



85XX+

24-Channel Scanner/ DAQ Module

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

mSCAN+

EtherNet/IP



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, ProfiNet Port & EtherNet/IP 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
- 24 Channel Universal Analog Inputs
- 16 Channel Digital Input Module
- 4/ 8 Relay Output Module
- 24 Open Collector Output Module
- Analog Output
- Fast sampling and generation of Alarm/Trip
- User free mapping of Relay to Channels
- Comprehensive alarm/trip logic
- 2X RS485 Serial port
- 1X Ethernet port
- 1X USB port
- 1X Profibus-DP port
- 2X ProfiNet Port
- 2X EtherNet/IP Port
- Modbus RTU over serial and Modnet over Ethernet Protocols
- Windows based free **mSCAN+** configuration software
- Datalogging option
- Extruded Aluminum Chassis with IP55 front fascia

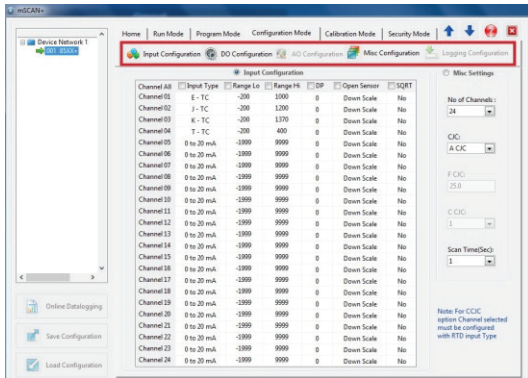
Applications

- 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

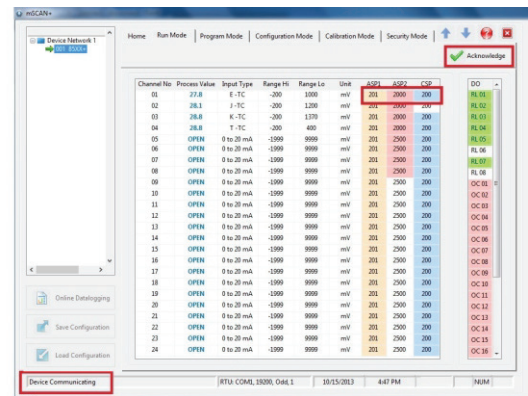
USER-FRIENDLY PROGRAMMING AND MONITORING

mSCAN⁺ Software	Easy to Monitor		
mSCAN⁺ Software is used to Monitor and Configure the Multichannel Scanner	Parameters	Front Display	mSCAN⁺ Software
<ul style="list-style-type: none"> 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 	Real-time data	✓	✓
	• Channel No.	✓	✓
	• Process Value	✓	✓
	• Zero/Span, Input Type	✓	✓
	• Alarm Status	✓	✓
	• Channel wise Process value	✓	✓

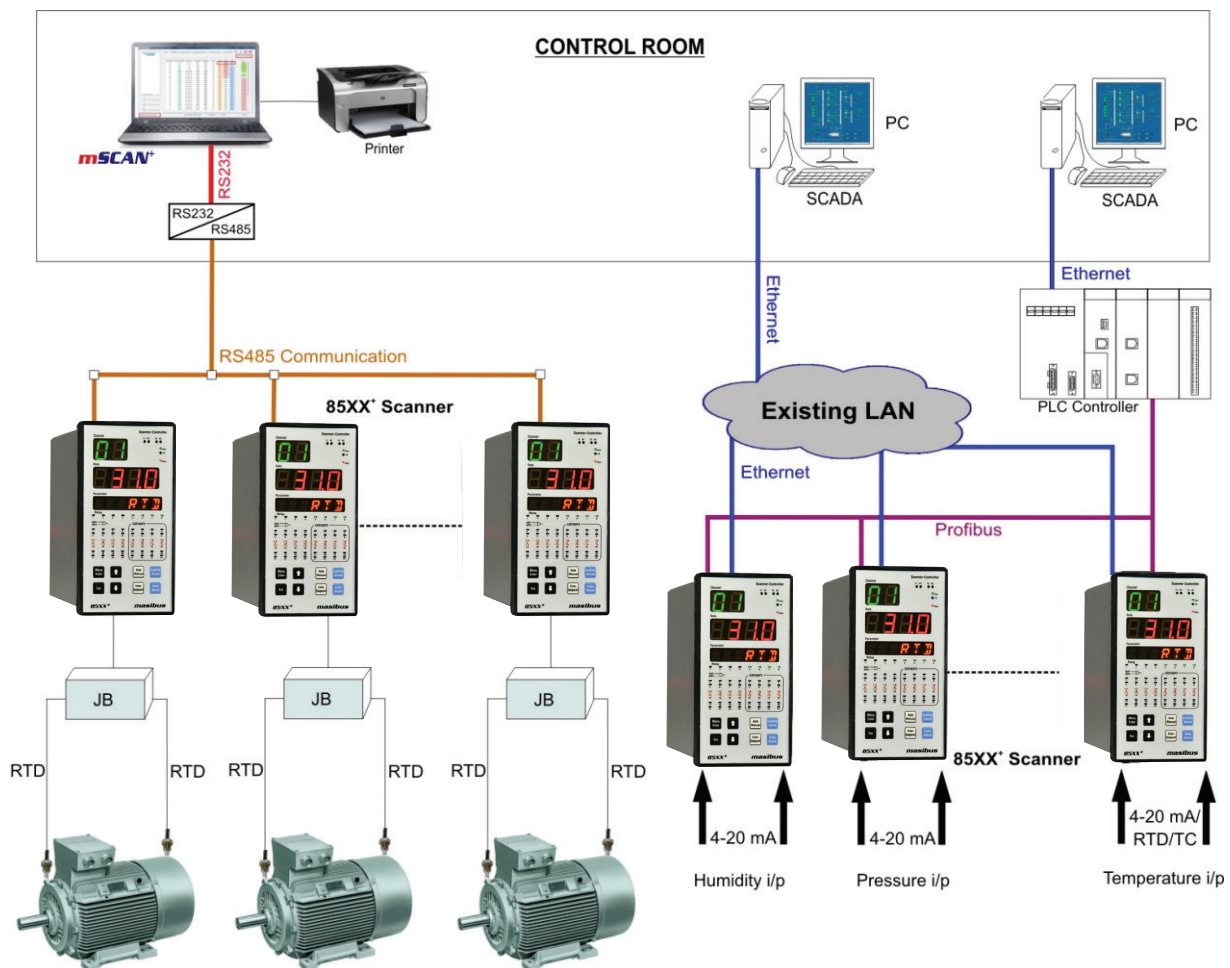
Programming using **mSCAN⁺ Software**



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	Max. In/Out Bytes	244 IN / 244 OUT Bytes	
Display Resolution	0.1 / 1.0 °C	Baud Rate	1200 to 12 Mbps Auto Detecting	
Sampling Rate	T/C & Voltage/Current: 50mSec/Channels RTD: 100mSec/Channels	Connector	9-Pin D-type Female	
Display Scan Rate	1 to 99 Sec (Programmable)	PROFINET[▲] (Optional)		
CJC	Auto/ Manual/ External for T/C type	Device Type	Profinet I/O Device	
CJC Error	±2°C (0 to 55°C)	Communication Protocol	Profinet	
Sensor open	All inputs except 0-5V, 0-10V DC	Network Topology	MRP (Media Redundancy Protocol), STAR, LINE	
Sensor Burnout current	0.4uA	Network Port	2 Nos (RJ-45)	
RTD excitation current	250uA (Approx)	Max. In/Out Bytes	256 IN / 256 OUT Bytes*	
NMRR	> 40dB	Network Speed	10/100 Mbps, Auto-negotiation & Auto-crossover	
CMRR	> 120dB	Data Transport Layer	Ethernet II, IEEE 802.3	
Temp-co	< 100ppm/°C	Configuration File	GSDML available	
Input Impedance	> 1MΩ	Conformance Class	Class C	
Max Voltage	20V DC	ETHERNET/IP[▲] (Optional)		
Connector Type	24 pin Rectangular connector/25 pin D sub Connector	Device Type	EtherNet/IP Adapter (Slave)	
PV Value Format for Modbus	Integer/Swap Float	Communication Protocol	EtherNet/IP	
Channel to Channel Isolation for Isolated AI Card option	125VAC/300VDC	Network Topology	DLR (Device Level Ring), TREE, LINE	
		Network Port	2 Nos (RJ-45)	
		Max. In/Out Bytes	504 IN / 504 OUT Bytes*	
		Network Speed	10/100 Mbps, Auto-negotiation & Auto-crossover	
		Data Transport Layer	Ethernet II, IEEE 802.3	
		Configuration File	EDS available	
		*Note: Currently, Profinet and Ethernet IP communication support Input (Read) functionality only, Output (Write) functionality will be available in a future.		
Digital Input[▲]		USB Port (Optional-only for logged data retrieval through pendrive)		
No of DI modules	1 (16 ch)	No of port	1 no max	
Response time	50mSec	Standard	2.0	
Rated Input Voltage	24 V DC	Data format	Excel	
Input On Voltage	≥ 15 V DC	Max. USB pen drive size	Upto 16 GB supported	
Input Off Voltage	≤ 5 V DC			
Input Current (At Rated Input Voltage)	Approx 3mA/ Channel	Data Logging		
Maximum Allowable Input Voltage	30 V DC	Memory Size	25MB (Periodic), 7MB (Event)	
		Data retrieval	via mSCAN ⁺ Software	
		Min Periodic Log Time	1 min	
		No of Records	101888 X $\left[\frac{256}{(2XNo. of Ch) + 12} \right]$	
Display and Keys		Power supply		
Channel number	2-Digit, 0.56", Green seven segment LED	Voltage	85-265 V AC, 50/60 Hz/ 100-295 V DC 18 - 36V DC (Optional)	
Process Value	4-Digit, 0.56", Red seven segment LED	Power Consumption	9W	
Engineering Unit	6-Digit, 0.3", Orange Alphanumeric LED	Isolation (Withstanding voltage)		
Status LEDs	Manual, Run, Flt, Tx/Rx, Relay status Alarm/Control Status per channel	Between primary terminals* and secondary terminals**:	At least 1500 V AC for 1 minute	
Keys	2 X 4 for Configuration, Operation and Calibration	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 at 500 V DC between power terminals and grounding terminal		
Output		Physical		
Alarm/Trip/Control Output (Optional)		Size (in mm)	144 (H) X 72 (W) X 165 (D)	
Relays	RL: 8 Nos per card RL4: 4 Nos per card RL8: 8 Nos per card	Panel Cutout (in mm)	137 (H) X 68.5 (W)	
RL Module	RL (Form A): C- NO or C-NC (Jumper Selectable)	Depth behind Panel (in mm)	155 / 203 (with cable connector)	
RL4 / RL8 Module	RL4 (Form C): C-NO-NC RL8 (Form C): C-NO-NC	Mounting	Panel Mount (Standard)	
Rating	2A @ 250V AC / 30V DC	Weight	1.25 Kg	
Connector Type	25 D-Sub	Enclosure Material	Extruded Aluminum	
Open Collector (OC) Output (Optional)		Protection	IP20 (Overall, except terminals), IP55 (Front Fascia)	
OC Outputs	24	Table 1: Display Range		
Type	Sink	Input Type		
Rating	100mA@30V DC	Ranges		
OC1 Module	Common pin: Ground only (O/P Logic Isolated)	Thermocouple	E	-200 °C to 1000 °C
OC2 Module	Common pin: +5V@1A/Ground, jumper selectable for Internal/External Relay drive (O/P Logic non-Isolated)		J	-200 °C to 1200 °C
	*Default jumper set for Ground		K	-200 °C to 1372 °C
Connector Type	25 D-Sub		T	-200 °C to 400 °C
Analog Output [▲] (Optional)	Number of outputs: Max upto 8 nos per card (Value: Min, Max, Avg) Output signal: 0/4 to 20 mA (Isolated) Load Resistance: 500Ω max Output accuracy: ± 0.25 % of span Resolution: 16 bits		B	450 °C to 1820 °C
			R	0 °C to 1768 °C
		S	0 °C to 1768 °C	
		N	-200 °C to 1300 °C	
		Pt100	-199.9 °C to 850.0 °C	
Communication Output	RS485-1 (Standard) & RS485-2 (Optional)	RTD	Cu53	-210.0 °C to 210.0 °C
			NI-120	-70.0 °C to 210.0 °C
		Voltage/Current	0/4 -20mA (Ext. 250Ω) 0/1-5V -10 to 20 mV DC 0 - 100 mV DC 0 - 10 V DC	-1999 to 9999

TECHNICAL SPECIFICATION

Environmental		Compliance applicable only for 85XX+ CE Model	
Operating temperature	-10 to 55 °C	EN 61010-1:2010 (Safety)	
Storage temperature	0 to 80 °C	EN 61000-6-2:2005 (EMI/EMC)	
Humidity	20 to 95 % RH non-condensing	EN 61000-6-4:2007 (EMI/EMC)	
		Note: ▲ Options are not available in CE compliance Scanner	
Terminal Board for AI Module (Optional)		Terminal Board for Relay Module (Optional)	
Input Connection	MKDS 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

Type test			
Electrostatic Discharge (ESD)	IEC 61000-4-2	Radiated Emission	As per CISPR-11
Radiated Susceptibility	IEC 61000-4-3	Conducted Emission	
EFT Test	IEC 61000-4-4	Voltage Interruption/ Voltage Dips	IEC 61000-4-11
Surge Test	IEC 61000-4-5	IP Test	IEC 60529
Conducted Susceptibility (Conducted RF)	IEC 61000-4-6	Cold Test	IEC 60068-2-1
Power Frequency		Dry Heat Test	IEC 60068-2-2
Magnetic Field	IEC 61000-4-8	Damp Heat Steady State Test	IEC 60068-2-30

Ordering Code (85XX ⁺)																		
Model	No of I/O Slots and type										Power Supply	Communication	USB port [#]	Datalogging				
	1	2	3	4	5	6	7	8	9	10								
85XX ⁺ XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	X	X				
	AI Analog i/p	N	None	N	None	N	None	N	None	N	None	U1 85-265 VAC	1E	1 x RS485 + 1 x RJ45	N	No	N	No
	AX Isolated Analog i/p	AI Analog i/p	AX Isolated Analog i/p	AI Analog i/p	AX Isolated Analog i/p	AI Analog i/p	AX Isolated Analog i/p	AI Analog i/p	AX Isolated Analog i/p	AI Analog i/p	AX Isolated Analog i/p	U2 18-36 VDC	2E	2 x RS485 + 1 x RJ45	Y	Yes	Y	Yes
								RL 8 Relay	RL4 4 Relay	RL8 8 Relay	OC2 Open Collector o/p			1P 1 x RS485 + 1 x Profibus-DP				
									1A 1 no 4-20mA o/p	2A 2 nos 4-20mA o/p	4A 4 nos 4-20mA o/p			EP 1 x RS485 + 1 x Ethernet/IP				
									6A 6 nos 4-20mA o/p	8A 8 nos 4-20mA o/p	DI Digital i/p			PN 1 x RS485 + 1 x Profinet				

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	6	7	8	9	10									
85XX ⁺	CE	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX		
		AI Analog i/p	N	None	N	None	N	None	N	None	N	None	U1 85-265 VAC	1E	1 x RS485 + 1 x RJ45	N	No	N	No	
		AI Analog i/p	AI Analog i/p	AI Analog i/p	AI Analog i/p	AI Analog i/p	AI Analog i/p	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	2E	2 x RS485 + 1 x RJ45	Y	Yes	Y	Yes

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
- We supply 2.5-meter standard prefab cables with 85XX+ for field connections of each Input/Output card
- In Ethernet/IP and Profinet communication protocols Data logging option is supported. However, USB Port is not available. Data fetching can only be performed via RS485 port using the mSCAN+ software.
- Isolated and Non-Isolated channels cannot be mixed, Choose either fully Isolated (AX) or fully Non-Isolated (AI) variants in 8/16/24 channel options.

Prefab Cables Ordering Code	
Part Code	Description
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-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

Busbar Temperature Sensor (Extra Cost)	
BSSRTD1-Busbar-LX	Busbar Temperature Sensor (PT100)