



Product Manual

4 Channel Scanner
with USB Data Logger
and RS-485 Communication

MSU 1244U-M1



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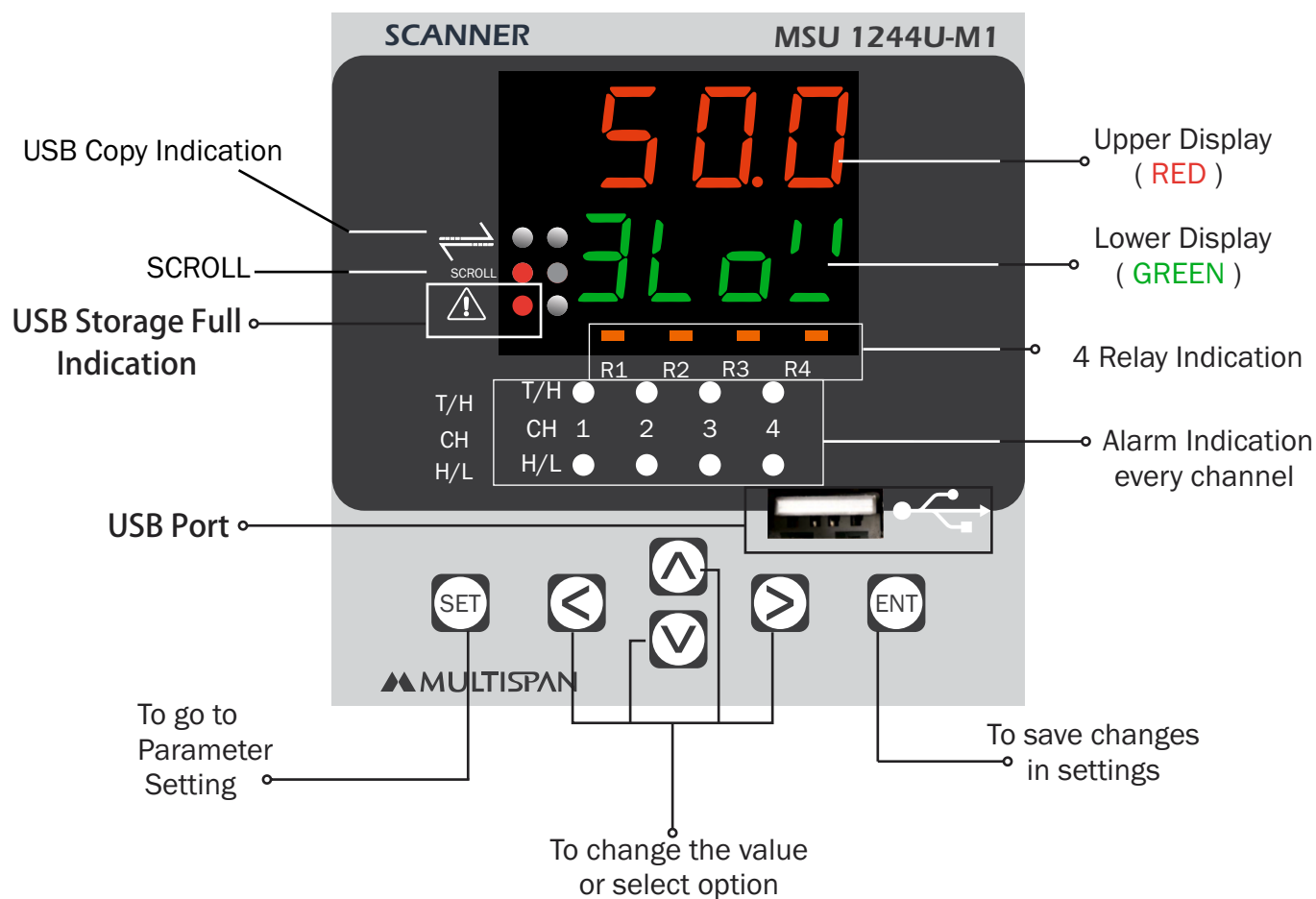
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Product Inception



Technical Specifications

Model	MSU 1244U-M1			
Display	UPPER: 4 Digit 7 seg 0.70", RED LED Display LOWER: 4 Digit 7 seg 0.50", GREEN LED Display			
Size (mm)	100 (H) X 100 (W) X 70 (D) mm			
Panel Cutout	92 X 92 mm			
Inputs and Range	Thermocouple J 0 to 600 °C K 0 to 1200 °C	Analog input 0 - 10V DC 0 - 20mA DC 4 - 20mA DC	Range -999 To 9999	RTD PT-100/3W -99 to 400 °C PT.1/3W -99.0 to 400.0 °C
Output	4 Relay (NO-C-NC) 1C/O 5A@230V AC, 5A for resistive load with RS-485 RTU MODBUS & USB Data Logger Facility			
Power Supply	100 to 270V AC, 50/60 Hz, Approx 7VA			
Operating Temperature	0 °C To 55 °C			
Relative Humidity	Up to 95% RH Non Condensing			

Procedure

1) Do all connections as per the wiring diagram.

To Configure: 1. Input Selection (J, K, PT-100, PT.1, 0 - 10V DC, 0 - 20mA DC & 4 - 20mA DC).

2. Relay mode

➤ If 1 Relay per group

LOW

HIGH

HIGH / LOW

➤ If 2 Relay per group

LOW / HIGH

HIGH / TRIP

➤ 3. Set point selection.

➤ 4. Analog range selection .

➤ 5. Offset and Correction factor selection.

2) To add offset & correction factor, press  +  keys together.

➤ Set offset for each channel if required.

➤ Off set range will be $\pm 25^{\circ}\text{C}$ for J, K, PT-100 temperature input.

➤ Off set range will be $\pm 25.0^{\circ}\text{C}$ for PT.1 temperature input.

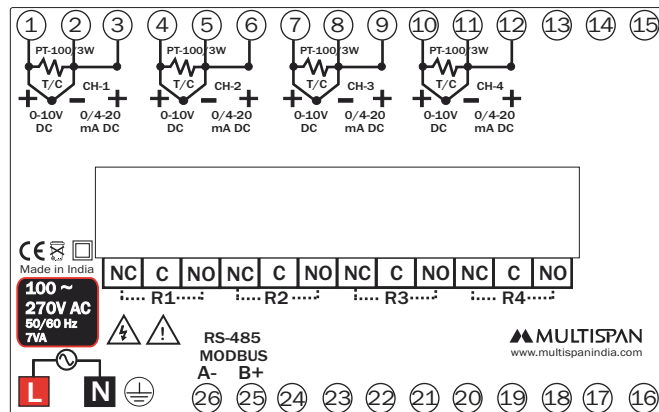
➤ Offset range will be -999 to 1000 for analog input.

➤ Correction factor range will be -999 to 1000 **only for analog input**.

4) Press  key for 3 Sec to Change continuous scrolling or manual scrolling.

5) In Hold mode use  &  key to select next channel.

Terminal Diagram



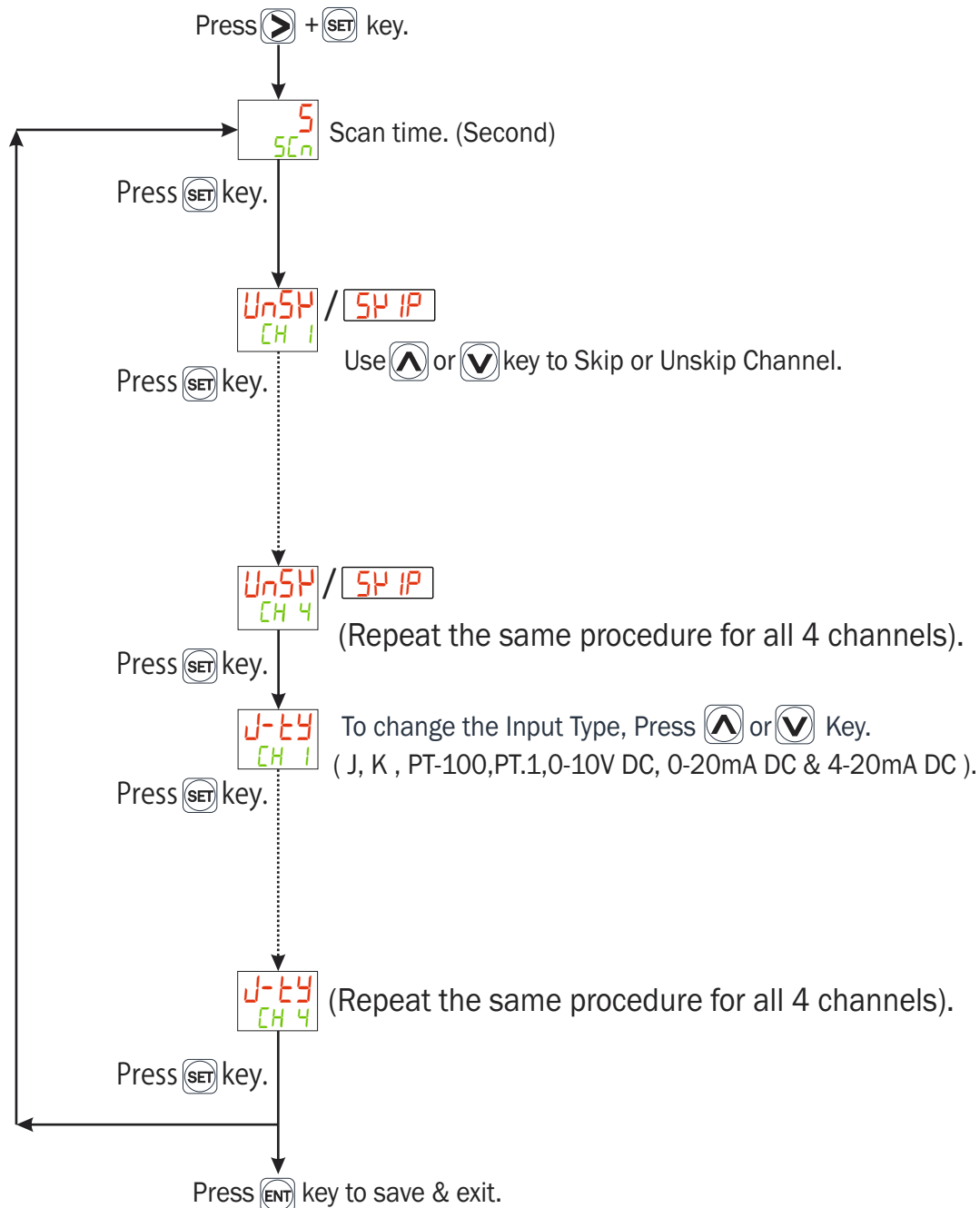
Key Operation

Note :- Values can be changed by pressing  or  keys.

- 1) Press  key to enter in set value menu.
- 2) Press  &  Key to change the parameter setting.
- 3) Press  +  Key to enter in parameter menu
(Input selection, skip-unskip selection)
- 4) Press  +  Key to enter in group menu for relay mode selection.
- 5) Press  +  Key to set OFFSET.
- 6) Press & hold  key to enter in scroll & hold mode.
- 7) Press  key for 3 Sec to Change continuous scrolling or manual scrolling.

MENU-1

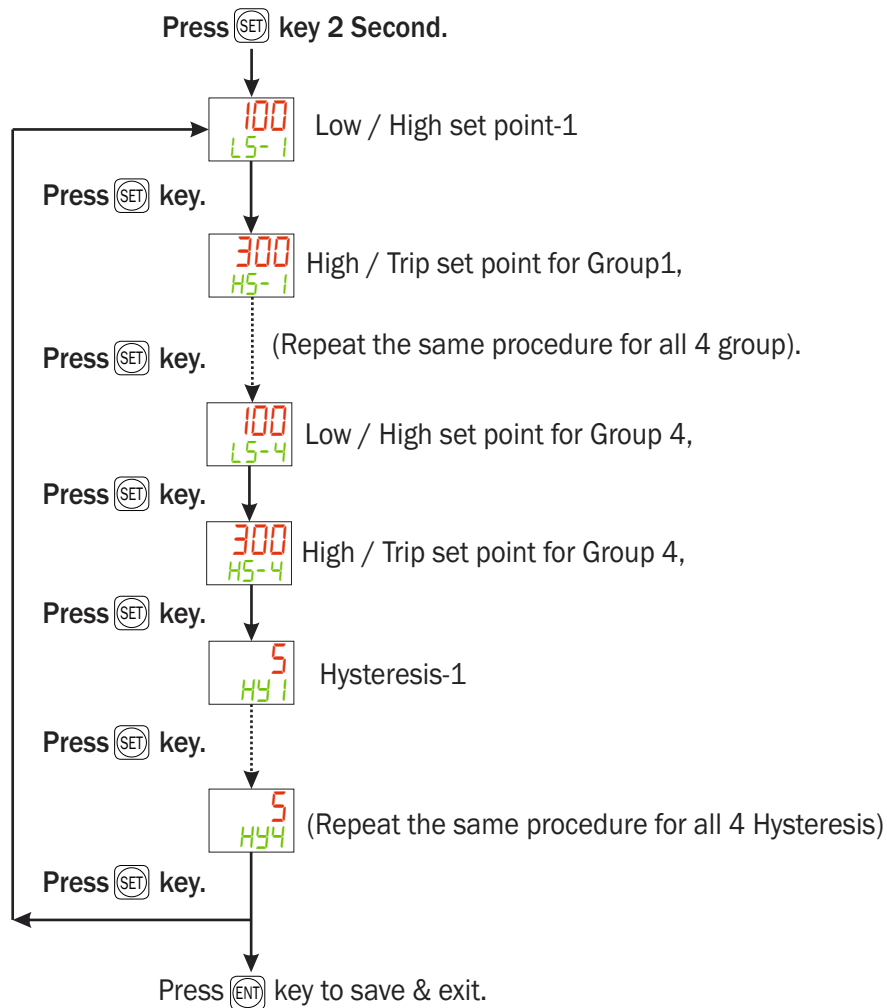
Input Selection



Main Menu: To change set value & hysteresis based on relay mode & grouping

MENU-2

Set point Selection



For Example:

In Group No 1, If 1st channel, have a set point as a high alarm, 1 relay.

In Group No 2 If 2nd channel, have a set point as a low alarm, 1 relay.

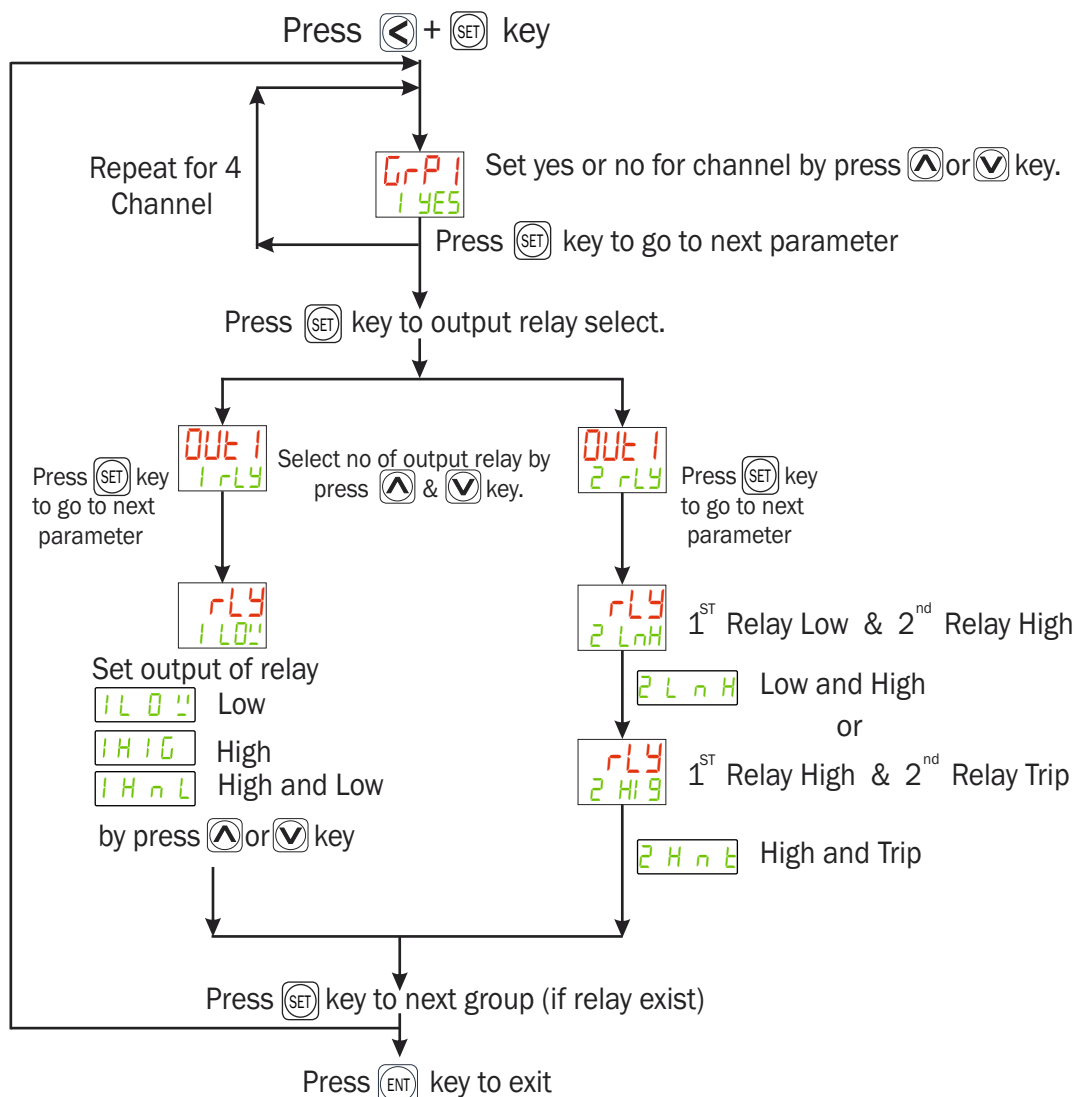
For, 3rd, 4th channel have a set point as high & low alarm, 2 relay.

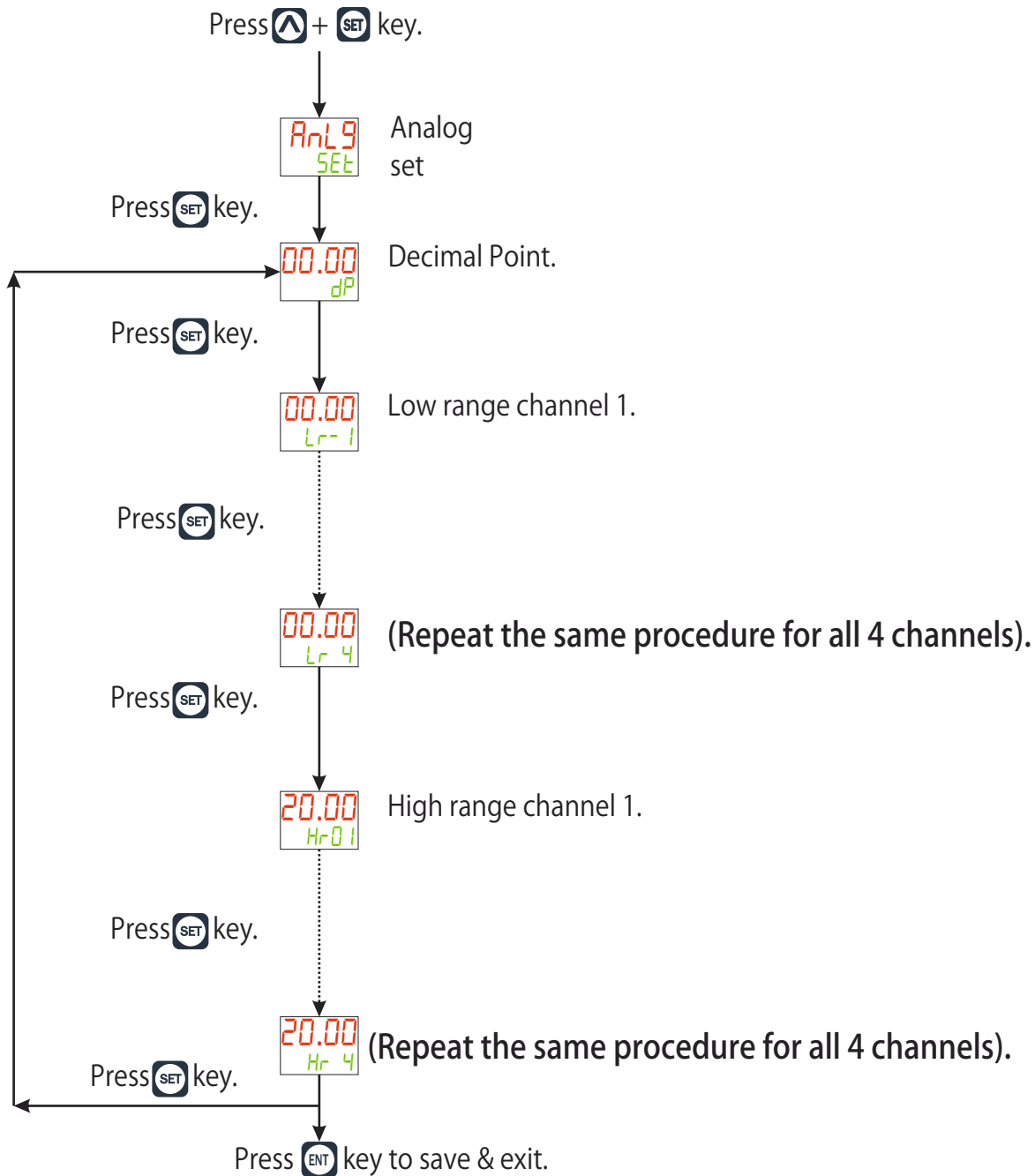
Note :- Values can be changed by pressing  or  keys.

Menu: 3

To configurable no.of channel per group. (User can define maximum 4 group & maximum 4 channel/group), relay mode

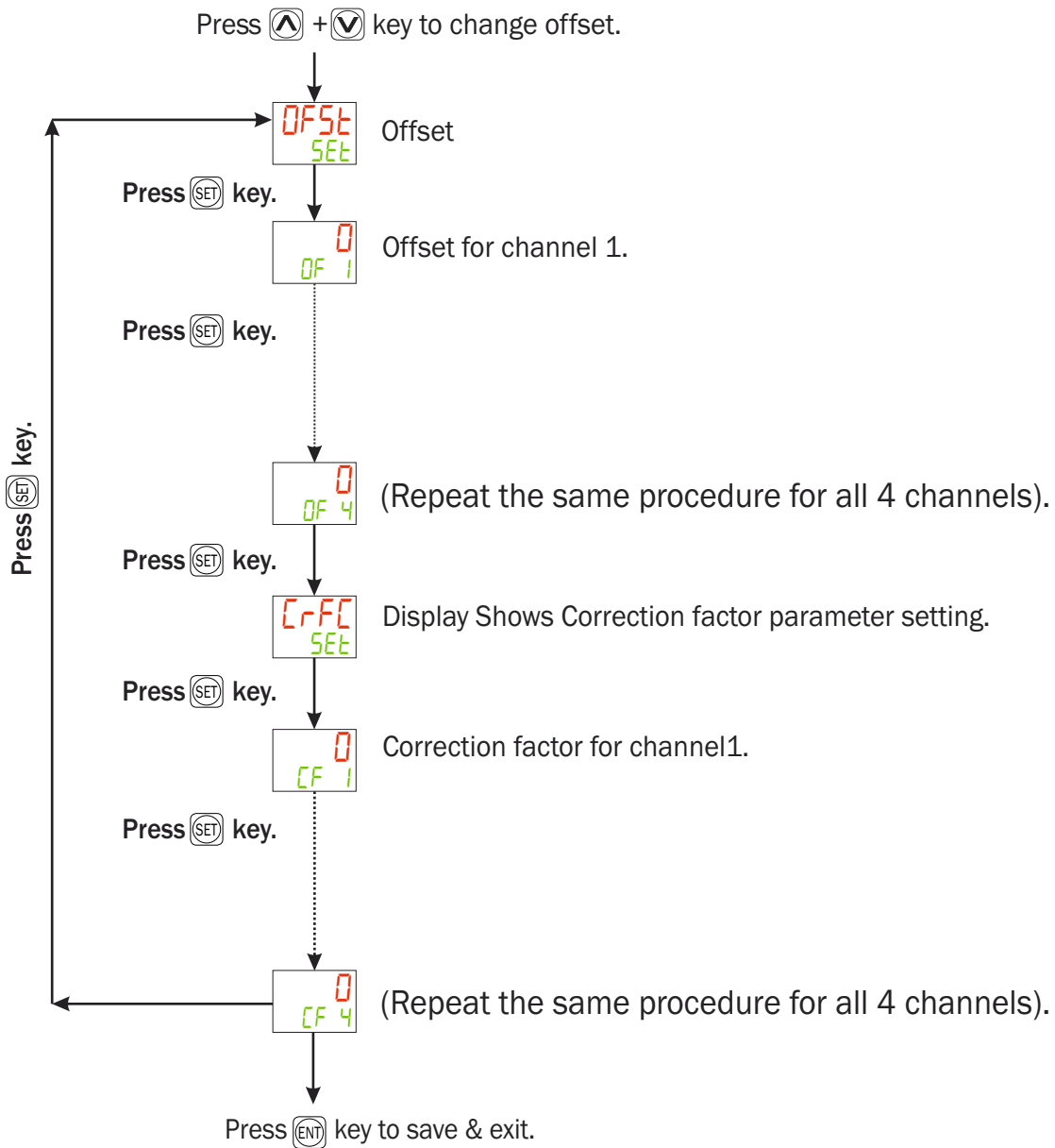
Relay menu





NOTE: DP (Decimal Point) is Common for all channels.
Position can be changed by pressing  or  keys.

Offset and Correction factor selection



Communication Parameter

Note :- Values can be changed by pressing  or  keys.

Press  &  key to access Communication Parameter.

 (1- 127)
Addr Device Address.

Press  key.

 (4800 / 9600 /19200).
bAUD Baud-rate.

Press  key.

 (None / Even / Odd).
Prty Parity.

Press  key.

 Float / Integer /Long.
dAtA Data Type.

Press  key.

 0 TO 99.
FidL

 1-999.
Ubtu USB Save Time
(Minute)

Press  key.

 /  (Second/Minute)
Unit (Unit)


PASS

If password is not 25.

If password is 25.

If password is 123


nEnD

Set yes in memory clear parameter to clear record memory

Press  key.

 (0-59)
SEC Second.

Press  key.

 (0-59)
Min Minute.

Press  key.

 (0-23)
HOUr Hour.

Press  key.

 (1-31)
dAtE Date.

Press  key.

 (1-12)
Mon Month.

Press  key.

 (0-99)
YEAr Year.

Press  key.

Press  key to save & exit.

If usb is disable data won't be copy into memory

- 1) Press 3 Second  +  key to see time
- 2) Press 3 Second  +  key to see date
- 3) Press 3 Second  key to see data record

Date	Time	Channel 1	Channel 2	Channel 3	Channel 4
1/06/2020	14:22:00	45	42	39	35
1/06/2020	14:23:00	46	42	39	36
1/06/2020	14:24:00	46	42	39	36
1/06/2020	14:25:00	46	43	39	36
1/06/2020	14:26:00	46	43	39	36
1/06/2020	14:27:00	46	43	40	36
1/06/2020	14:28:00	46	43	40	37
1/06/2020	14:29:00	46	43	40	37
1/06/2020	14:30:00	46	43	40	37
1/06/2020	14:40:00	46	43	40	37

Modbus Setting

1) Device Address	1 to 127
2) Baud-rate	4800 , 9600 , 19200 (bps)
3) Parity	None , Even , Odd
4) Data Type	Sign Integer , Float, Long
5) Frame Delay	0 to 99

Read/ Write	Parameter		Data Type = Long		Data Type = Sign Integer	
			Read Function Register		Read Function Register	
			0x04	0x03	0x04	0x03
			Address		Address	
R/W	Scan Time		30002	40002	30001	40001
R/W	Skip Channel 1	1- skip channel 2 unskip channel	30004	40004	30002	40002
R/W	Skip Channel 2		30006	40006	30003	40003
R/W	Skip Channel 3		30008	40008	30004	40004
R/W	Skip Channel 4		30010	40010	30005	40005
R/W	Input Channel 1	1- J Type 2- K Type 3- PT 4- PT.1 5- 0 - 10V 6- 0 - 20mA 7- 4 - 20mA	30020	40020	30010	40010
R/W	Input Channel 2		30022	40022	30011	40011
R/W	Input Channel 3		30024	40024	30012	40012
R/W	Input Channel 4		30026	40026	30013	40013
R/W	DP		30038	40038	30019	40019
R/W	Low Range 1		30040	40040	30020	40020
R/W	Low Range 2		30042	40042	30021	40021
R/W	Low Range 3		30044	40044	30022	40022
R/W	Low Range 4		30046	40046	30023	40023
R/W	High Range 1		30056	40056	30028	40028
R/W	High Range 2		30058	40058	30029	40029
R/W	High Range 3		30060	40060	30030	40030
R/W	High Range 4		30062	40062	30031	40031
R/W	Offset channel 1		30074	40074	30037	40037
R/W	Offset channel 2		30076	40076	30038	40038
R/W	Offset channel 3		30078	40078	30039	40039
R/W	Offset channel 4		30080	40080	30040	40040
R/W	CRFC Channel 1		30092	40092	30046	40046
R/W	CRFC Channel 2		30094	40094	30047	40047
R/W	CRFC Channel 3		30096	40096	30048	40048
R/W	CRFC Channel 4		30098	40098	30049	40049

R/W	Group1 Low Setpoint		30132	40132	30066	40066
R/W	Group1 High Setpoint		30134	40134	30067	40067
R/W	Group2 Low Setpoint		30136	40136	30068	40068
R/W	Group2 High Setpoint		30138	40138	30069	40069
R/W	Group3 Low Setpoint		30140	40140	30070	40070
R/W	Group3 High Setpoint		30142	40142	30071	40071
R/W	Group4 Low Setpoint		30144	40144	30072	40072
R/W	Group4 High Setpoint		30146	40146	30073	40073
R/W	Hysteresis 1		30148	40148	30074	40074
R/W	Hysteresis 2		30150	40150	30075	40075
R/W	Hysteresis 3		30152	40152	30076	40076
R/W	Hysteresis 4		30154	40154	30077	40077
R/W	Address		30164	40164	30082	40082
R/W	Baudrate	1-4800, 2-9600, 3-19200	30166	40166	30083	40083
R/W	Parity	1-none, 2-even, 3-odd	30168	40168	30084	40084
R/W	Datatype	1-integer, 2-long, 3-float	30170	40170	30085	40085
R	Frame delay	0 to 100	30172	40172	30086	40086
R	PV Channel 1	18000-chnnel skip 15000-open 16000-over 17000-low	30222	40222	30111	40111
R	PV Channel 2		30224	40224	30112	40112
R	PV Channel 3		30226	40226	30113	40113
R	PV Channel 4		30228	40228	30114	40114
R	Alarm Channel 1	0-Normal Single Relay 1-low alarm triggered 3-High alarm triggered 5-HnL low alarm triggered 7-HnL high alarm triggered Double Relay 9-LH low alarm triggered 11-LH high alarm triggered 13-HT high alarm triggered 15-HT trip alarm triggered	30242	40242	30121	40121
R	Alarm Channel 2		30244	40244	30122	40122
R	Alarm Channel 3		30246	40246	30123	40123
R	Alarm Channel 4		30248	40248	30124	40124
R	Relay1 Status	1-Relay on 0-Relay off	30262	40262	30131	40131
R	Relay2 Status		30264	40264	30132	40132
R	Relay3 Status		30266	40266	30133	40133
R	Relay4 Status		30268	40268	30134	40134

Safety Precautions

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment .

=> Read complete instructions prior to installation and operation of the unit.



WARNING : Risk of electric shock.

Warning Guidelines

- 1) To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
- 2) To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
- 3) Cable used for connection to power source, must have a cross section of $(1\text{mm})^2$ or greater. These wires should have insulations capacity made of at least 1.5kV.
- 4) When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring for the RTD type, use a wiring material with a small lead resistance (5Ω max per line) and no resistance differentials among three wires should be present.
- 5) A better anti-noise effect can be expected by using standard power supply cable for the instrument.

Installation Guidelines

- 1) This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
- 2) Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
- 3) Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
- 4) Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

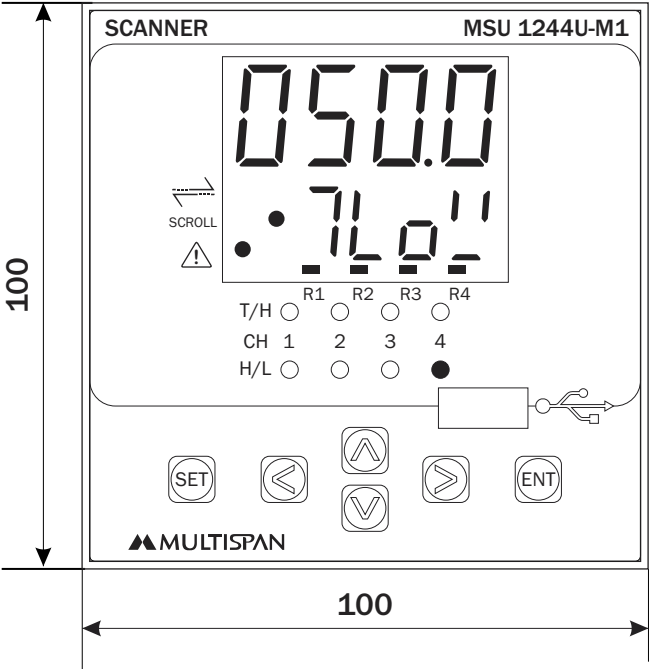
Mechanical Installation

- 1) Prepare the panel cutout with proper dimensions as show above.
- 2) Fit the unit into the panel with the help of clamp given.
- 3) The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oils steam, or other unwanted process by products.
- 4) Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 0.5 N.m.
- 5) Do not connect anything to unused terminals.

Maintenance

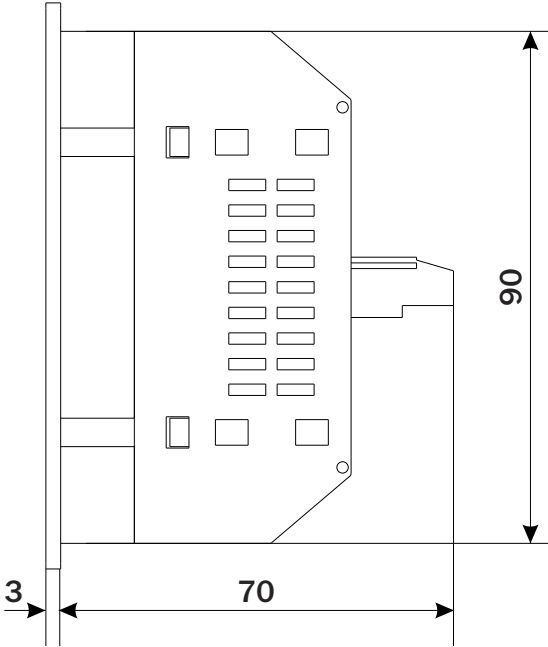
- 1) The equipment should be cleaned regularly to avoid blockage of ventilating parts.
- 2) Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
- 3) Fusible resistor must not be replaced by operator.

Mechanical Installation



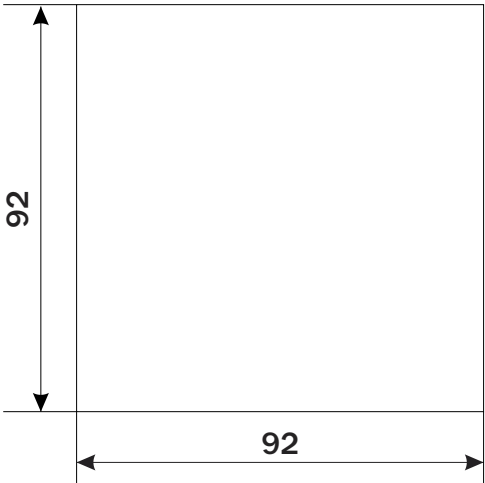
FRONT VIEW

All dimensions are in mm



RIGHT SIDE VIEW

Panel Cutout



Note :

Note :

Product improvement and upgrade is a constant procedure. So for more updated operating information and support,
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