Quick User Guide

masibus
A Sonepar Company

85XX+ Scanner/DAQ

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Input Type	Range	Input Type	Range
E	-200 to 1000°C	CU53	-210.0 to 210.0°C
J	-200 to 1200°C	NI120	-70.0 to 210.0°C
K	-200 to 1370°C	-10 to 20 mV	-1999 to 9999
T	-200 to 400°C	0 to 100 mV	
B	450 to 1800°C	4-20mA	
R	0 to 1750°C	0 to 20 mA	
S	0 to 1750°C	0 – 5 V	
N	-200 to 1300°C	1 – 5 V	
RTD(PT100)	-199.9 to 850.0°C	0 – 10V	

Table 1.1

SPECIFICATIONS

NO. OF CHANNEL	8 or 16 or 24
ACCURACY TC/RTD/LINEAR:	± 0.1% of instrument range ± 1 digit
RESOLUTION TC(E,J,K,T)/RTD/CU53/NI120: TC(B,R,S,N): LINEAR:	ADC: 17 bits 0.1°C 1°C 1 Count
APPLICABLE STANDARD	DIN (ITS-90) for Thermocouple and RTD
INPUT TYPE	Refer table 1.1
SAMPLING PERIOD PER INPUT	50 ms for TC and Linear Input and 100 ms for RTD
BURNOUT CURRENT	0.4 µA
MEASUREMENT CURRENT	250 µA
INPUT IMPEDANCE	>1 MΩ for RTD/Voltage inputs, 250 Ω for current Input
NMRR	> 40 dB (50/60 Hz)
CMRR	>120 dB (50/60 Hz)
ALLOWABLE WIRING RESISTANCE FOR RTD	Maximum 15 ohms/wire (Conductor resistance between three wires should be equal).

Channel to Channel Isolation for Isolated Analog Input Card (Optional)	125VAC/300VDC

Digital Input Specification (Optional)*

NUMBER OF INPUT CHANNELS	16			
RATED INPUT VOLTAGE	12 V DC (Sink / Source)	24 V DC (Sink / Source)	110 V DC (Sink)	220 V DC (Sink)
INPUT ON VDC	≥ 7 V	≥ 15 V	≥ 75 V	≥ 110 V
INPUT OFF VDC	≤ 4 V	≤ 5 V	≤ 30 V	≤ 50 V
INPUT CURRENT	4 mA ± 20% / Ch	4 mA ± 20% / Ch	2 mA / Ch	2 mA / Ch
MAXIMUM ALLOWABLE INPUT VOLTAGE	15 V DC	30 V DC	132 V DC	250 V DC
RESPONSE TIME	50 mSec			

* With Digital Input, CE marking is not applicable/valid

Digital Output- Relay

NUMBER OF OUTPUTS	8
PURPOSE	Alarm or trip or control or watchdog output
OUTPUT SIGNAL	Two terminals (C and NO)
RELAY CONTACT RATING	250 VAC / 30 VDC @ 2A
NUMBER OF RELAY OPERATION	1 X 10^5 @ rated current

Digital Output- Open Collector (Optional)

NUMBER OF OUTPUTS	24
PURPOSE	Alarm or trip or control or watchdog output
OUTPUT TYPE	transistor open collector output selection)
CONTACT RATING	30 V DC,100 mA

Analog Output- Analog Output (Optional)*

NUMBER OF OUTPUTS	8
OUTPUT SIGNAL	0-20 mA, 4-20 mA or 0-5 V, 1-5 V, 0-10 V DC
LOAD RESISTANCE	For current o/p, 550Ω Max. For Voltage o/p, 3000Ω Min.
OUTPUT ACCURACY	±0.25% of span

* With Analog Output, CE marking is not applicable/valid.

Programming and Setting

KEYPAD	8-keys tactile membrane keypad
CONFIGURATION SOFTWARE	All Configurable parameters can be set through PC Based software
MEMORY	Non-volatile, restored after power loss

Communication Specification

NO. OF COMMUNICATION PORT	2-RS485(COM-1 and COM-2) . COM2 is Optional
COMMUNICATION TYPE	Half duplex/Asynchronous
COMMUNICATION PROTOCOL	MODBUS RTU. All parameters are Configurable through MODBUS Protocol.
MAXIMUM NO. OF UNITS	32
COMMUN. ERROR DETECTION	CRC Check

PROFIBUS Communication (Optional) *

MODE	Profibus DP Slave
BAUD RATE	9600, 19.2K, 44.45K, 93.75K, 187.5K, 500K, 1.5M, 12M bps
ADDRESS	Configurable through Configuration Software (0 to 125 Only)
NETWORK CAPACITY	• Multi-drop up to 31 modules, Plus a host, without a repeater • Up to 125 modules plus a host if four repeaters are used
COMMUICATION DISTANCE	Up to 1200 meters without a repeater using Type A wire • 1200m @ 115Kbps or less • 1000m @ 187.5Kbps • 400m @ 500Kbps • 200m @ 1.5Mbps • 100m @ 12Mbps

* With Profibus communication CE marking is not applicable

PROFINET Communication (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 Bytes (Only Read is possible in Profinet)
NETWORK SPEED	10/100 Mbps, Auto-negotiation and auto-crossover capabilities
DATA TRANSPORT LAYER	Ethernet II, IEEE 802.3
CONFIGURATION FILE	GSDML available
CONFORMANCE CLASS	Class C

* With Profinet communication CE marking is not applicable

ETHERNET/IP Communication (Optional) *

DEVICE TYPE	EtherNet/IP Adapter (Slave)
COMMUNICATION PROTOCOL	EtherNet/IP
NETWORK TOPOLOGY	DLR (Device Level Ring), TREE, LINE
MAX. IN/OUT BYTES	504 IN Bytes (Only Read is possible in Ethernet/IP)
NETWORK PORT	2 Nos (RJ-45)
NETWORK SPEED	10/100 Mbps, Auto-negotiation and auto-crossover capabilities
DATA TRANSPORT LAYER	Ethernet II, IEEE 802.3
CONFIGURATION FILE	EDS available

* With Ethernet/IP communication CE marking is not applicable

HMI Interface (Optional)*

NO. OF COMMUNICATION PORT	1-RS-232 (HMI)
COMMUNICATION TYPE	Half duplex/Asynchronous
COMMUNICATION PROTOCOL	MODBUS RTU
CONNECTABLE NO. OF UNITS	1
COMMUN. ERROR DETECTION	CRC Check

Network Connectivity (Optional)

NO. OF COMMUNICATION PORT	1(RJ-45)
TRANSMISSION SPEED	10 Mbps
NETWORK PROTOCOL	TCP/IP
APPLICATION PROTOCOL	MODNET

Data logging (Optional)

Data logging Memory Type	Flash Memory (32 MB)
Data logging type	Periodic and Event
Periodic Memory Size	25 MB
Event Memory Size	7 MB
RTC Time format	DD/MM/YY – HH:MM:SS
Periodic Logging sampling time	1 Second minimum
Event polling time	1 second
USB Port*	1(USB 2.0)
USB Function	For retrieving logged data only
Max. USB storage device size	Upto 32 GB
USB Mass storage device format	• FAT16 • FAT32
USB fetched data file format	.xls (only)
USB data retrieving option	• Full Data Fetch • Fetch Data by time

*With USB port, CE marking is not applicable/valid.

Display Specification

CHANNEL NO DISPLAY	2-digits, 7-segment, Green , 0.56" character height
DATA DISPLAY	4-digits, 7-segment, Red, 0.56'' character height
PARAMETER DISPLAY	6-digits, 16-segment Alphanumeric, Orange LEDs, 0.3" character height
STATUS LEDs	24-Red LEDs for Alarm, 24-Orange LEDs Control Output, 8-Green LEDs for Relay, 1-Red LED for Manual mode, 1-Green for Run mode,1-Red for Fault, 2-Green(Rx) & 2-Red(Tx) for Communication

Environmental Specification:

AMBIENT TEMPERATURE	-10 to 55°C
HUMIDITY	30% to 95% RH (Non-Condensing)
TEMPERATURE COEFFICIENT	< 100ppm
WEIGHT	1.25 KG
INSTRUMENT WARM-UP TIME	<15 mins after power on
DEGREE OF PROTECTION	IP54 (From Front)

Power Supply Specification

RATED VOLTAGE	85-265VAC-50/60Hz / 100-300VDC or 18-36VDC
POWER CONSUMPTION	Max. 16 VA (85-265 VAC) and Max. 8 VA (18-36 VDC)

Isolations (Withstanding Voltage)

- Between primary terminals* and secondary terminals**: 1500VAC for 1 minute
- Between secondary terminals: 500V AC for 1 minute

* Primary terminals indicate power terminals and relay output terminals

** Secondary terminals indicate analog input signals, Digital Contact output terminals, communication terminals and Ethernet N/W terminal

Insulation Resistance: 20MΩ or more at 500 V DC

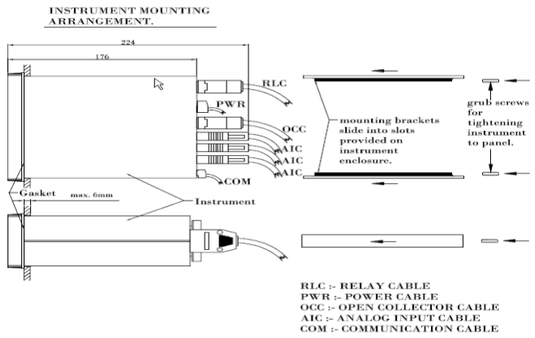
Signal Isolation Specifications

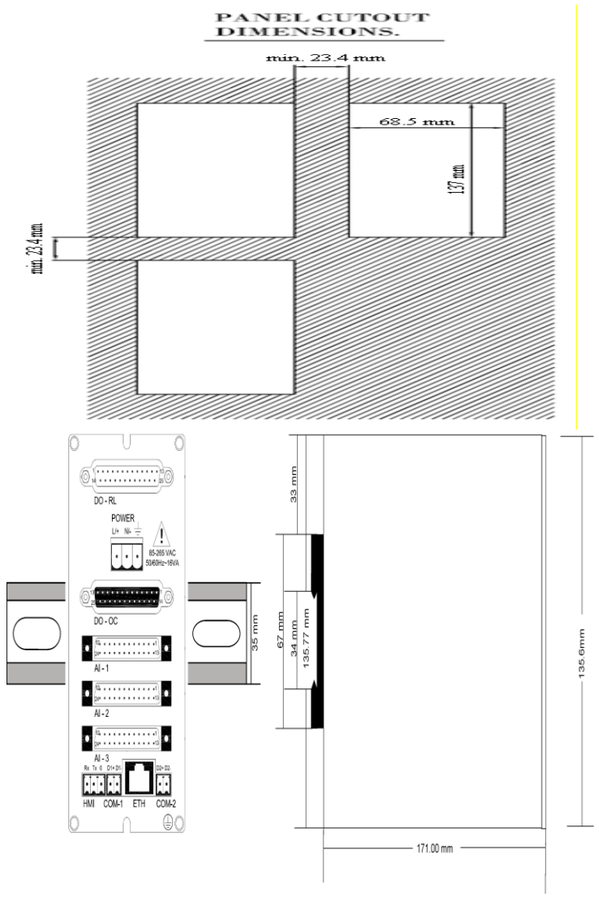
Sr.No	Signals	Signal Isolation
1	Power Input	Isolated from other ip/op terminals and internal circuit
2	Analog Inputs	Not isolated from other analog i/p terminals & the internal circuit. But isolated from other ip/op terminals.
3	RS-485 Communication	Isolated from other ip/op terminals and internal circuit
4	Ethernet Communication	Isolated from other ip/op terminals and internal circuit
5	Relay contacts	Isolated between contact o/p terminals & from other ip/op terminals and internal circuit
6	Digital Output	Isolated from other ip/op terminals and internal circuit

Construction, Installation & Wiring Specification

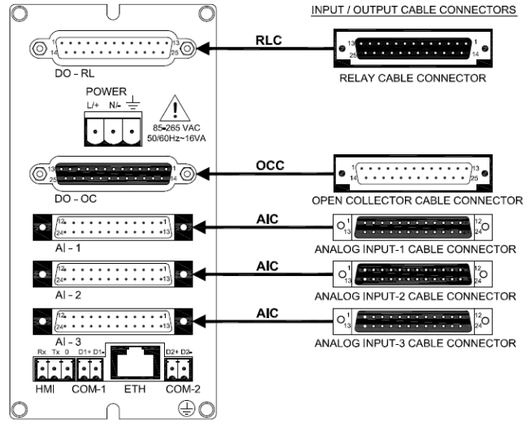
MATERIAL	Aluminum extrusion
CONSTRUCTION	Panel Mount Top and Bottom mounting clamps (1 each)
CASE COLOR	Clear Anodized
WEIGHT	1.25 KG
ENCLOSURE DIMENSION	72mm (W) X 144mm (H) X 165mm (D)
PANEL CUTOUT	68.5mm (W) x 137mm (H)

MOUNTING DETAILS





TERMINAL CONNECTION



- DO – RL Relay Terminals: 16
  - Pre-Feb. Cable
- Power Supply: Live (L/+), Neutral(N/-) and Earth (⏚)
  - Pre-Feb. Cable
- AI-1,2 and 3 Analog Input: 72 **or** AI-1 Analog Input: 8 and DI-1 Digital Input: 16
  - Pre-Feb. Cable
- DO – OC Digital Contact Output: 25 **or** AO – Analog Contact Output: 16(Optional)
  - Pre-Feb. Cable
- RS-485 Communication: 4
  - Wire Size: 26- 16AWG
  - Screw Size: M2.0 Steel Ni Plated
- Ethernet Communication: 1
  - RJ-45 Connector

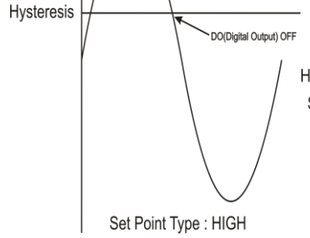
FRONT PANEL DESCRIPTION

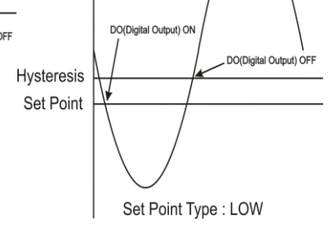
Symbol	Operation
Menu Enter	It allows Mode Selection during Run mode, while it allows saving value of a parameter inside a mode. When inside any mode, it allows to enter in sub-mode.
Esc	It is used to come out from mode/Sub-mode. It is also used to escape from edit mode without saving the respective parameter.
⬆	It is used in increment of value in run mode and other modes
⬇	It is used in decrementing value when run mode and other modes. It is also used for shifting a digit while editing of numeric value.
Auto Manual	It allows user to toggle between Auto Channel Display mode – Manual Channel Display Mode.
Confirm Alarm	Acknowledge the Alarm During RUN Mode.
Enter Alarm	Enter into Set Alarm1 and Alarm2 mode during RUN Mode
Enter Setpoint	When pressed in run mode it will allow the user to enter into Control Set point Mode

Control Output Operation

Control O/P is the simplest form of temperature control. The output from the device is either on or off, with no middle state. For heating control, the o/p is on when the temperature is below the set point, and off above set point. Since the temp. crosses the set point to change the o/p stage, the process temp. will be cycling continually, going from above set point to below, and back above. In cases where this cycling occurs rapidly, and to prevent contactors and valves from getting damaged, on-off differential, or Hysteresis is added to the control operations.
This Hysteresis assures, if temp. goes below set point by a certain amount before then only o/p will turn off or on again. On-Off Hysteresis prevents the o/p from chattering or making fast, continual switches if the cycling above and below the set point occurs very rapidly. Once Process value reaches down to set point-Hysteresis value relay will be energized and it will be on until process value goes up towards Set point.

BASIC DO (DIGITAL OUTPUT) FUNCTION





WATCHDOG TIMER / OUTPUT OPERATION

The WDT, when enabled, operates from the internal Low-Power RC (LPRC) Oscillator clk source. The WDT can be used to detect system software malfunctions by resetting the device if the WDT is not cleared periodically in software. If malfunctioning of device persist even after watchdog reset device will go into shutdown mode followed by error messages on display as per Error! Reference source not found..
Device Fault can be monitored by a failsafe relay o/p which is mapped for watchdog o/p. When WDT is disable device will continue to work with fault. The Fault LED will be on in this condition.

Error Messages	Fault
Error 1	CPU card EEPROM failure
Error 2	SC 1 card ADC failure
Error 3	SC 1 card EEPROM failure
Error 4	SC 2 card ADC failure
Error 5	SC 2 card EEPROM failure
Error 6	SC 3 card ADC failure
Error 7	SC 3 card EEPROM failure
Error 8	CPU card Controller Hang – failure
Error 9	Communication between CPU and Display card Failure

ALARM OUTPUT

Every single channel can have maximum 3 set points. 2 for Alarm outputs(1 for Alarm 1 Set Point and 1 for Alarm 2 Set Point) and 1 for Control Set Point, totaling 48 alarm outputs and 24 control outputs for 24 number of channels. Control Outputs are Optional.

- 8 Relays and/or 24 Open Collectors can be used as DO. All Digital Outputs are Optional.
- Following tables shows Alarm Output , control output and digital output operation.

For operation manual please visit www.masibus.com
Specifications are subject to change without notice due to continuous improvements.

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