



85XX+ Scanner

Monitor. Protect. Control.
Annunciation. Communication. Logging.



The 85XX+ is an upgrade on the most successful model 85XX; additional capabilities have been added by way of multi-serial ports, Ethernet port, USB port, Profibus, Scanning speed and alphanumeric display.

Modular and Expandable

85XX+ is modular in architecture and expandable, 5 I/O slots can accommodate a mix of Analog Input, Digital Input, Open collector output, Analog output or Relay output to suit different applications in Power, Water, Pharma, Pipeline and Infrastructure Industries. All field inputs are wired by Pre-fab cables directly into panel terminals.

Configuration

85XX+ can be configured using **mSCAN+** software which is very user friendly; the unit can also be edited by front keyboard and display. The unit has numeric and alpha-numeric displays for value and tag display, Alarm/Trip and control status are displayed by discrete LEDs on front fascia.

Communication

85XX+ comes with one RS485 port as a standard, a second RS485 port or a Ethernet Port, Profibus DP & USB port are options to enhance the communication capabilities of the unit and use it as an RTU, Alarm controller or protection device for motors, transformers, indicator, logger etc

Control or Alarm or Trip

The 8 Relay outputs can be freely mapped to any channel set points and configured as Alarm or Trip functionality with Fail-Safe or Normal Logic.

The 24 OC outputs can be used as On/Off control output for individual channel or as a status output for Alarm condition.

Analog Output

An isolated 4-20 mA Re-Transmission output option is available for onward transmission to PLC/DCS/Recorder/SCADA. Max 8 output per card is possible.

Features

- Compact and Rugged
- Extruded Aluminum Chassis with IP-55 front fascia
- Alpha-Numeric display for programmable tag no./ Engineering unit
- EMI/EMC Type test qualified & CE Marked
- 3 I/P and 2 O/P Slots capacity
- Max Configuration: 24 AI / 8 AI & 16 DI + 8 Relay + 24 OC / 8 AO
- 8 channel Universal Analog Input Module
- 16 channel Digital Input Module (Optional)
- 8 Relay output Module (Optional)
- 24 Open Collector Output Module (Optional)
- Analog Output (Optional)
- Fast sampling and generation of Alarm/Trip
- Comprehensive alarm/trip logic / control
- User free mapping of Relay to Channels
- 2X RS485 Serial communication ports
- 1X Ethernet port (Optional)
- 1X USB port (Optional)
- 1X Profibus-DP port (Optional)
- Modbus RTU over serial and Modnet over ethernet Protocols
- Windows based free **mSCAN+** configuration software
- Datalogging option

Applications

- Substation Monitoring
- Motor/Generator Monitoring and Protection
- Transformer monitoring and protection
- Compressor/Pump/DG set monitoring
- Asset Monitoring
- As a Serial/Ethernet RTU
- Remote I/O module
- Multi Point On/Off control
- Pipeline Heat Tracing circuit control
- Backfilling with PC log software

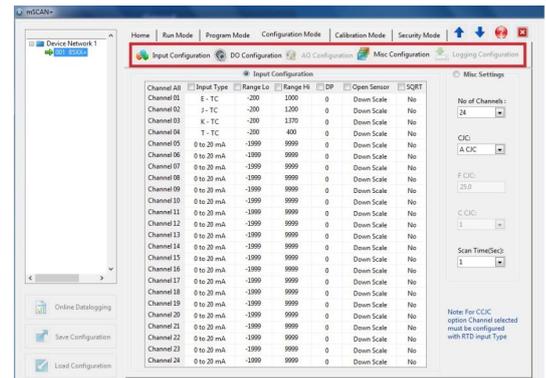
User-friendly Programming and Monitoring

mSCAN⁺ Software

mSCAN⁺ Software is used to Monitor and Configure the Multichannel Scanner

- Auto device discovery of 85XX+ over RS485 Port
- Run Time Data monitoring
- Configuration through RS485 and Ethernet Port
- Data Log Retrieval(Periodic and Event) in .xlsx and .pdf file formats
- Online Data logging in .xlsx format
- Report Generation
- Alarm/Trip Setpoints
- Time Stamping

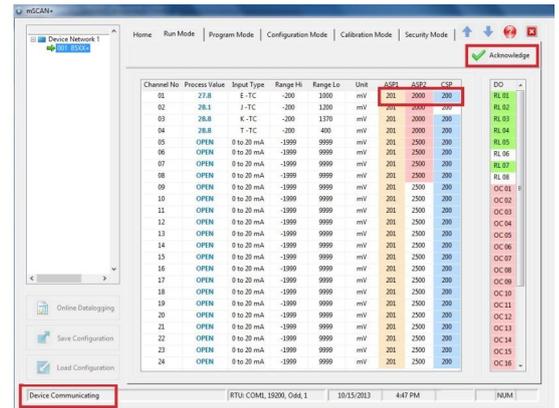
Programming using mSCAN⁺ software



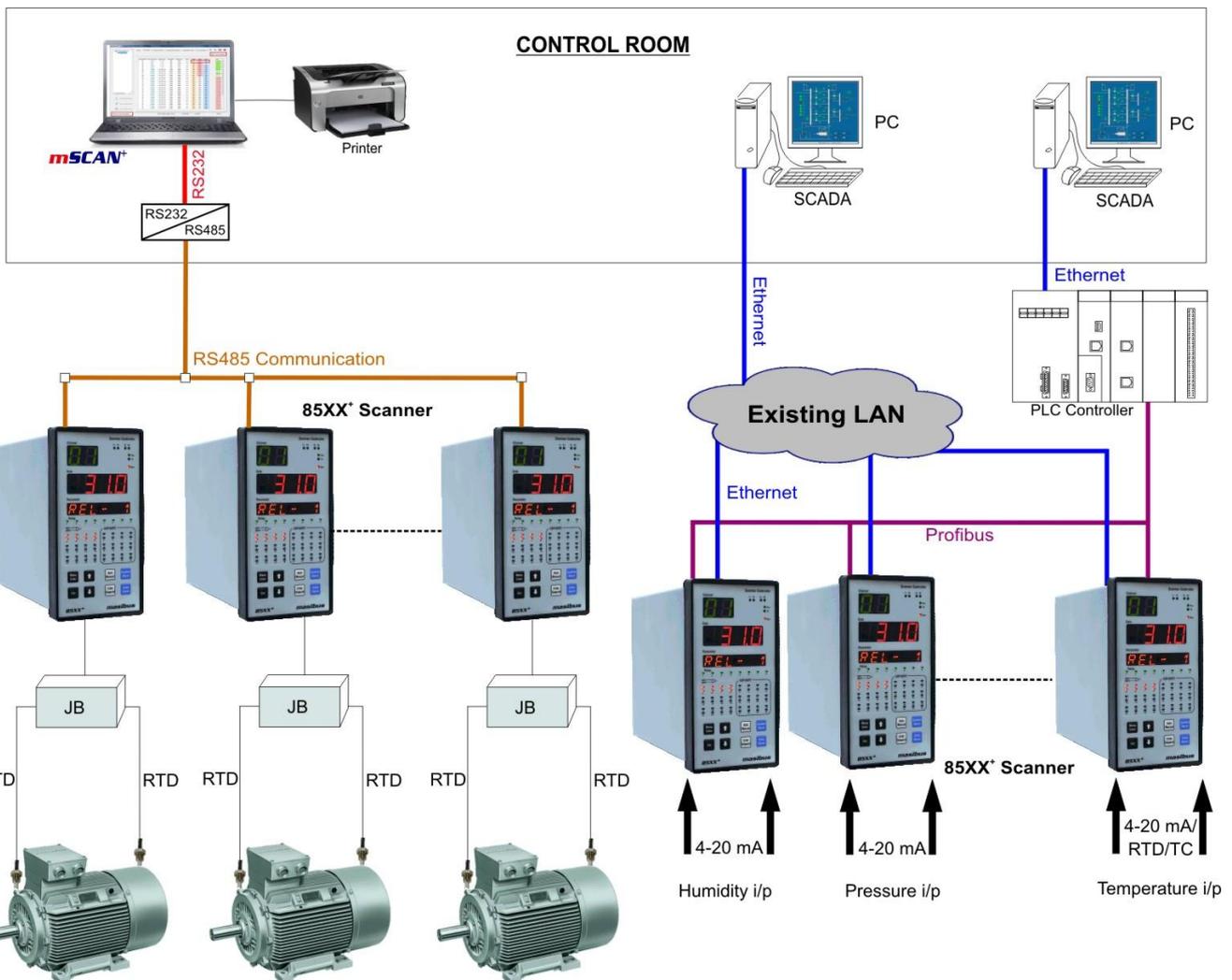
Easy to Monitor

Parameters	Front Display	mSCAN ⁺ Software
Real-time data	✓	✓
• Channel No.	✓	✓
• Process Value	✓	✓
• Zero/Span, Input Type	✓	✓
• Alarm Status	✓	✓
• Channel wise Process value	✓	✓

Monitoring using mSCAN⁺ software



Application



Technical Specifications

Input	
Analog Input	
No of AI Modules	1 (8 ch) , 2 (16 ch) or 3 (24 ch)
Input Type	Thermocouple, RTD, Voltage, Current
Input Range	Refer Table -1
Accuracy	0.1% FS
ADC Resolution	17 bits
Display Resolution	0.1 / 1.0 °C
Sampling Rate	T/C & Voltage/Current: 50mSec/Channel RTD: 100mSec/Channel
Display Scan Rate	1 to 99 Sec (Programmable)
CJC	Auto/ Manual/ External for T/C type
Sensor open	All inputs except 0-5V, 0-10 VDC
Sensor Burnout current	0.4uA
RTD excitation current	250uA (Approx)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20VDC
Connector Type	24 pin Rectangular connector

Digital Input [▲]				
No. of DI modules	1 (16 ch)*			
Response time	50 msec			
Rated Input Voltage (Factory Settable)	12 VDC (Sink / Source)	24 VDC (Sink / Source)	110 VDC (Sink / Source)	220 VDC (Sink / Source)
Input On Voltage	≥7 VDC	≥15 VDC	≥75 VDC	≥110 VDC
Input Off Voltage	≤4 VDC	≤5 VDC	≤30 VDC	≤50 VDC
Input Current (At Rated Input Voltage)	Approx 3mA/ Channel	Approx 3mA/ Channel	Approx 3mA/ Channel	Approx 3mA/ Channel
Maximum Allowable Input Voltage	15 VDC	30 VDC	132 VDC	250 VDC

* When Digital Input is selected; only 8 analog input is possible

Display and Keys	
Channel number	2-Digit, 0.56", Green seven segment LED
Process Value	4-Digit, 0.56", Red seven segment LED
Engineering Unit	6-Digit, 0.3", Orange Alphanumeric LED
Status LEDs	Manual, Run, Flt, Tx/Rx, Relay status Alarm/Control Status per channel
Keys	2 X 4 for Configuration, Operation and Calibration

Output	
Alarm/Trip/Control Output (Optional)	
Relays	8 Nos. per card
Type	C- NO or C-NC (Jumper Selectable)
Rating	2A @ 250VAC / 30VDC
Connector Type	25 D-Sub
Open Collector (OC) Output (Optional)	
OC Outputs	24
Type	Sinking
Rating	100mA@30VDC
Connector Type	25 D-Sub
Analog Output[▲] (Optional)	
Number of outputs	Max 8
Output signal	0/4 to 20 mA (Isolated)
Load Resistance	500Ω max
Display to output accuracy	± 0.25 % of span
Resolution	16 bits

Communication Output	
RS485-1 (Standard) & RS485-2 (Optional)	
Interface	2 Wire, EIA RS485
Protocol	Modbus-RTU Slave
Baud Rate	9600 or 19200 or 57600
Ethernet (Optional)	
Interface	RJ45
Protocol	Modbus - TCP/IP (Modnet) Slave
Speed	10 Mbps

Profibus-DP [▲] (Optional)	
Interface	9-Pin D-Type Connector
Protocol	Profibus-DP Slave
Baud Rate	9600 to 12Mbps (Auto Detected)
Max I/P, O/p Data	244 Bytes

USB Port [▲] (Optional)	
No. of port	1 no max
Standard	USB 2.0 (Mass Storage only)
Fetch data format	Standard Tabular or AES-128 bit encrypted (Optional)
Data file format	*.xls
Max. USB pen drive size	4 GB supported with FAT16/FAT32 formatting

Data Logging	
Memory	25MB (Periodic), 7MB (Event)
Logged Data Retrieval	Through mSCAN ⁺ Software
Min Periodic Log Time	1 Sec
No of Records	101888 X $\left[\frac{256}{(2 \times \text{No. of Ch}) + 12} \right]$

Power supply	
Voltage	85-265VAC, 50/60 Hz/ 100-295 VDC 18 - 36VDC (optional)
Power Consumption	16VA (Max) [85-265VAC] 8VA (Max) [18-36VDC]

Isolation (Withstanding voltage)
 Between primary terminals* and secondary terminals***: **At least 1500 V AC for 1 minute**
 Between primary terminals* and grounding terminal: **At least 1500 V AC for 1 minute**
 Between grounding terminal and secondary terminals***: **At least 1500 V AC for 1 minute**
 Between secondary terminals***: **At least 500 V AC for 1 minute**
 * Primary terminals indicate power terminals and relay output terminals.
 ** Secondary terminals indicate I/O signal and Communication O/P.
 *** Insulation resistance: 20MΩ or more @ 500 V DC between power terminals and grounding terminal

Physical	
Size (in mm)	144 (H) X 72 (W) X 165 (D)
Panel Cutout (in mm)	137 (H) X 68.5 (W)
Depth behind Panel (in mm)	155 / 203 (with cable connector)
Mounting	Panel Mount (Standard)
Weight	1.25 Kg
Enclosure Material	Extruded Aluminum
Protection	IP20 (Overall, except terminals), IP55 (Front Facia)

Environmental	
Operating temperature	-10 to 55 °C
Storage temperature	0 to 80 °C
Humidity	20 to 95 % RH non-condensing

Table 1: Display Range

	Input Type	Ranges
	Thermocouple	E
J		-200 °C to 1200 °C
K		-200 °C to 1370 °C
T		-200 °C to 400 °C
B		450 °C to 1800 °C
R		0 °C to 1750 °C
S		0 °C to 1750 °C
RTD	N	-200 °C to 1300 °C
	Pt100	-199.9 °C to 850.0 °C
	Cu53	-210.0 °C to 210.0 °C
Voltage/Current	Ni120	-70.0 °C to 210.0 °C
	0/1-5V DC	-1999 to 9999
	0/4 -20mA (Ext. 250Ω)	-1999 to 9999
	-10 to 20 mV DC	-1999 to 9999
	0 - 100 mV DC	-1999 to 9999
	0 - 10 V DC	-1999 to 9999

Compliance

EN 61010-1:2010 (Safety)
EN 61000-6-2:2005 (EMI/EMC)
EN 61000-6-4:2007 (EMI/EMC)

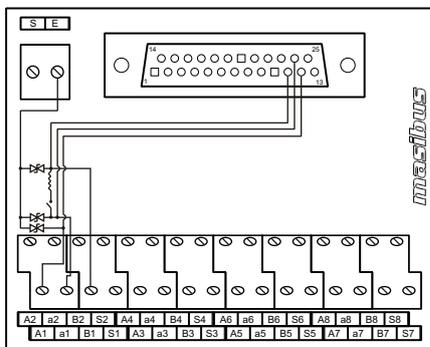
[▲]Options are not available in CE compliance Scanner

Technical Specifications

Field Interface Board for Analog Input (Optional)

Din Rail Mount Field Interfacing Board is designed for terminal panel of Analog input signal to interface with field signals.

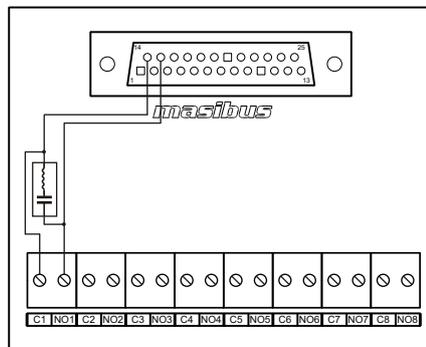
No of Input Channel	8 Analog Input
Input Connection	Screw type PCB Terminal Block (2.5mm ² conductor size)
No of Output Channel	8 Analog Output
O/P Connection	25 Pin D-Type Plug in Type Connector
Size in mm (L X W X H)	90 X 90 X 75
Mounting	DIN Rail (35 mm)



Field Interface Board for Relay Output (Optional)

Din Rail Mount Field Interfacing Board is designed for terminal panel of Relay Output signal to interface with field signals.

No of Input Channel	8 Relay Input
Input Connection	Screw type PCB Terminal Block (2.5mm ² conductor size)
No of Output Channel	8 Relay Output
O/P Connection	25 Pin D-Type Plug in Type Connector
Size in mm (L X W X H)	90 X 90 X 75
Mounting	DIN Rail (35 mm)



Ordering Code

Model	No of I/O Slots and Type					Power Supply	Communication	USB [▲] port	Data Logging	CE Compliance									
	1	2	3	4	5														
85XX*	X	X	X	X	X	X	XX	X	X	X									
	AI	Analog I/P	N	None	N	None	N	None	U1	85-265VAC/100-295VDC	1X	1 X RS485	N	No	N	No	N	No	
		AI	Analog I/P	AI	Analog I/P	RL	8 Relay	OC	Open Collector O/P	U2	18-36VDC	2X	2 X RS485	Y [#]	Yes	Y	Yes	Y	Yes
		DI [▲]	Digital I/P*						1A [▲]	1 no. 0/4-20 mA O/P		1E	1 X RS485 + 1 X RJ45						
									2A [▲]	2 nos. 0/4-20 mA O/P		2E	2 X RS485 + 1 X RJ45						
									4A [▲]	4 nos. 0/4-20 mA O/P		1P [▲]	1 X RS485 + 1 X Profibus-DP						
									6A [▲]	6 nos. 0/4-20 mA O/P									
									8A [▲]	8 nos. 0/4-20 mA O/P									
									S	Special O/P									

Note:
Specify **X** from ordering code.
*Options are not possible in CE compliance Scanner
* When Digital Input is selected; only 8 Analog input is possible
When USB option is selected, datalogging option must be selected

For Analog o/p type; other than 0/4-20mA please contact factory
Customer to specify required input type/range from Table-1 at the time of Order placement; else by default all channels will be calibrated for Input RTD Pt100 range

Prefab Cables Ordering Code (Extra Cost)

Part Code	Description
AIC-2.5	8 points Input cable 25 Core 2.5 mtrs long (8 Ch: 1 Cable, 16 Ch: 2 Cables, 24 Ch: 3 Cables Required)
RLC-2.5	8 Relay output cable 25 Core 2.5 mtrs long
OCC-2.5	24 OC output cable 25 Core 2.5 mtrs long

Field Interface Board Ordering Code (Extra Cost)

Part Code	Description
m-85XX*-FIB-AI	8 channel Field Interface Board for Analog Input (For 8 Ch: 1 Module, 16 Ch: 2 Modules, 24 Ch: 3 Modules Required)
m-85XX*-FIB-RL	8 channel Field Interface Board for Relay output

Prefab Cables for Field Interface Board Ordering Code (Extra Cost)

Part Code	Description
m-AIC-2.5-R24J-D25M	8 points Analog Input cable 25 Core 2.5 mtrs long with DB25 connector (8 Ch: 1 Cable, 16 Ch: 2 Cables, 24 Ch: 3 Cables Required)
m-RLC-2.5-D25F-D25M	8 Relay output cable 25 Core 2.5 mtrs long with DB25 connector