



85XX⁺ 24-Channel Scanner/ DAQ Module

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, Profibus-DP, USB port, 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, Pipeline and Infrastructure industries. All field inputs are wired by Pre-Fab cables direct into panel terminals.

Configuration

85XX⁺ is configured using the 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, Ethernet Port & Profibus DP 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, etc. It has optional USB port for logged data retrieval.

Alarm/Control

8 Relay and 24 OC outputs can be freely mapped as alarm/trip or control set point

Analog Output

An isolated 4-20mA 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
- Alpha-Numeric display for programmable tag no / Engg unit
- EMI/EMC Type test qualified & CE Marked
- 8 Channel Universal Analog Input Module
- 16 Channel Digital Input Module (Optional)
- 4/ 8 Relay Output Module (Optional)
- 24 Open Collector Output Module (Optional)
- Analog Output (Optional)
- Fast sampling and generation of Alarm/Trip
- User free mapping of Relay to Channels
- Comprehensive alarm/trip logic
- RS485 Serial port (one standard and 2nd Optional)
- 1X Ethernet port (Optional)
- 1X USB port (Optional for logged data retrieval)
- 1X Profibus-DP port (Optional)
- Modbus RTU over serial and Modnet over Ethernet Protocols
- Windows based free mSCAN⁺ configuration software
- Datalogging option
- Extruded Aluminum Chassis with IP55 front fascia

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

USER-FRIENDLY PROGRAMMING AND MONITORING

mSCAN⁺ Software

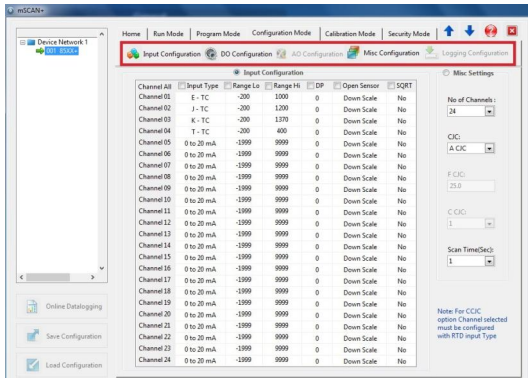
mSCAN⁺ Software is used to Monitor and Configure the Multichannel Scanner

- 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

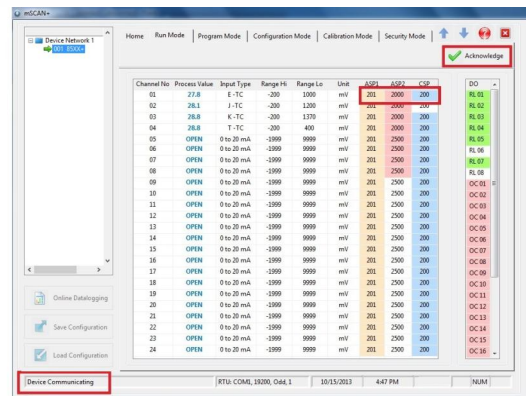
Easy to Monitor

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

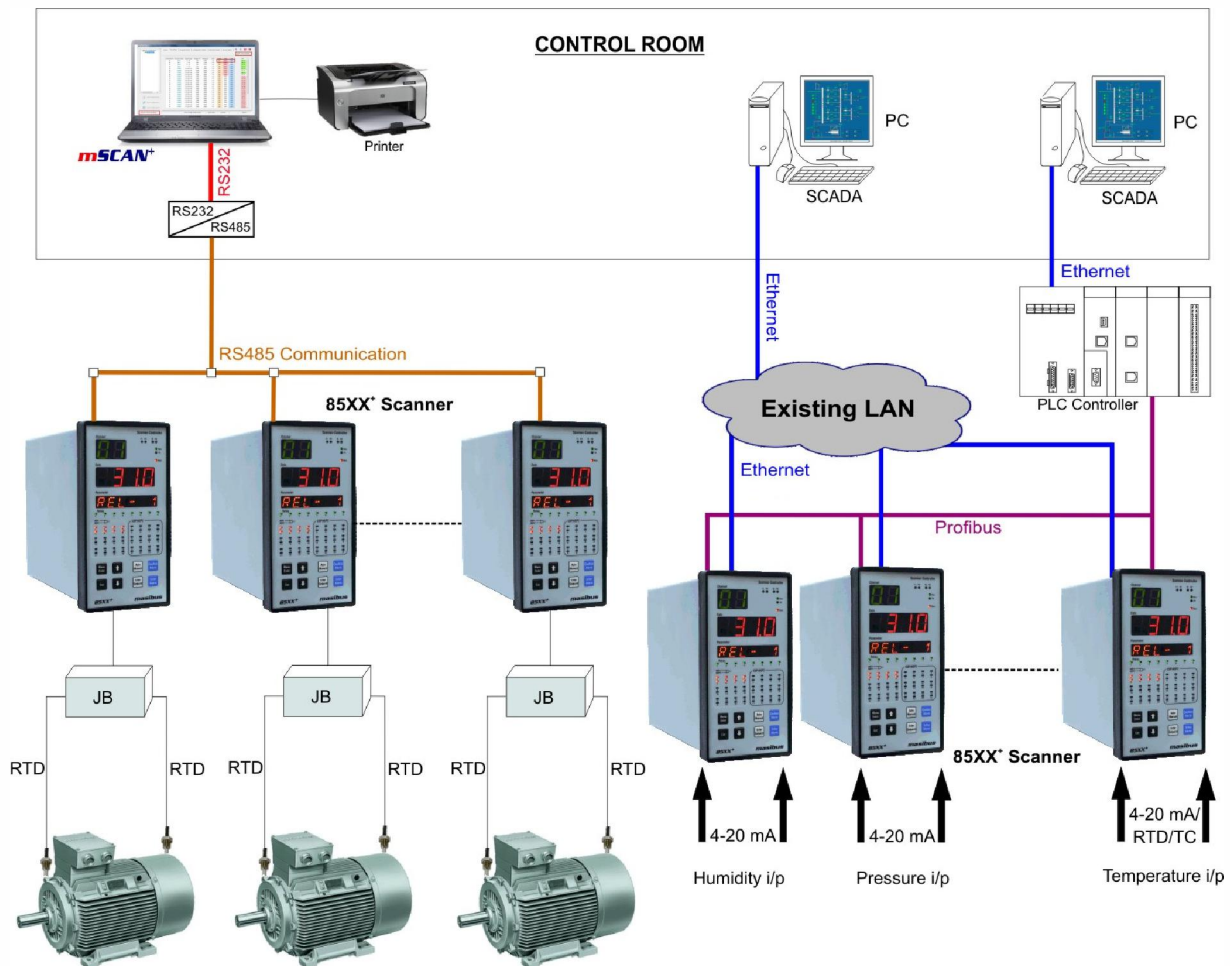
Programming using mSCAN⁺ software



Monitoring using mSCAN⁺ software



APPLICATION

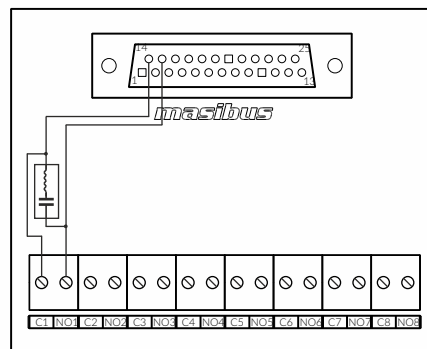
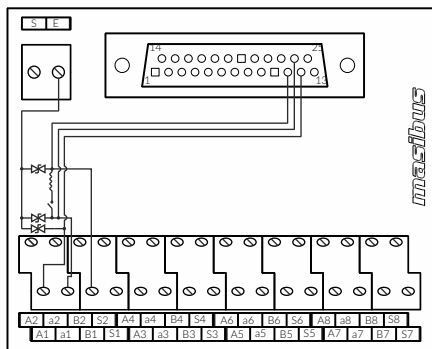


TECHNICAL SPECIFICATION

Input		Ethernet (Optional)																																								
Analog Input		Protocol	Modbus - TCP/IP(Modnet) Slave																																							
No of AI Modules	1 (8 ch), 2 (16 ch) or 3 (24 ch)	Baud Rate	10 Mbps																																							
Input Type	Thermocouple, RTD, Voltage, Current	Connector	RJ45																																							
Input Range	Refer Table -1	Profibus-DP[▲] (Optional)																																								
Accuracy	0.1% FS	Protocol	Profibus DP V0 Slave																																							
ADC Resolution	17 bits	Maximum No. of Read Bytes	244 (Cyclic Data - as per the GSD)																																							
Display Resolution	0.1 / 1.0 °C	Maximum No. of Write Bytes	244 (Cyclic Data - as per the GSD)																																							
Sampling Rate	T/C & Voltage/Current: 50mSec/Channels RTD: 100mSec/Channels	Baud Rate	1200 to 12 Mbps Auto Detecting																																							
Display Scan Rate	1 to 99 Sec (Programmable)	Connector	9-Pin D-type Female																																							
CJC	Auto/ Manual/ External for T/C type	USB Port (Optional-only for logged data retrieval through pendrive)																																								
Sensor open	All inputs except 0-5V, 0-10V DC	No of port	1 no max																																							
Sensor Burnout current	0.4uA	Standard	2.0																																							
RTD excitation current	250uA (Approx)	Data format	Excel																																							
NMRR	> 40dB	Max. USB pen drive size	Upto 16 GB supported																																							
CMRR	> 120dB	Data Logging																																								
Temp-co	< 100ppm/°C	Memory Size	25MB (Periodic), 7MB (Event)																																							
Input Impedance	> 1MΩ	Data retrieval	via mSCAN ⁺ Software																																							
Max Voltage	20V DC	Min Periodic Log Time	1 min																																							
Connector Type	24 pin Rectangular connector	No of Records	101888 X $\left[\frac{256}{(2XNo. of Ch) + 12} \right]$																																							
Digital Input[▲]		Power supply																																								
No of DI modules	1 (16 ch)	Voltage	85-265 V AC, 50/60 Hz/ 100-295 V DC 18 - 36V DC (Optional)																																							
Response time	50mSec	Power Consumption	9W																																							
Rated Input Voltage	24 V DC	Isolation (Withstanding voltage)																																								
Input On Voltage	≥15 V DC	<ul style="list-style-type: none"> 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 																																								
Input Off Voltage	≤5 V DC	* Primary terminals indicate power terminals and relay output terminals.																																								
Input Current (At Rated Input Voltage)	Approx 3mA/ Channel	** Secondary terminals indicate I/O signal and Communication O/P.																																								
Maximum Allowable Input Voltage	30 V DC	Insulation resistance: 20MΩ or more at 500 V DC between power terminals and grounding terminal																																								
Display and Keys		Physical																																								
Channel number	2-Digit, 0.56", Green seven segment LED	Size (in mm)	144 (H) X 72 (W) X 165 (D)																																							
Process Value	4-Digit, 0.56", Red seven segment LED	Panel Cutout (in mm)	137 (H) X 68.5 (W)																																							
Engineering Unit	6-Digit, 0.3", Orange Alphanumeric LED	Depth behind Panel (in mm)	155 / 203 (with cable connector)																																							
Status LEDs	Manual, Run, Flt, Tx/Rx, Relay status Alarm/Control Status per channel	Mounting	Panel Mount (Standard)																																							
Keys	2 X 4 for Configuration, Operation and Calibration	Weight	1.25 Kg																																							
Output		Enclosure Material	Extruded Aluminum																																							
Alarm/Trip/Control Output (Optional)		Protection	IP20 (Overall, except terminals), IP55 (Front Fascia)																																							
Relays	RL: 8 Nos per card RL4: 4 Nos per card RL8: 8 Nos per card	Environmental																																								
RL Module	RL (Form A): C- NO or C-NC (Jumper Selectable)	Operating temperature	-10 to 55 °C																																							
RL4 / RL8 Module	RL4 (Form C): C-NO-NC RL8 (Form C): C-NO-NC	Storage temperature	0 to 80 °C																																							
Rating	2A @ 250V AC / 30V DC	Humidity	20 to 95 % RH non-condensing																																							
Connector Type	25 D-Sub	Table 1: Display Range																																								
Open Collector (OC) Output (Optional)		<table border="1"> <thead> <tr> <th>Input Type</th> <th>Ranges</th> </tr> </thead> <tbody> <tr> <td rowspan="7">Thermocouple</td> <td>E</td> <td>-200 °C to 1000 °C</td> </tr> <tr> <td>J</td> <td>-200 °C to 1200 °C</td> </tr> <tr> <td>K</td> <td>-200 °C to 1372 °C</td> </tr> <tr> <td>T</td> <td>-200 °C to 400 °C</td> </tr> <tr> <td>B</td> <td>450 °C to 1820 °C</td> </tr> <tr> <td>R</td> <td>0 °C to 1768 °C</td> </tr> <tr> <td>S</td> <td>0 °C to 1768 °C</td> </tr> <tr> <td rowspan="3">RTD</td> <td>N</td> <td>-200 °C to 1300 °C</td> </tr> <tr> <td>Pt100</td> <td>-199.9 °C to 850.0 °C</td> </tr> <tr> <td>Cu53</td> <td>-210.0 °C to 210.0 °C</td> </tr> <tr> <td rowspan="4">Voltage/Current</td> <td>NI-120</td> <td>-70.0 °C to 210.0 °C</td> </tr> <tr> <td>0/4 -20mA (Ext. 250Ω)</td> <td></td> </tr> <tr> <td>0/1-5V</td> <td></td> </tr> <tr> <td>-10 to 20 mV DC</td> <td>-1999 to 9999</td> </tr> <tr> <td></td> <td>0 - 100 mV DC</td> <td></td> </tr> <tr> <td></td> <td>0 - 10 V DC</td> <td></td> </tr> </tbody> </table>		Input Type	Ranges	Thermocouple	E	-200 °C to 1000 °C	J	-200 °C to 1200 °C	K	-200 °C to 1372 °C	T	-200 °C to 400 °C	B	450 °C to 1820 °C	R	0 °C to 1768 °C	S	0 °C to 1768 °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	NI-120	-70.0 °C to 210.0 °C	0/4 -20mA (Ext. 250Ω)		0/1-5V		-10 to 20 mV DC	-1999 to 9999		0 - 100 mV DC			0 - 10 V DC	
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OC Outputs	24	Compliance																																								
Type	Sink	EN 61010-1:2010 (Safety)																																								
Rating	100mA@30V DC	EN 61000-6-2:2005 (EMI/EMC)																																								
OC1 Module	Common pin: Ground only (O/P Logic Isolated)	EN 61000-6-4:2007 (EMI/EMC)																																								
OC2 Module	Common pin: +5V@1A/Ground, jumper selectable for Internal/External Relay drive (O/P Logic non-Isolated) *Default jumper set for Ground	▲Options are not available in CE compliance Scanner																																								
Connector Type	25 D-Sub																																									
Analog Output[▲] (Optional)																																										
Number of outputs	Max upto 8 nos per card																																									
Output signal	0/4 to 20 mA (Isolated)																																									
Load Resistance	500Ω max																																									
Output accuracy	± 0.25 % of span																																									
Resolution	16 bits																																									
Communication Output																																										
RS485-1 (Standard) & RS485-2 (Optional)																																										
Protocol	Modbus-RTU Slave																																									
Baud Rate	9600 or 19200 or 57600 bps																																									
Connector	2 pin, plug-in terminals																																									

TECHNICAL SPECIFICATION

Terminal Board for AI Module (Optional)		Terminal Board for Relay Module (Optional)	
Input Connection	MKKDS type connector screw up to 2.5mm ² conductor	Input Connection	25 Pin D-type plug in type Connector
O/P Connection	25 Pin D-type plug in type Connector	O/P Connection	MKDS type connector screw up to 2.5mm ² conductor
Size (L X W X H) in mm	90 X 90 X 75	Size (L X W X H) in mm	90 X 90 X 75
Mounting	35 mm DIN Rail	Mounting	35 mm DIN Rail



Ordering Code (85XX')

Model	No of I/O Slots and type								Power Supply	Communication	USB port [#]	Datalogging
	1	2	3	4	5							
85XX' XX	XX	XX	XX	XX	XX					X	X	
	AI Analog i/p	N	None	N	None	N	None	U1 85-265 VAC	1X	1 x RS485	N	No
	AI Analog i/p	AI Analog i/p	AI Analog i/p	RL	8 Relay	RL4	4 Relay	U2 18-36 VDC	2X	2 x RS485	Y	Yes
						RL8	8 Relay		1E	1 x RS485 + 1 x RJ45		
						OC2	Open Collector o/p		2E	2 x RS485 + 1 x RJ45		
						1A	1 no 4-20mA o/p		1P	1 x RS485 + 1 x Profibus-DP		
						2A	2 nos 4-20mA o/p					
						4A	4 nos 4-20mA o/p					
						6A	6 nos 4-20mA o/p					
						8A	8 nos 4-20mA o/p					
						DI	Digital i/p					

Ordering Code (85XX' with CE compliance)

Model	CE Compliance	No of I/O Slots and type								Power Supply	Communication	Datalogging		
		1	2	3	4	5								
85XX'	CE	XX	XX	XX	XX	XX	XX	XX	XX			XX		
		AI Analog i/p	N	None	N	None	N	None	N	None	U1 85-265 VAC	1X	1 x RS485	
		AI Analog i/p	AI Analog i/p	AI Analog i/p	RL	8 Relay	OC1	Open Collector o/p	U2 18-36 VDC	2X	2 x RS485	N	No	
											1E	1 x RS485 + 1 x RJ45	Y	Yes
											2E	2 x RS485 + 1 x RJ45		

Note:

Specify X from ordering code.

If USB port is selected, Datalogging option must be selected. USB port will work with Masibus supplied pen drive only.

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

Part Code	Description
AIC-2.5	8 points Analog 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
DI-2.5	16 DI output cable, 25 Core 2.5 mtrs long

Terminal 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 at both ends
m-RLC-2.5-D25F	8 Relay output cable, 25 Core 2.5 mtrs long with one end DB25 connector and other end pig tails