masibus
A Sonepar Company

85XX+

24-Channel Scanner/ DAQ Module

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

mSCAN+ CE Modbus Over RS485 Modbus TCP/IP PROFINET PROFIBUS EtherNet/IP RoHS

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
- Data logging 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

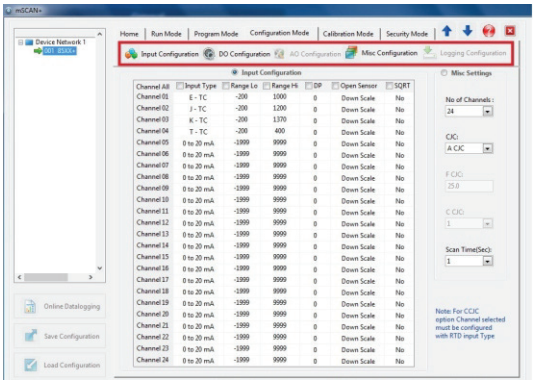
mSCAN+ Software is used to Monitor
and Configure the Multichannel Scanner

- 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

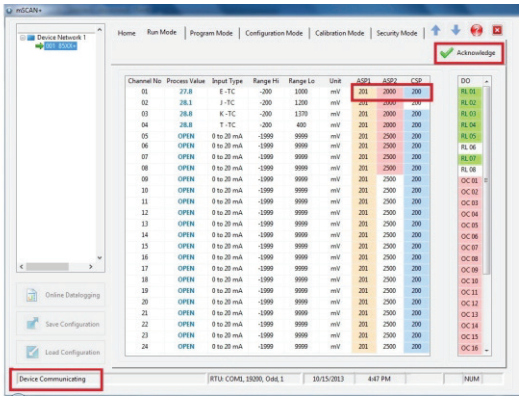
Easy to Monitor

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

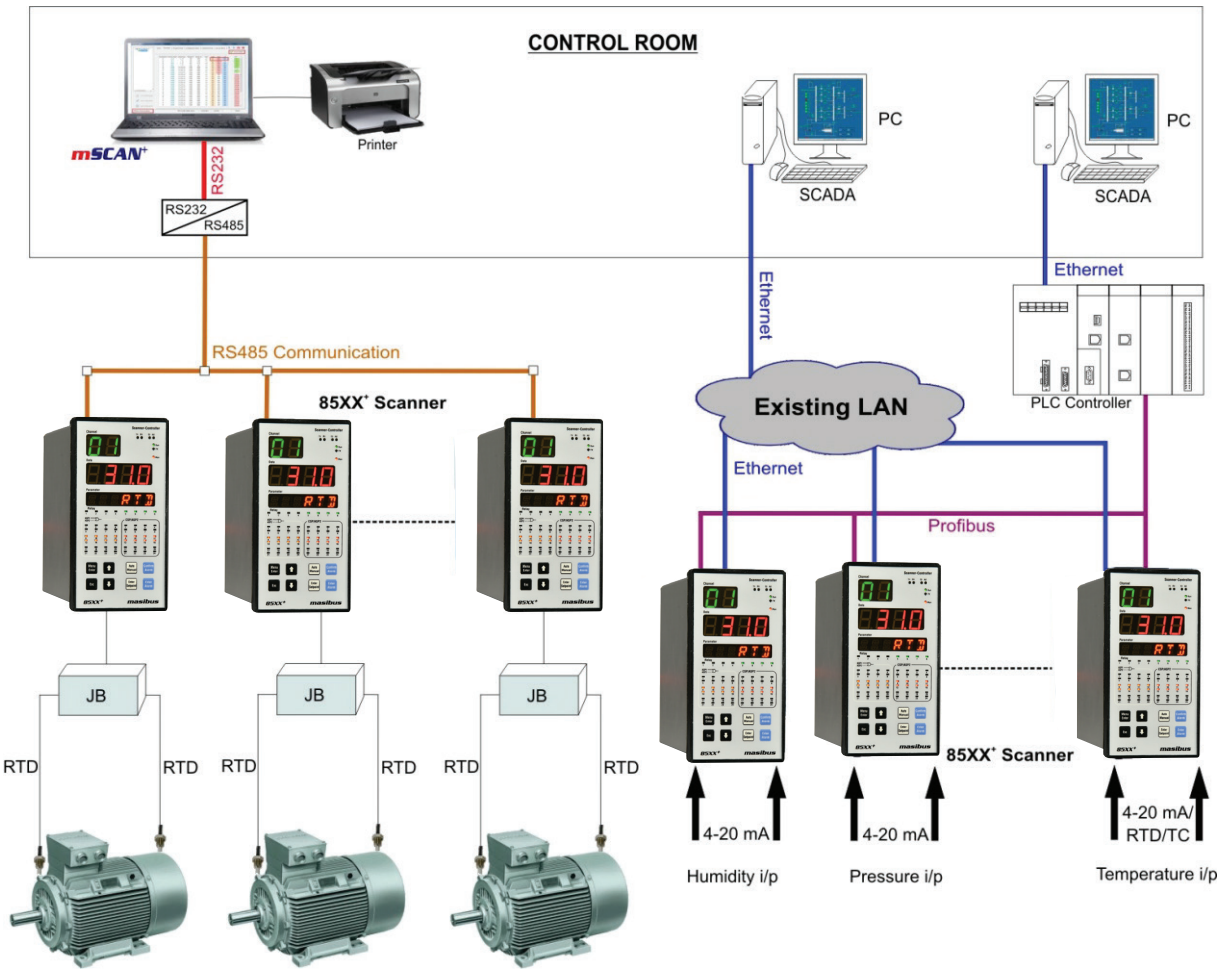
Programming using mSCAN+ Software



Monitoring using mSCAN+ Software



APPLICATION



TECHNICAL SPECIFICATION

Input

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/Channels RTD: 100mSec/Channels
Display Scan Rate	1 to 99 Sec (Programmable)
CJC	Auto/ Manual/ External for T/C type
CJC Error	±2°C (0 to 55°C)
Sensor open	All inputs except 0-5V, 0-10V DC
Sensor Burnout current	0.4uA
RTD excitation current	250uA (Approx)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20V DC
Connector Type	24 pin Rectangular connector/25 pin D sub Connector
PV Value Format for Modbus	Integer/Swap Float
Channel to Channel Islolation for Isolated AI Card option	125VAC/300VDC

Digital Input ▲

No of DI modules	1 (16 ch)
Response time	50mSec
Rated Input Voltage	24 V DC
Input On Voltage	≥ 15 V DC
Input Off Voltage	≤ 5 V DC
Input Current (At Rated Input Voltage)	Approx 3mA/ Channel
Maximum Allowable Input Voltage	30 V DC

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	RL: 8 Nos per card RL4: 4 Nos per card RL8: 8 Nos per card
RL Module	RL (Form A): C- NO or C-NC (Jumper Selectable)
RL4 / RL8 Module	RL4 (Form C): C-NO-NC RL8 (Form C): C-NO-NC
Rating	2A @ 250V AC / 30V DC
Connector Type	25 D-Sub

Open Collector (OC) Output (Optional)

OC Outputs	24
Type	Sink
Rating	100mA@30V DC
OC1 Module	Common pin: Ground only (O/P Logic Isolated)
OC2 Module	Common pin: +5V@1A/Ground, jumper selectable for Internal/External Relay drive (O/P Logic non-Isolated) *Default jumper set for Ground
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, 19200, 57600 bps
Parity	Odd, Even, None
Stop Bit	1, 2
Connector	2 pin, plug-in terminals

Ethernet (Optional)

Protocol	Modbus - TCP/IP(Modnet) Slave
Baud Rate	10 Mbps
Connector	RJ45

Profibus-DP ▲(Optional)

Protocol	Profibus DP V0 Slave
Max. In/Out Bytes	244 IN / 244 OUT Bytes
Baud Rate	1200 to 12 Mbps Auto Detecting
Connector	9-Pin D-type Female

PROFINET ▲(Optional)

Device Type	Profinet I/O Device
Communication Protocol	Profinet
Network Topology	MRP (Media Redundancy Protocol), STAR, LINE
Network Port	2 Nos (RJ-45)
Max. In/Out Bytes	256 IN / 256 OUT Bytes*
Network Speed	10/100 Mbps, Auto-negotiation & Auto-crossover
Data Transport Layer	Ethernet II, IEEE 802.3
Configuration File	GSDML available
Conformance Class	Class C

ETHERNET/IP ▲(Optional)

Device Type	EtherNet/IP Adapter (Slave)
Communication Protocol	EtherNet/IP
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.

USB Port (Optional-only for logged data retrieval through pendrive)

No of port	1 no max
Standard	2.0
Data format	Excel
Max. USB pen drive size	Upto 16 GB supported

Data Logging

Memory Size	25MB (Periodic), 7MB (Event)
Data retrieval	via mSCAN+ Software
Min Periodic Log Time	1 min
No of Records	$101888 \times \left[\frac{256}{(2 \times \text{No. of Ch}) + 12}\right]$

Power supply

Voltage	85-265 V AC, 50/60 Hz/ 100-295 V DC 18 - 36V DC (Optional)
Power Consumption	9W

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 at 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 Fascia)

Table 1: Display Range

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
	N	-200 °C to 1300 °C
RTD	Pt100	-199.9 °C to 850.0 °C
	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

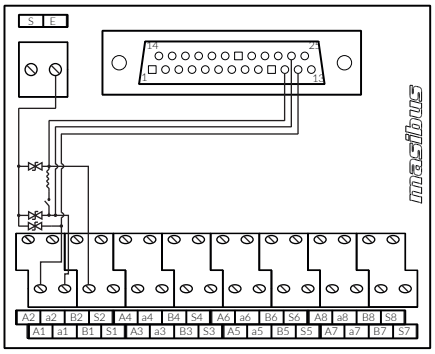
TECHNICAL SPECIFICATION

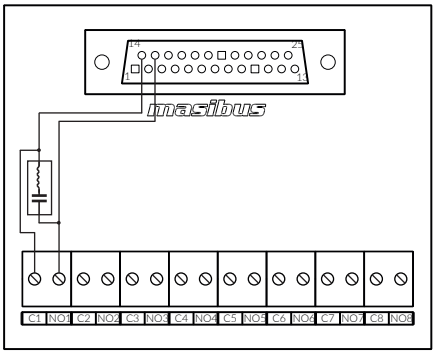
Environmental	
Operating temperature	-10 to 55 °C
Storage temperature	0 to 80 °C
Humidity	20 to 95 % RH non-condensing

Complience applicable only for 85XX+ CE Model
EN 61010-1:2010 (Safety)
EN 61000-6-2:2005 (EMI/EMC)
EN 61000-6-4:2007 (EMI/EMC)
Note: ▲Options are not available in CE compliance Scanner

Terminal Board for AI Module (Optional)	
Input Connection	MKDS type connector screw up to 2.5mm² conductor
O/P Connection	25 Pin D-type plug in type Connector
Size (L X W X H) in mm	90 X 90 X 75
Mounting	35 mm DIN Rail

Terminal Board for Relay Module (Optional)	
Input Connection	25 Pin D-type plug in type Connector
O/P Connection	MKDS type connector screw up to 2.5mm² conductor
Size (L X W X H) in mm	90 X 90 X 75
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		X		X	
	AI	Analog i/p	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	AI	Analog i/p	RL	8 Relay	RL4	4 Relay	U2	18-36 VDC	2E	2 x RS485 + 1 x RJ45	Y	Yes	Y	Yes
			AX	Isolated Analog i/p	AX	Isolated Analog i/p			RL8	8 Relay			1P	1 x RS485 + 1 x Profibus-DP				
									OC2	Open Collector o/p			EP	1 x RS485 + 1 x Ethernet/IP				
									1A	1 no 4-20mA o/p			PN	1 x RS485 + 1 x Profinet				
									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	
		AI	Analog i/p	N	None	N	None	N	None	N	None	U1	85-265 VAC	1E	1 x RS485 + 1 x RJ45	N	No
				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

Note:
1) Specify X from ordering code.
2) # If USB port is selected, Datalogging option must be selected. USB port will work with Masibus supplied pen drive only.
3) For Analog o/p type; other than 0/4-20mA please contact factory
4) 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
5) We supply 2.5-meter standard prefab cables with 85XX+ for field connections of each Input/Output card
6) 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.
7) 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

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All specifications are subject to change without notice due to continuous improvements.
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