



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

mSC AN + Software

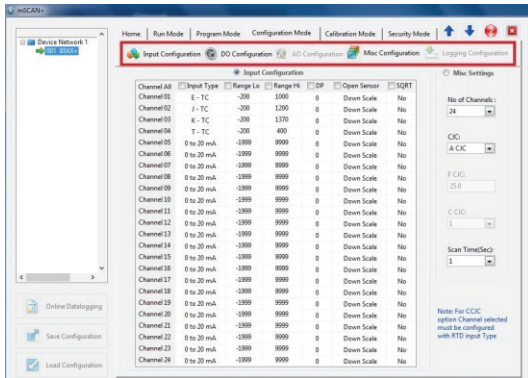
mSC AN + Software is used to Monitor and Configure the Multichannel Scanner

- 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

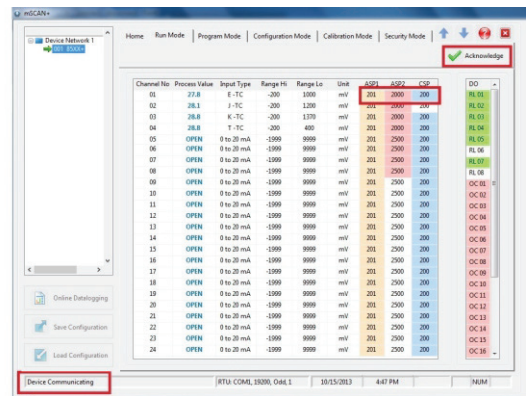
Easy to Monitor

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

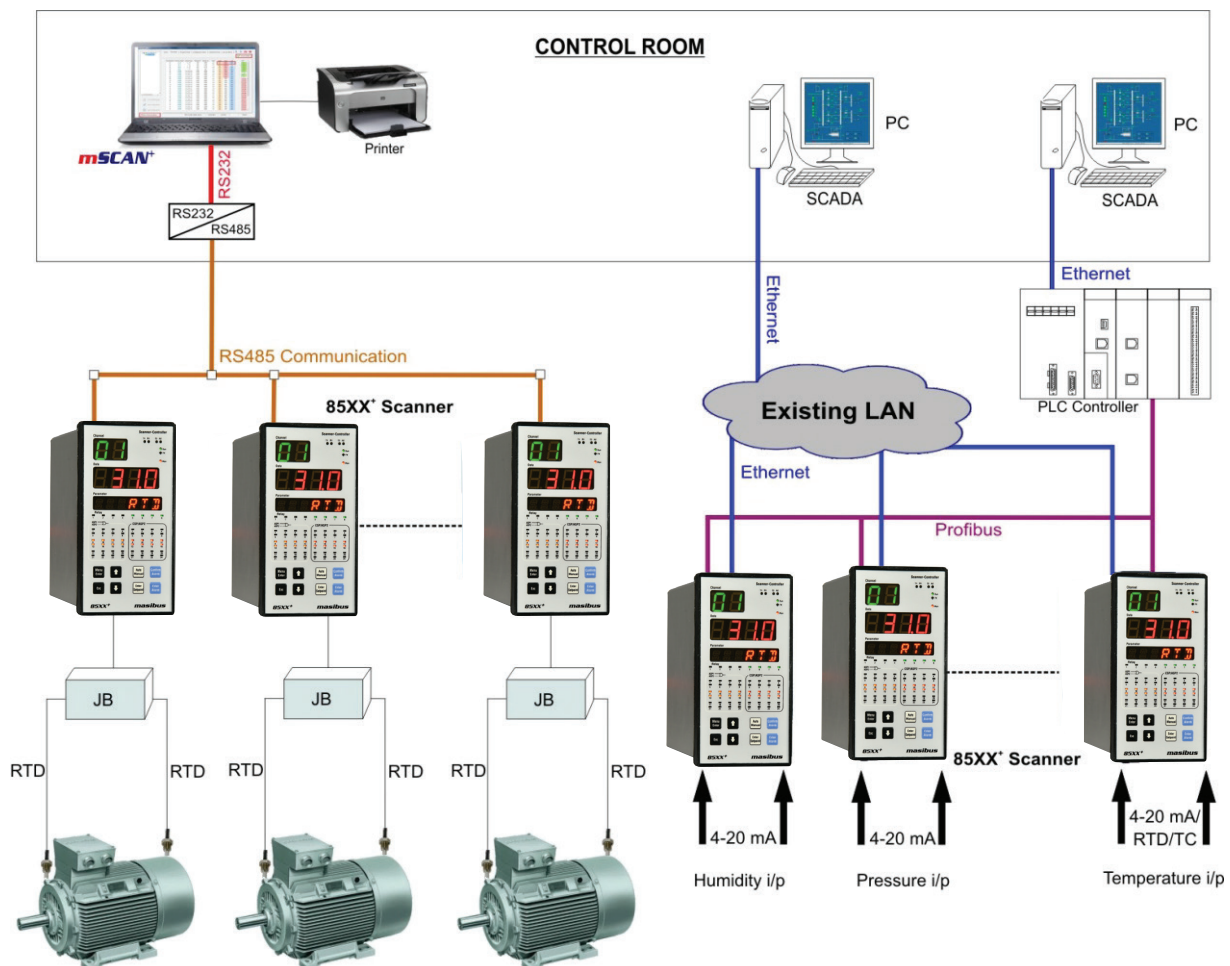
Programming using m SC AN + software



Monitoring using m SC AN + software



APPLICATION

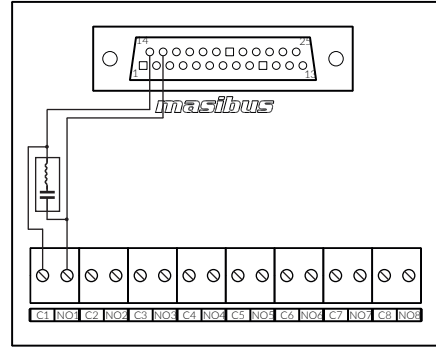
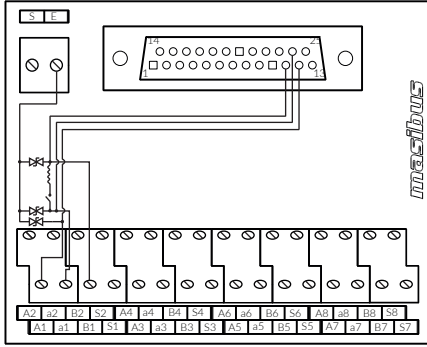


TECHNICAL SPECIFICATION

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

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	XX	XX	XX	XX	X	X	X	X		
AI Analog i/p	N	None	N	None	N	None	N	None	U1 85-265 VAC 1X	1 x RS485	N	No	N	No	
AI Analog i/p	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	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	XX	XX	XX	
		AI Analog i/p	N	None	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	AI Analog i/p	RL	8 Relay	OC1	Open Collector o/p	U2 18-36 VDC 2X	2 x RS485	Y	Yes	
											1E	1 x RS485 + 1 x RJ45		
											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)
AIC-2.5-DB	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)
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-AIC-2.5-D25M-D25M	8 points Analog Input cable, 25 Core 2.5 mtrs long with DB25 connector at both ends (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