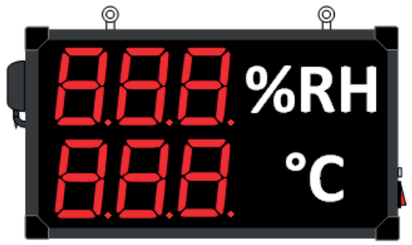
TGA-004B-SERIES / Big Display Humidity & Temperature With Alarm Unit

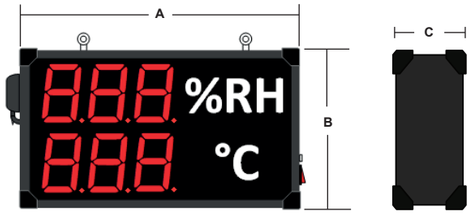
Primus
User Manual



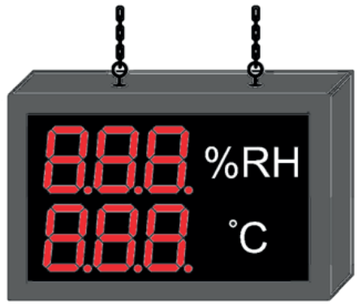
TECHNICAL SPECIFICATION

Model		TGA-004B2	TGA-004B4
Power Supply		110-240 VAC 50/60Hz	
Display	7-Segment	2.3 inch, 3Digit, 2Row	4 inch, 3Digit, 2Row
Input	Type	RS485 from HM-006N	
	Accuracy	Follow Specification of HM-006N	
		@ Room Temperature (25 ˚C)	
	Sampling Time	100 m Sec	
Communication	Protocol	MODBUS RTU	
	Baud Rate	4800, 9600, 19200, 38400, 57600 bps	
	Parity	None, Odd, Even	
	Stop Bits	1, 2	
	Data Bits	8 Bits	
	Support Device Node	127	
Output	Channel	Relay Output 2 Channel	
	Relay Contact	5A 250VAC I 5A 30VDC (SPDT)	
	Supply Sources Sensor	2A 12VDC	
Ambient Operation	Temperatune	-10 C to 60 C	
	Humidiy	<85% RH Non-Condensing	
Power Supply	Temperatune	-20 C to 80 C	
	Humidiy	<85% RH Non-Condensing	
Protection Degree		IP30	
Installation		Loop for Hanging	
Material	Body	Aluminum	
	Display	Plastic (Acrylic)	
Size		350x250x100 mm.	500x400x100 mm.
Weigth		2920 g.	5320 g.

DIMENSION



Model / Size	A	B	C
TGA-004B2	350	250	100
TGA-004B4	500	400	100



DESCRIPTION

- Shows digital result 2 rows by receiving signal from Humidity & Temperature Transmitter HM-006N-00 display by 7-Segment size
  - 2.3 inches (TGA-004B2) 3 digits 2 row
  - 4 inches (TGA-004B2) 3 digits 2 row
- Shows result from 0 to 100 can set decimal pint maximum 1 position and can choose Alarm Function by setting from Remote control in many pattern.
  - High-Low Alarm
  - High Alarm
  - Low Alarm
  - High-Low Range Alarm
- Shows symbol in case Humidity& Temperature Transmitter has damages.
- Power Supply 110-240 VAC 50/60Hz
- Source 12 Vdc from Switching Power Supply 2A
- There are 2 hooks for hanging.

OPERATION

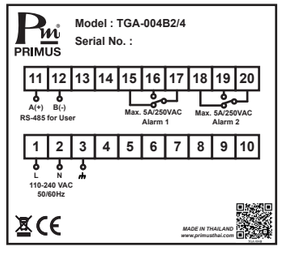
TGA-004B operation is measure temperature and humidity from sensor HM-006N measure temperature and humidity communicate via RS485 Modbus RTU between HM-006N and Controller TGA-004B with Function Alarm Relay 2 Channels and RS485 Modbus RTU for read value from PLC or Computer

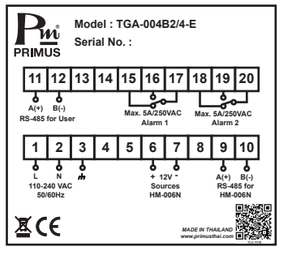
Alarm in eaach Channel can set value to operte by reference temperature or humidity and can can choose Function work 4 Function High-Low Alarm, High Alarm, Low Alarm, High-Low Range Alarm.

TGA-004B2 / TGA-004B4 has HM-006N sensor measure temperature and humidity which is installed the side of screen.

TGA-004B2E / TGA-004B4-E sensor HM-006N measure temperature and humidity can install external (at spot as require) by wiring from external to display screen.

WIRING DIAGRAM





REMOTE SETTING

REMOTE	
O/P MODE	Menu ALARM Setting
TG/MODE	-
DSP	Test Display
POWER	On/Off Display
F1	Menu Edit Alarm Hing Limit
F2	Menu Edit Alarm Low Limit
F3	Menu Edit Alarm HYS
F4	Menu Communicate For Slave
NUMBER	Key Number (0-9)
-/--	Sign Number
DP	Menu Decimal Point
SCALE+	-
SCALE-	-
VOL+	Select Next
VOL-	Select Previous
ADD	Menu Address For Slave
CANCEL	Cancel Or Exit Settings
MENU	Menu Communi Cate For Master
ENTER	Select Or Confirm Setting

SERIAL COMMUNICATION

The TGA-004B are equipped with a RS-485 serial communications interface to allow connection to computers or PLCs. MODBUS protocol is provided as standard communication. The user can connect TGA-004 as network up to 127 node.

Modbus Protocol

This MODBUS Protocol has been implement in accordance with MOSBUS.ORG MODBUS Application Protocol Specification V1.1 With the following conditions applying.

The following conditions apply Baudrate can selected refer

Speed Setting

The format is MODBUS RTU UART data can selected refer menu 36

Communication Setting

Data is considered to be half duplex using 2 wire.

Modbus Exception code

Code	Name	Meaning
01	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the server (or slave).
02	ILLEGAL DATA ADDRESS	The data address received in the data field is not an allowable value for server (or slave).
03	ILLEGAL DATA VALUE	A value contained in the query data field is not an allowable value for server (or slave).

Modbus Function code

Function code	Operation	Brodcast
03	Read Holding Registers	Yes
04	Read Input Status	Yes
06	Preset Single Registers	Yes

Example of a client request and server exception response

Request		Response	
Field Name	(Hex)	Field Name	(Hex)
Slave Address	01	Slave Address	01
Function	04	Function	84
Starting Address Hi	00	Exception Code	02
Starting Address Lo	00	CRC Hi	C2
Quantity of Input Reg. Hi	00	CRC Lo	C1
Quantity of Input Reg. Lo	1E		
CRC Hi	70		
CRC Lo	02		

Here is an example of a request to write input register 2 to 00 08 hex:

(Function code 06)

Request		Response	
Field Name	(Hex)	Field Name	(Hex)
Slave Address	01	Slave Address	01
Function	06	Function	06
Register Address Hi	00	Register Address Hi	00
Register Address Lo	01	Register Address Lo	00
Register Value Hi	00	Register Value Hi	00
Register Value Lo	08	Register Value Lo	08
CRC Hi	D9	CRC Hi	D9
CRC Lo	CC	CRC Lo	CC

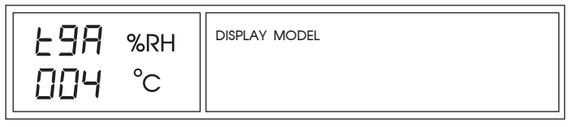
Here is an example of a request to read input register

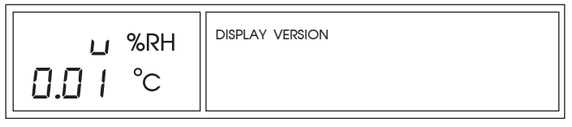
(Function code 04)

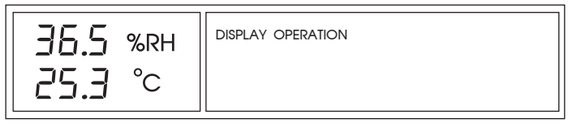
Request		Response	
Field Name	(Hex)	Field Name	(Hex)
Slave Address	01	Slave Address	01
Function	04	Function	04
Starting Address Hi	00	Byte Count	02
Starting Address Lo	00	Input Reg. 1 Hi	00
Quantity of Input Reg. Hi	00	Input Reg. 1 Lo	19
Quantity of Input Reg. Lo	01	CRC Hi	78
CRC Hi	31	CRC Lo	FA
CRC Lo	CA		

REMOTE SETTING

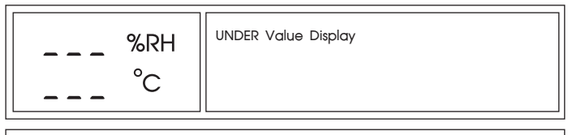
OPERATE DISPLAY

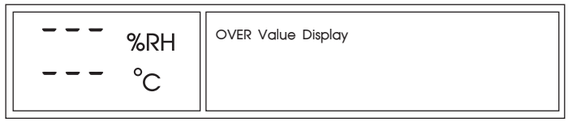






STATUS DISPLAY





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User Manual

MODBUS TABLE (Slave for user)

DEC	HEX	Content	Format	Word	Access
0	0x0000	Humidity	INT	1	R Only
1	0x0001	Temperature	INT	1	R Only
2	0x0002	Decimal Point Humi.	INT	1	R/W
3	0x0003	Decimal Point Temp.	INT	1	R/W
4	0x0004	Status Alarm 1	INT	1	R Only
5	0x0005	Status Alarm 2	INT	1	R Only
6	0x0006	Source Index Alarm 1	INT	1	R/W
7	0x0007	Function Alarm 1	INT	1	R/W
8	0x0008	High Limit Alarm 1	INT	1	R/W
9	0x0009	Low Limit Alarm 1	INT	1	R/W
10	0x000A	Hysteresis Alarm 1	INT	1	R/W
11	0x000B	Source Index Alarm 2	INT	1	R/W
12	0x000C	Function Alarm 2	INT	1	R/W
13	0x000D	High Limit Alarm 2	INT	1	R/W
14	0x000E	Low Limit Alarm 2	INT	1	R/W
15	0x000F	Hysteresis Alarm 2	INT	1	R/W

MENU SETTING

COMMUNICATION for Slave (Start Menu from Operation Display)

36.5 %RH
25.3 °C

DISPLAY OPERATION

SETTING Address Slave

Press ADD at REMOTE

SL %RH / Add °C → Press ENTER for edit → SL %RH / Add °C

Press 0-9 to edit number (1-127) then press ENTER to record if request to exit or cancel press CANCEL

SETTING Baudrate Slave

Press ADD at REMOTE

SL %RH / bPS °C → Press ENTER for edit → bPS %RH / 9.6 °C

Press VOL+/VOL for choosing

Symbol	Baud rate
4.8	4800 bps
9.6	9600 bps
19.2	19200 bps
38.4	38400 bps
57.6	57600 bps

then press ENTER to saveif user needs to exit or cancel press CANCEL

SETTING Communication Slave

Press F4 at REMOTE then press MENU

SL %RH / Coñ °C → Press ENTER for edit → Coñ %RH / 8n1 °C

Press VOL+/VOL for choosing

Symbol	Communicate
8n1	Bits8, Parity None, Stopbit1
8o1	Bits8, Parity Odd, Stopbit1
8e1	Bits8, Parity Even, Stopbit1
8n2	Bits8, Parity None, Stopbit2
8o2	Bits8, Parity Odd, Stopbit2
8e2	Bits8, Parity Even, Stopbit2

then press ENTER to saveif user needs to exit or cancel press CANCEL

ALARM Setting (Start Menu from Operation Display)

36.5 %RH
25.3 °C

DISPLAY OPERATION

SETTING ALARM Sources

Press O/P MODE at REMOTE

AL %RH / Src °C → Press ENTER for edit → Sr.1 %RH / h °C

VOL+/VOL- choose Channel then press ENTER

Press VOL+/VOL for choosing

Symbol	Source Index
h	Humidity
t	Temperature

then press ENTER to save if user needs to exit or CANCEL press CANCEL

SETTING ALARM Function/Mode

Press O/P MODE 2 times at REMOTE

AL %RH / ñod °C → Press ENTER for edit → ñd.1 %RH / 0 °C

VOL+/VOL- choose Channel then press ENTER

Press VOL+/VOL for choosing

Symbol	Function/Mode Index
0	None
1	Alarm High Low Limit
2	Alarm High Limit
3	Alarm Low Limit
4	Alarm High Low Range

then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING ALARM High Limit

Press F1 at REMOTE

AH.1 %RH / 800 °C

VOL+/VOL- choose Channel then prsee Enter

Press 0-9 to edit value (Alarm low - 999) then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING ALARM Low Limit

Press F2 at REMOTE

AL.1 %RH / 200 °C

VOL+/VOL- choose Channel then press ENTER

Press 0-9 to edit value (-199 - Alarm High) then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING ALARM Hysteresis

Press F3 at REMOTE

AC.1 %RH / 0 °C

VOL+/VOL- choose Channel then press ENTER

Press 0-9 to edit value (0-999) then press ENTER to save if users needs to exit or cancel press CANCEL

Communication Master (Start Menu from Operation Display)

36.5 %RH
25.3 °C

DISPLAY OPERATION

SETTING Address Master

Press MENU at REMOTE

ñt %RH / Add °C → Press ENTER for edit → Add %RH / 1 °C

Press 0-9 to edit (1-127) then press ENTER then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING Baudrate Slave

Press F4 at REMOTE

ñt %RH / bPS °C → Press ENTER for edit → bPS %RH / 9.6 °C

Press VOL+/VOL- for choosing

Symbol	Baud rate
4.8	4800 bps
9.6	9600 bps
19.2	19200 bps
38.4	38400 bps
57.6	57600 bps

then press ENTER to save if user needs exit or cancel press CANCEL

SETTING Communication Master

Press MENU at REMOTE

ñt %RH / Coñ °C → Press ENTER for edit → Coñ %RH / 8n1 °C

Press VOL+/VOL- for choosing

Symbol	Communicate
8n1	Bits8, Parity None, Stopbit1
8o1	Bits8, Parity Odd, Stopbit1
8e1	Bits8, Parity Even, Stopbit1
8n2	Bits8, Parity None, Stopbit2
8o2	Bits8, Parity Odd, Stopbit2
8e2	Bits8, Parity Even, Stopbit2

then press ENTER to save if user needs exit or cancel press CANCEL

SETTING Delay Between Poll Master

Press MENU at REMOTE

ñt %RH / POL °C → Press ENTER for edit → POL %RH / 100 °C

Press 0-9 to edit number 100-999 ms. then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING Response Timeout Master

Press MENU at REMOTE

ñt %RH / rES °C → Press ENTER for edit → rES %RH / 500 °C

Press 0-9 to edit number 100-999 ms. then press ENTER to save if user needs to exit or cancel press CANCEL

SETTING Decimal Point

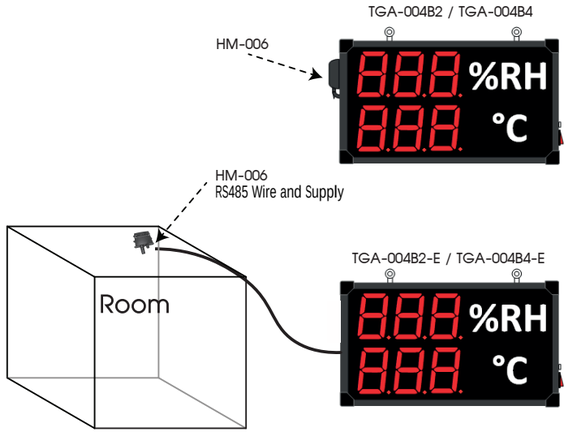
Press DP at REMOTE

dP.t %RH / 800 °C

VOL+/VOL- choose Channel then prsee Enter

Press VOL+/VOL- to edit value (0.0 and 0) then press ENTER to save if users needs to exit and cancel press CANCEL

WIRING



ORDERING CODE

TGA - 004 □ - □

HM-Install	
None	Install Box (Side Installation)
E	Install Wiring (Wiring by users)

Display Size	
B2	2.3 inch, 3Digit, 2Row
B4	4 inch, 3Digit, 2Row

TGA-004B

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