCTIONS

- Facility of 50 User-selectable functions for keys.
- Provides 28 Keys to be configured as ON/OFF, Numerical (0-9), Cursor Control (←, ↑, →, ↓).
- Rugged Key-matrix replace conventional push-buttons, selector-switches etc.

DISPLAY OPTIONS

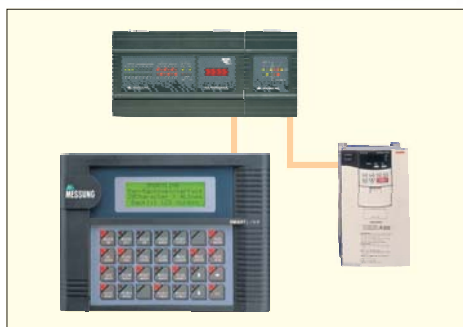
- Wide viewing angle, high intensity and back-lit facilities better visibility on industrial shopfloor.
- Display types : LCD (Back-lit), VFD.

ABOUT MESSAGES

- Allows storage upto 256 messages x single Line.
- Facilitates viewing and modifying production parameters intermingled in messages.
- Allows selection of attributes to messages such as Blinking, Scrolling, Audio Alarm.
- Allows Messages Triggering either by PLC Logic or by invoking via a function Key.

Typical Application : HMI Connectivity

APPLICATION : Compressed Air Dryer Package



Integrated Package :
Smartline Sr. HMI with
Messung Micro PLC &
Mitsubishi A-540 Inverter.

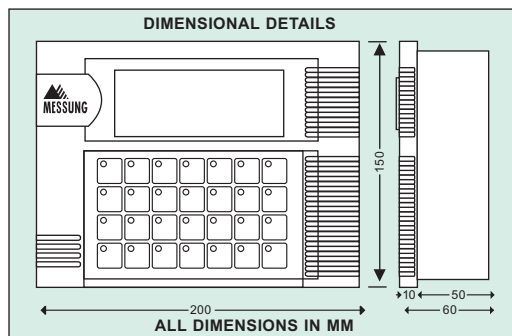
TECHNICAL SPECIFICATIONS FOR SMARTLINE^{Sr.} HMI

GENERAL SPECIFICATIONS :

| | |
|------------------------------|--|
| Power Supply | : 24 V DC, ±20% @ 500 mA (maximum) Combicon Phoenix Connector |
| Ambient Temperature | : Upto 50° C Max. |
| EMI Characteristics | : CE Compliance as per EN 61326 (1997), IEC 61326 (1998) |
| Dimensions in mm (W x H x D) | : 200 x 150 x 50 |
| Mounting | : Front Panel |
| Panel Cutout (W x H) | : 186 X 141 |

FUNCTIONAL SPECIFICATIONS :

| | |
|-----------------------|--|
| Function Keys | : 28, (Membrane Type) freely software configurable functionality |
| LED Indicators | : 28 housed in each function key |
| Display Options | : 20 Ch. x 4 Line LCD (Backlit) (Character Size = 2.95W x 4.15H mm) 20 Ch. x 4 Line VFD (Character Size = 2.4W x 4.7H mm) |
| Serial Interface | : RS-232C, RS-485/20mA current loop for PLCs (Mitsubishi FX PLC Series, Nexgen 4000 interfaces now available) |
| Audio Alarm Interface | : Provided for external piezo-buzzer |
| Max. No. of Messages | : 256 x Single Line |
| Message Memory | : 8K EEPROM |
| Programming tool | : User friendly DOS based Software Package "SOFTLINE" runs on an IBM PC-XT/AT Compatible Computer with the facility for configuring keys, LEDs, messages and data records, read/write HMI programmes and documentation |



HARDWARE CONFIGURATION

A) FOR XMP8-40 PLC

| Sr. No. | Description | Ordering Code |
|---------|---|---------------|
| 1. | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line LCD (Backlit) | SL 2004 LX |
| | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line VFD | SL 2004 VX |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Sr.} to XMP8-40 PLC | |

B) FOR MINI XMP8-20 PLC/MICRO PLC SERIES

| Sr. No. | Description | Ordering Code |
|---------|--|---------------|
| 1. | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line LCD (Backlit) | SL 2004 LM |
| | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line VFD | SL 2004 VM |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Sr.} to Mini XMP8-20 PLC/Micro PLC Series. | |

C) FOR NEXGEN-4000 PLC / NEXGEN-5000 PLC SERIES

| Sr. No. | Description | Ordering Code |
|---------|--|---------------|
| 1. | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line LCD (Backlit) | SL 2004 LN |
| | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line VFD | SL 2004 VN |
| 3. | Please refer the Cable Chart for Link Cables connecting HMI ^{Sr.} to NEXGEN-4000 & NEXGEN-5000 PLC Series | |

D) FOR MITSUBISHI FX PLC SERIES

| Sr. No. | Description | Ordering Code |
|---------|---|---------------|
| 1. | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line LCD (Backlit) with connectivity to Mitsubishi FX PLC Series | SL 2004 LFX |
| 2. | SMARTLINE^{Sr.} HMI with 20 Ch. x 4 Line VFD with connectivity to Mitsubishi FX PLC Series | SL 2004 LVX |
| 3. | Please refer the Cable Chart for Link Cables connecting HMI ^{Sr.} to Mitsubishi FX PLC Series | |

(Please Order Suitable HMI Sr. Link Cable Separately)

E) MISCELLANEOUS

| Sr. No. | Device Type | Description | Ordering Code |
|---------|---------------------------|--|---------------|
| 1. | PC Based Software Package | SOFTLINE , V4.02, DOS based HMI configuration Software on IBM compatible PC-XT/AT | SFL V4.02 |
| 2. | Serial Link Cable | From HMI ^{Sr.} to IBM compatible PC-XT/AT (Length = 3 mtrs.) | SL CAB 0300 |
| 3. | Serial Port Converter | For port conversion of IBM compatible PC-XT/AT | XMP8 SPC 2010 |

| SR. NO. | CABLE DESCRIPTION | Wherever ✓ ✓ = 03, 05, 10, 15, 20, 25 for 3Mtr., 5Mtr., 10Mtr., 15Mtr., 20Mtr. & 25Mtr. respectively | |
|---------|--|--|---|
| | | HMI ^{Sr.} to PLC LINK CABLES | LINK CABLE LENGTH |
| 1. | HMI ^{Sr.} to XMP8-40 PLC | SL CAB ✓ ✓ 01 | 5 Mtr. Cable NA |
| 2. | HMI ^{Sr.} to XMP8-20 PLC | SL CAB ✓ ✓ 02 | 5 Mtr. Cable NA |
| 3. | HMI ^{Sr.} to XMP8-11/12/15/16 PLC | SL CAB ✓ ✓ 06 | - |
| 4. | HMI ^{Sr.} to NEXGEN 4000 PLC | SL CAB ✓ ✓ 07 | - |
| 5. | HMI ^{Sr.} to NEXGEN 521x PLC Series (Port-2) | SL CAB ✓ ✓ 08 02 | - |
| 6. | HMI ^{Sr.} to NEXGEN 521x PLC Series (Port-3) | SL CAB ✓ ✓ 08 03 | - |
| 7. | HMI ^{Sr.} to NEXGEN 522x / 523x PLC Series (Port-2,3) | SLB CAB ✓ ✓ 09 | - |
| 8. | HMI ^{Sr.} to MITSUBISHI FX PLC | SL CAB ✓ ✓ 50 | 3 Mtr. Cable NA |
| 9. | HMI ^{Sr.} to MITSUBISHI FXON / FX2N PLC | SL CAB ✓ ✓ 51 | 3Mtr., 15Mtr., 20 Mtr. & 25 Mtr. Cable NA |

Example : For ordering HMI Sr. to XMP8-40 PLC of 15Mtr. Cable length, the Ordering Code would be SL CAB 1501.

SMART HMI Jr.

The **SMARTLINE^{Jr.}** Human Machine Interface (HMI^{Jr.}) is a panel mounted device which functions as an operator panel for the PLC.

The HMI^{Jr.} is a very Cost Effective Operator Panel Interface for wide range of PLCs like Micro, Mini, NEXGEN, FX Series PLCs. It facilitates the operator to monitor / modify various field parameters. The serial Interface between HMI^{Jr.} and PLC reduces the otherwise bulky cabling, thus reducing installation time and cost. It is a panel mounted operator terminal with two Line LCD (Back lit).

The HMI^{Jr.} can easily be configured, to suit different applications, with the PC based Programming Software, "SOFTLINE".

SMART FEATURES

- A must for every Micro XMP8-10 / Mini XMP8-20 PLC application.
- Can store upto 230 x Single Line User Defined messages.
- Fixed keyboard for Parameter entry along with 4 user configurable keys.
- User configurable Bi-color LEDs (Red/Green) with dual frequency flashing capability.
- IP 65 Rating front panel protection with sealed membrane keyboard.
- CE Compliance as per EN 61326 (1997) and IEC 61326 (1998).
- Slide in Legend strip for 4 user defined keys.
- Easy configuration with PC based Programming Package **SOFTLINE**.



Smartline Jr. HMI

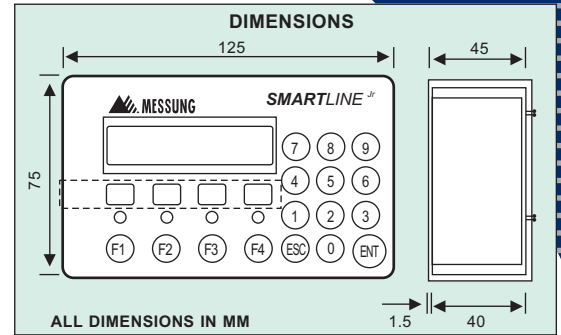
TECHNICAL SPECIFICATIONS FOR SMARTLINE^{Jr} HMI

GENERAL SPECIFICATIONS :

| | |
|------------------------------|--|
| Power Supply | : 4 - 16 V DC/1.5 Watts approx. (During RUN MODE works directly on PLC power. During Program/Transfer Mode power is supplied by Link Adapter/Power Supply Unit) |
| Ambient Temperature | : Upto 50° C Max. |
| EMI Characteristics | : CE Compliance as per EN 61326 (1997) and IEC 61326 (1998) |
| Dimensions in mm (W x H x D) | : 125 x 75 x 40 |
| Panel Cutout (W xH) | : 117 x 67 mm. |
| Mounting | : Front Panel |
| Protection Rating (Front) | : IP 65 |

FUNCTIONAL SPECIFICATIONS :

| | |
|----------------------|---|
| Keyboard | : 16 Keys with tactile feed back (12 Nos. Predefined or fixed keys, 4 Nos. user defined keys with Slide in Legend strip with space for 2 Lines x 4 Characters). Membrane Type |
| LED Indicators | : 4 Nos. of Status LEDs, Bi-Colour (Red/Green) with dual frequency flashing capability. |
| Display | : 16 Character x 2 Line LCD, Back Lit (Character Size = 2.95 W x 4.35 H mm) |
| Serial Interface | : RS-422 @ 9600 Baud |
| PLC Linking | : 8 Pin Mini Din Connector. (Please refer the Cable Chart for Link Cable Details) |
| Max. No. of Messages | : 230 x Single Line |
| Message Memory | : 8K Bytes, EEPROM type |
| Programming tool | : User friendly DOS based Software Package " SOFTLINE " runs on an IBM PC-XT/AT Compatible Computer with the facility for configuring keys, LEDs, messages and data records, read/write HMI programmes and documentation |



HARDWARE CONFIGURATION :

A) FOR XMP8-40 PLC

| | | |
|----------------|--|----------------------|
| Sr. No. | Description | Ordering Code |
| 1. | SMARTLINE ^{Jr} HMI with 16 Ch. x 2 Line LCD (Backlit) | SL JR 1602 LX |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Jr} to XMP8-40 PLC | |

B) FOR MINI XMP8-20 PLC/MICRO PLC SERIES

| | | |
|----------------|--|----------------------|
| Sr. No. | Description | Ordering Code |
| 1. | SMARTLINE ^{Jr} HMI with 16 Ch. x 2 Line LCD (Backlit) | SL JR 1602 LM |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Jr} to XMP8-20 PLC. | |
| 3. | Please refer the Cable Chart for Link Cables connecting HMI ^{Jr} to Micro PLC Series. | |

C) FOR NEXGEN-4000 PLC / NEXGEN-5000 PLC Series

| | | |
|----------------|---|----------------------|
| Sr. No. | Description | Ordering Code |
| 1. | SMARTLINE ^{Jr} HMI with 16 Ch. x 2 Line LCD (Backlit) | SL JR 1602 LN |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Jr} to NEXGEN-4000 PLC Series | |

D) FOR MITSUBISHI FX PLC SERIES

| | | |
|----------------|---|---|
| Sr. No. | Description | Ordering Code |
| 1. | SMARTLINE ^{Jr} HMI with 16 Ch. x 2 Line LCD (Backlit) with connectivity to Mitsubishi FX PLC Series | SL JR 1602 LFX |
| 2. | Please refer the Cable Chart for Link Cables connecting HMI ^{Jr} to Mitsubishi FX PLC Series | (Please Order Suitable HMI Jr. Link Cable Separately) |

E) MISCELLANEOUS

| | | | |
|----------------|---------------------------------|--|----------------------|
| Sr. No. | Device Type | Description | Ordering Code |
| 1. | PC Based Software Package | SOFTLINE, V4.02, DOS based HMI configuration Software on IBM Compatible PC-XT/AT | SFL V4.02 |
| 2. | Serial Link Cable | From HMI ^{Jr} to IBM Compatible PC-XT/AT & Link Adapter/Power Supply Unit (Length = 3 mtrs.) | SL JR CAB 0300 |
| 3. | Serial Port Converter | For port conversion of IBM Compatible PC-XT/AT | XMP8 SPC 2010 |
| 4. | Link Adapter/ Power Supply Unit | For connection of HMI ^{Jr} to IBM Compatible PC-XT/AT | XMP8 PSU 1010 |

| SR. NO. | CABLE DESCRIPTION | Wherever ✓ = 03, 05, 10, 15, 20, 25 for 3Mtr., 5Mtr., 10Mtr., 15Mtr., 20Mtr. & 25Mtr. respectively | |
|---------|--|--|-----------------------------|
| | | LINK CABLE LENGTH | COMMENT |
| 1. | HMI ^{Jr} to XMP8-40 PLC | SL JR CAB ✓ ✓ 01 | - |
| 2. | HMI ^{Jr} to XMP8-20 PLC | SL JR CAB ✓ ✓ 02 | 5 Mtr. Cable NA |
| 3. | HMI ^{Jr} to XMP8-11/12/15/16 PLC | SL JR CAB ✓ ✓ 06 | 5 Mtr. Cable NA |
| 4. | HMI ^{Jr} to NEXGEN 4000 PLC | SL JR CAB ✓ ✓ 07 | - |
| 5. | HMI ^{Jr} to NEXGEN 521xPLC Series (Port-2) | SL JR CAB ✓ ✓ 08 02 | - |
| 6. | HMI ^{Jr} to NEXGEN 521xPLC Series (Port-3) | SL JR CAB ✓ ✓ 08 03 | - |
| 7. | HMI ^{Jr} to NEXGEN 522x / 523xPLC Series (Port-2,3) | SL JR CAB ✓ ✓ 09 | - |
| 8. | HMI ^{Jr} to MITSUBISHI FX PLC | SL JR CAB ✓ ✓ 50 | Only 3 Mtr. Cable available |
| 9. | HMI ^{Jr} to MITSUBISHI FXON / FX2N PLC | SL JR CAB ✓ ✓ 51 | Only 3 Mtr. Cable available |

"Product development is a continuous process. Consequently Specifications are subject to change without prior notice. For latest information please contact our nearest sales office".



पूरति: भारतीय उद्यम™

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