Specifications[1]

Models: MS-2102, MS-2102-E3

Temperature Input

Range:	-50 to +500°C (-58 to 932°F)
Accuracy:	±2°C
Repeatability:	±1°C
RTD:	Two, 100 ohm platinum, 3-wire RTD 20 ohms maximum lead resistance

Heater Switching

Configuration:	Two circuit, single-pole, one SCR per circuit, 800 amp 1 cycle inrush
Ratings:	85-280Vac, 30A continuous
Line Frequency:	50 or 60Hz
Current Measurement:	0.1 to 30A 3%±0.2A
GF Measurement:	10 to 1000mA 5%±2mA
Voltage Measurement:	0 to 300Vac 3%±2V (only for heater 1)

Control Power

Power Requirement:	Control power from heater 1 voltage 85-280VAC, 10VA max
Protection:	Control power from heater 1 voltage protected by 2A fuse MOV transient protection

Communication

Port:	1 Serial network connection
Type:	RS485
Protocol:	Modbus® RTU.
Transmission Rate:	600,1200, 2400, 4800, 9600 baud.
Interconnect:	2-wire, shielded, twisted pair.
Highway Distance:	4,000 feet without repeater.
Modules per Highway:	32 Control Modules.

Measured Values

Temperature:	-50 to 500°C (-58 to 932°F)
Minimum Temperature:	-50 to 500°C (-58 to 932°F)
Maximum Temperature:	-50 to 500°C (-58 to 932°F)
Heater Current:	0.1 to 30A
Ground Fault Current:	10 to 1000mA
Min. Heater Voltage:	85 to 300Vac
Max. Heater Voltage:	85 to 300Vac
Power Consumption:	0 to 1,000 MWh
Operating Cost:	0 to $1,000,000.00

User Interface

Display:	16-character x 2-line LCD display
Keypad:	9 tactile keys, polyester faceplate - Setpoint, measured, status - Message Up, Message Down - Value Up, Value Down, Reset, Store
Contrast:	Adjustable by potentiometer
Panel Indicators:	Power on, Heater on, Communication active, System fail, Process alarm
Security:	Controller parameters switch-protected

Environment

Approvals:	CSA C/US, Class I, Div. 2, Groups A, B, C, D; Class I, Zone 2, Groups IIC; Class II, Div. 2, Groups F & G; Class III
Operating Temperature:	-40°C to +50°C
Conformal Coating:	Boards conformal coated for hostile environments

Enclosure

Type:	Models with option E3: Nema-4X stainless steel, painted black Models without option E3: Nema-4X steel, painted black
Size:	10”Hx8”Wx6”D
Features:	Quick release latches to open door Flat aluminum plate to act as heatsink and mounting flange for mounting on Uni-Strut. One 3/4” conduit knockout for power and three 1/2” conduit knockouts for RTD and signal wiring.

Alarm Output

Alarm:	Programmable for NO or NC contact One Mechanical (dry) contact
Alarm Rating:	Mechanical contact: 30Vdc/100mA, 120Vac/0.52A, 62.5W Max
Alarm Output:	LED Indicator: 5Vdc/50mA

Alarm Function

Temperature:	High Temp Alarm, Low Temp Alarm
Current:	Low Current Alarm, High Current Alarm
Ground Fault Current:	Ground Fault Current Alarm Ground Fault Current Trip
Voltage:	Low Voltage Alarm
Hardware:	Self-Check Failure, Relay Failure, RTD Open, RTD Short

User-Definable Options

Heater Status:	Enable or Disable
Heater Name or Tag:	16 Character Alphanumeric
Temperature Units:	°C or °F
Proportional Control:	on or off
Deadband:	1 to 50C° (2 to 90F°)
Power Limit:	0.1 to 30A, off
TraceCheck:	1 to 24hrs, off
Temperature Setpoint:	-50 to 500°C (-58 to 932°F), off, none
High Temp Alarm:	-50 to 500°C (-58 to 932°F), off
Low Temp Alarm:	-50 to 500°C (-58 to 932°F), off
High Current Alarm:	0.1 to 30A, off
Low Current Alarm:	0.1 to 30A, off
Ground Fault Alarm:	10 to 1000mA, off
Ground Fault Trip:	10 to 1000mA, off
Low Voltage Alarm:	85V to 300V, off
RTD Fail-safe:	Heater On or Heater Off
Override:	On or Off
Alarm Contacts:	NO or NC for mechanical contact
Alarm Light:	Alarm on, Alarm off, Flash during alarm then on, Flash during alarm then off

Ground Fault

Maximum Trip Time:	7.4 seconds

1. This is a precise specification for MS2102 controller. For MS2102 panels, there could be some variations.