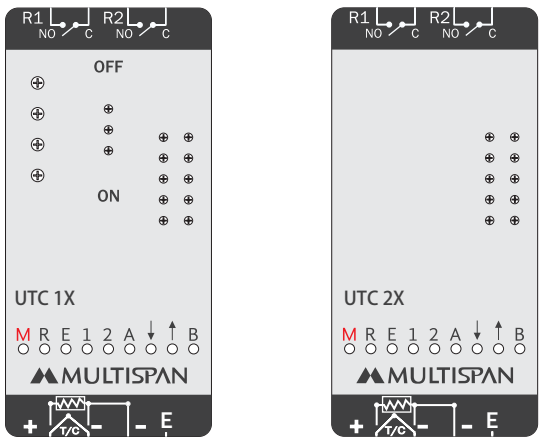
Blind Temperature Controller

MULTISPAN

UTC-1X & 2X

CE



TECHNICAL SPECIFICATION

INPUT SPECIFICATION:

	Input	Range
Input Types	J	0 to 600°C
	K	0 to 1200°C
	PT-100	-99 to 400°C
	PT.1	-99.9 to 400.0°C

DIMENSION:

Size	76 (H) x 27 (W) x 85 (D) mm

OUTPUT SPECIFICATION

Relay Output	
Relay	2 nos.
Relay Type	1 C/O (NO-C)
Rating	5A, 230V AC
Modbus Communication	
RS-485	

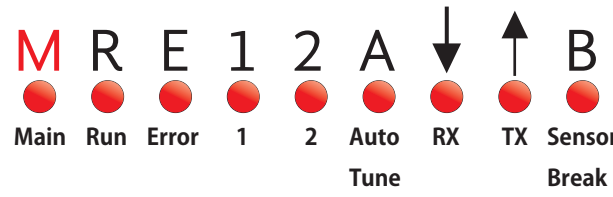
AUXILIARY SUPPLY

Supply voltage	24V DC

ENVIRONMENT CONDITION

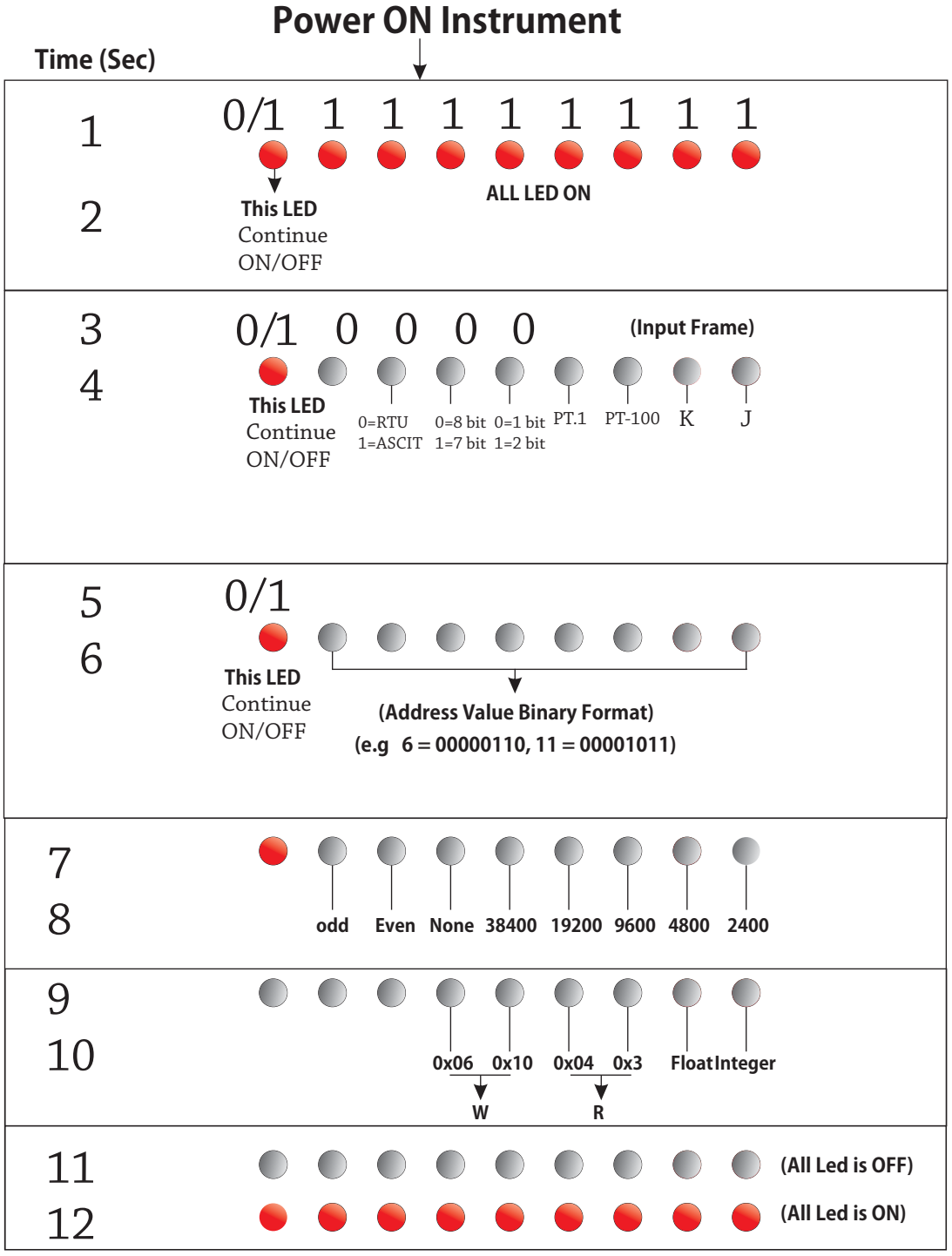
Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)

0 = OFF
1 = ON



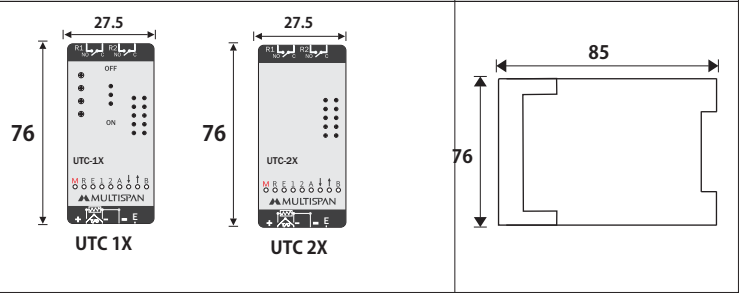
Blind **UTC-1X/UTC-2X**

Every time the instrument is turn ON, Following pattern will be LED Indication

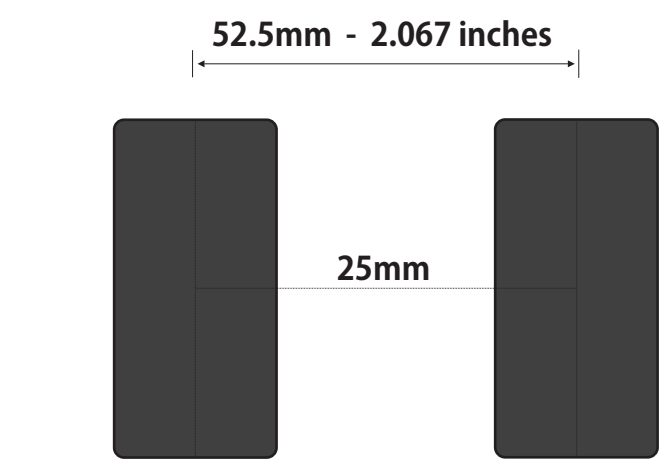


MECHANICAL INSTALLATION

Outline Dimension (mm)	Panel Cutout Dimension (mm)



Din rail Mounting Distance



TERMINAL CONNECTION

UTC 1X **UTC 2X**

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown 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 byproducts.
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 1.2 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.

SAFETY PRECAUTION

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.

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.

WARNING GUIDELINES

WARNING : Risk of electric shock.

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 1mm 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 (5 Ωmax 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.

MODBUS DATABASE

Modbus Setting: **BLIND UTC 1X and 2X (Modbus manual)**

1. Device Address: 1 To 127
2. Baudrate: 2400, 4800,9600,19200,38400 (bps)
3. Parity: None,Even,Odd
4. DataType: Sign Integer, Float
5. Read Function Registers: 0x03 and 0x04
6. Write Function Registers: 0x06 and 0x10
7. NA = 32100 (Not Available)

Read / Write	Parameter	Read Function 0x03	Read Function 0x04	Data Type = Sign Integer: Range	Read Function 0x03	Read Function 0x04	Data Type = Float: Range
		Address			Address		
R	Temperature	30000	40000	as per input sensor range	30000	40000	as per input sensor range
R	Relay1 Status	30001	40001	0 off	30002	40002	0 off
R	Relay2 Status	30002	40002	1 on	30004	40004	1 on
R	PID Control Output	30003	40003	0 to 1000%	30006	40006	0.0 to 100.0%
NA	NA	NA	NA	NA	NA	NA	NA
R/W	SET 1 (Setpoint 1)	30005	40005	SLL to SHL	30010	40010	SLL to SHL
R/W	SET 2 (Setpoint 2)	30006	40006	S2MD=0: SLL to SHL; S2MD=1: INPT = 0,1,2 -50 to 50; INPT = 3 -500 to 500	30012	40012	S2MD=0: SLL to SHL; S2MD=1: INPT = 0,1,2 -50 to 50; INPT = 3 -50.0 to 50.0
NA	NA	NA		NA	NA		NA
R/W	INP (Input Sensor)	30008	40008	0 - J (0 to 600); 1 - K (0 to 1200); 2 - PT (-99 to 400); 3 - PT.1 (-999 to 4000)	30016	40016	0 - J (0 to 600); 1 - K (0 to 1200); 2 - PT (-99 to 400); 3 - PT.1 (-99.9 to 400.0)
R/W	SLL (Set Low Limit)	30009	40009	0 to SHL; -99 to SHL; -999 to SHL	30018	40018	Input = 0,1 0 to SHL; Input = 2 -99 to SHL; Input = 3 -99.9 to SHL
R/W	SHL (Set High Limit)	30010	40010	SLL to 600; SLL to 1200; SLL to 400; SLL to 4000	30020	40020	Input = 0 SLL to 600; Input = 1 SLL to 1200; Input = 2 SLL to 400; Input = 3 SLL to 400.0
R/W	OFST (Offset)	30011	40011	Input=0,1,2 -20 to 20; Input=3 -200 to 200	30022	40022	Input=0,1,2 -20 to 20; Input=3 -20.0 to 20.0
R/W	HYS1 (Hysterisys 1)	30012	40012	Input=0,1,2 1 to 50	30024	40024	Input=0,1,2 1 to 50
R/W	HYS2 (Hysterisys 2)	30013	40013	Input=3 1 to 500	30026	40026	Input=3 0.1 to 50.0
NA	(NA)	(NA)		(NA)	(NA)		(NA)
R/W	PB (for PID action)	30015	40015	0 to 9999	30030	40030	0.0 to 999.9
R/W	IT (for PID action)	30016	40016		30032	40032	0 to 9999
R/W	DT (for PID action)	30017	40017		30034	40034	
R/W	CT (for PID action)	30018	40018	1 to 99 Sec	30036	40036	1 to 99 Sec
R/W	MR (for PID/TP action)	30019	40019	Input=0,1,2 -9 to 9; Input=3 -90 to 90	30038	40038	Input=0,1,2 -9 to 9; Input=3 -9.0 to 9.0
R/W	PB 2 (for TP action)	30020	40020	Input=0,1,2 2 to 20; Input=3 20 to 200	30040	40040	Input=0,1,2 2 to 20; Input=3 2.0 to 20.0
R/W	CT2 (for TP action)	30021	40021	4 to 99 Sec	30042	40042	4 to 99 Sec
R/W	C-PB (for Blower TP)	30022	40022	20 to 250	30044	40044	2.0 to 25.0
R/W	C-ON (for Blower TP)	30023	40023	1 to 20 sec	30046	40046	1 to 20 sec
R/W	C-OFF (for Blower TP)	30024	40024	5 to 200 sec	30048	40048	5 to 200 sec
R/W	CTRL (Control Action)	30025	40025	0 = ONOFF action; 1 = TP action; 2 = PID action	30050	40050	0 = ONOFF action; 1 = TP action; 2 = PID action
R/W	R1MD (Relay 1 Mode) (R1MD=0 To 8 Available)	30026	40026	0 = Off; 1 = Heating; 2 = Cooling; 3 = High Alarm; 4 = Low Alarm; 5 = Outband Alarm; 6 = Inband Alarm; 7 = Absolute Low Alarm; 8 = Absolute Outband Alarm; 9 = Cool TP (Blower Cooling TP); 10 = End Alarm	30052	40052	0 = Off; 1 = Heating; 2 = Cooling; 3 = High Alarm; 4 = Low Alarm; 5 = Outband Alarm; 6 = Inband Alarm; 7 = Absolute Low Alarm; 8 = Absolute Outband Alarm; 9 = Cool TP (Blower Cooling TP); 10 = End Alarm
R/W	R2MD (Relay 2 Mode)	30027	40027		30054	40054	
NA	(NA)	(NA)			(NA)		
R/W	Tim1 (Time 1)	30029	40029	1 to 999	30058	40058	1 to 999
R/W	Tim2 (Time 2)	30030	40030		30060	40060	
R/W	T1MD (Time1 Mode)	30031	40031	0 = Alarm Timer; 1 = Off; 2 = On delay Timer; 3 = Soak Timer; 4 = Soak Pass Timer; 5 = Soak Remaining Timer	30062	40062	0 = Alarm Timer; 1 = Off; 2 = On delay Timer; 3 = Soak Timer; 4 = Soak Pass Timer; 5 = Soak Remaining Timer
R/W	T2MD (Time2 Mode)	30032	40032		30064	40064	
R/W	T1UT (Time1 Unit)	30033	40033	0 = Second; 1 = Minute; 2 = Hour	30066	40066	0 = Second; 1 = Minute; 2 = Hour
R/W	T2UT (Time2 Unit)	30034	40034		30068	40068	
R/W	S2MD (Set2 Mode)	30035	40035	0 = Individual Setpoint; 1 = Relative to Set1	30070	40070	0 = Individual Setpoint; 1 = Relative to Set1
NA	(NA)	(NA)			(NA)		(NA)
R/W	End	30037	40037	0 = No; 1 = Save	30074	40074	0 = No; 1 = Save
R/W	ADDR (Device Address)	30038	40038	1 to 127	30076	40076	1 to 127
R/W	BAUD (Baudrate)	30039	40039	0 = 2400 (bps); 1 = 4800 (bps); 2 = 9600 (bps); 3 = 19200 (bps); 4 = 38400 (bps)	30078	40078	0 = 2400 (bps); 1 = 4800 (bps); 2 = 9600 (bps); 3 = 19200 (bps); 4 = 38400 (bps)
R/W	PRTY (Parity)	30040	40040	0 = None; 1 = Even; 2 = Odd	30080	40080	0 = None; 1 = Even; 2 = Odd
R/W	DATA (Datatype)	30041	40041	0 = Sign Integer; 1 = Float	30082	40082	0 = Sign Integer; 1 = Float
R/W	RDFC (Read Function Register)	30042	40042	0 = 0x03; 1 = 0x04	30084	40084	0 = 0x03; 1 = 0x04
R/W	WRFC (Write Function Register)	30043	40043	0 = 0x10; 1 = 0x06	30086	40086	0 = 0x10; 1 = 0x06
NA	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
NA	(NA)	(NA)	(NA)		(NA)	(NA)	
NA	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
NA	(NA)	(NA)	(NA)		(NA)	(NA)	(NA)
NA	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
NA	(NA)	(NA)	(NA)		(NA)	(NA)	(NA)
R	Sensor Status	30050	40050	0 - Normal; 1 - Sensor Open/Break; 2 - Sensor Reverse	30100	40100	0 - Normal; 1 - Sensor Open/Break; 2 - Sensor Reverse
R/W	Tuning Status	30051	40051	0 - Tuning OFF; 1 - Tuning ON	30102	40102	0 - Tuning OFF; 1 - Tuning ON
R	Time1 Running Value	30052	40052	Depend on selected time value	30104	40104	Depend on selected time value
R	Time2 Running Value	30053	40053	Depend on selected time value	30106	40106	Depend on selected time value
W	Reset all Timer	30054	40054	Enter 25 value to reset all time; Enter 50 value to factory setting	30108	40108	Enter 25 value to reset all time; Enter 50 value to factory setting
R	Run/Stop	30055	40055	0 = STOP; 1 = RUN	30110	40110	0 = STOP; 1 = RUN
R/W	Frame Delay (FMDL)	30056	40056	0 to 99	30112	40112	0 to 99
R/W	Relay mode for isolation	30057	40057	0 = Normal; 1 = Isolation mode (All relay oFF)	30114	40114	0 = Normal; 1 = Isolation mode (All relay oFF)
R/W	SOCK Memory	30058	40058	0 = NO; 1 = YES	30116	40116	0 = NO; 1 = YES
R/W	Communication format	30059	40059	1 = ASCII; 0 = RTU	30118	40118	1 = ASCII; 0 = RTU
R/W	Blind Count	30060	40060	1 = Master; 0 = Slave	30120	40120	1 = Master; 0 = Slave
R/W	Data length	30061	40061	1 = 7 bit; 0 = 8 bit	30122	40122	1 = 7 bit; 0 = 8 bit
R/W	Stop bit	30062	40062	0 = 1 bit; 1 = 2 bit	30124	40124	0 = 1 bit; 1 = 2 bit

If Datatype is Sign integer,

1) Input Sensor is PT.1 then, $\text{Parameter} = \frac{\text{Parameter}}{10}$

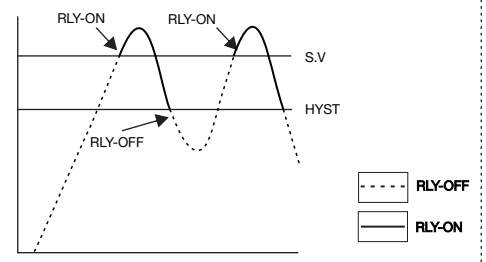
(Where Parameter is Temperature, Set1, Set2,Hys1, Hys2, Offset, MR, SLL, SHL, PB2)

2) Fix DP Parameters, $\text{Parameter} = \frac{\text{Parameter}}{10}$

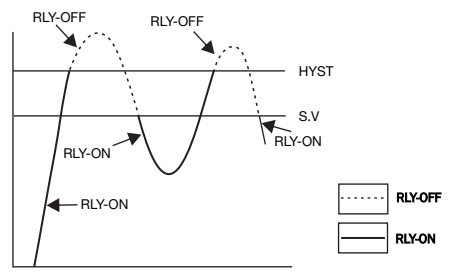
(Where Parameter is PB (For PID action), C-PB (For Blower TP) and PID Control Output)

CONTROL FUNCTION

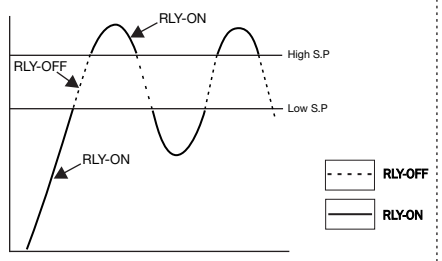
HIGH ALARM:



LOW ALARM:

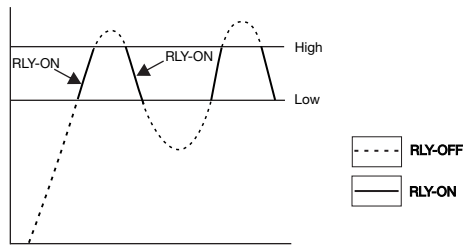


OUTBAND ALARM



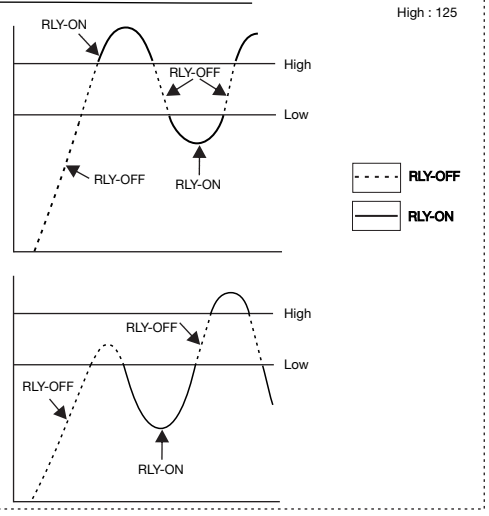
INBAND ALARM

Low : 75
High : 125

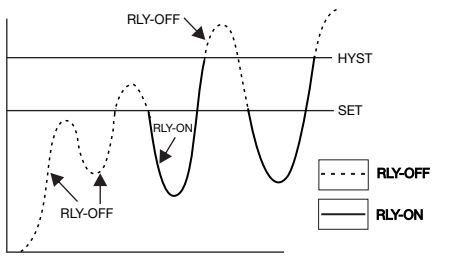


ABSOLUTE OUTBAND ALARM

Low : 75
High : 125



ABSOLUTE LOW ALARM



Note :-

- → In RTU mode = only 8 bit is supported
- → In ASCII mode = both 8 bit & 7 bit are supported
- → Non Supported Formats :
  - 7-N-1- Time Out
  - 8-E-2- Write Error
  - 8-0-2- Write Error