

PA-MTS Analogue to RS485 Converter

DESCRIPTION

PA-MTS is an analogue signal serial data controller product, through Modbus RTU mode's universal protocol, making data collection and control more convenience

PA-XTS uses Microchip DS PIC as main design structure. Equip with 8 or 16 Channel common ground analogue input, all channel isolated type is also available.



FEATURE

- Support Modbus communication protocol
Support Modbus function 03, 06
- With Display for easy parameters and equipment ID setting.
- 16 Channel common ground model and 14 Bits A/D Converter
- 4 Types of Signal: Voltage:0~10V/(0)1~5V or Current:0(4)~20mA, RTD(PT100Ω), Thermocouple(K,J,E,T) Type.

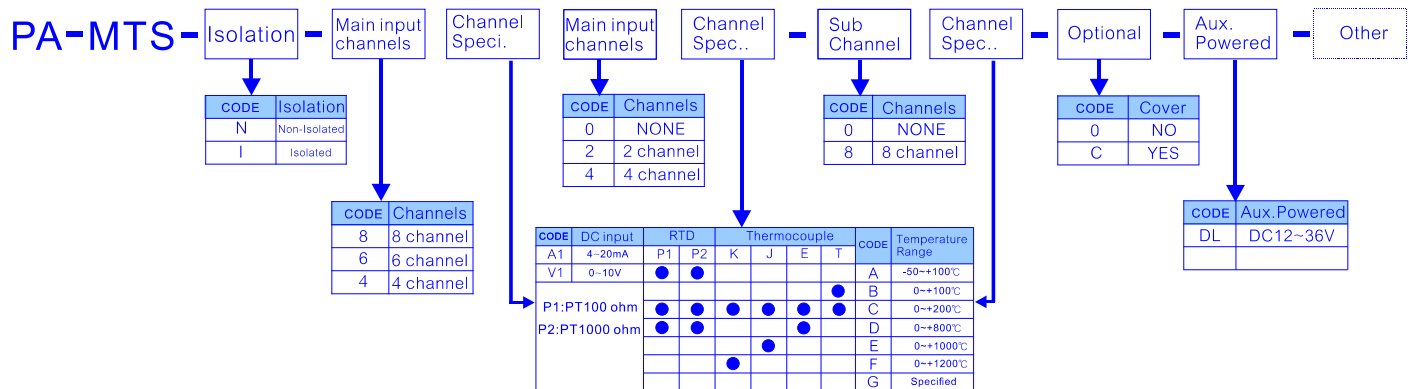
APPLICATIONS

Factory automation machineries, low speed process signal or temperature signal can be easily convert from analogue to RS485 protocol for data analysis

- Analogue data collector
- Remote sensing and metering
- Environment condition detection
- Data recording

ORDERING INFORMATION

Channel input specifications to be consistent (range can be inconsistent)



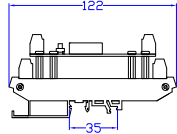
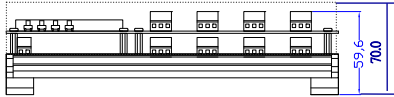
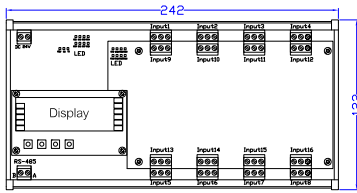
TECHNICAL SPECIFICATION

Processor:	Microchip DS PIC
Protocol:	RS485, Modbus RTU Mode
Accuracy	DC Signal : $\pm 0.1\%$ of FS ± 1 C RTD PT100Ω : $\pm 0.2\%$ of FS ± 1 C T/C : $\pm 0.5\%$ of FS ± 1 C
Sampling rate	1 Times/sec(16 Channels)
Analogue input	8 OR 16 Channels
Input range:	Voltage: (0)1~5V /0~10Vdc Current: (0)4~20mAdc RTD:PT100Ω(Max 800°C) T/C : K、J、E、T Type (Max 1200°C)
Resolution:	16 bits ADC
Cold-junction comp.:	Automatic compensation
Input overload display	Exceeds the input range of 5% to display $\square\square FL$ lower the input range of 5% to display $\square\square FL$
Panel indication:	0.8" Height LED、Optional display control board Input LED : When input signal $\geq 4\sim 6\%$ 、LED light up RS485 LED : Communicating、Rx、Tx LED Blink Power LED : When powered、LED light up
Buttons	UP: Increase / Return to previous level DOWN: Decrease / Enter next level SHIFT: Change decimal places/ Return ENTER: Enter setting / Save setting and enter

RS485 Settings:

Address:	1~255
Baud rate:	1200/2400/4800/9600/19200/38400 bps
Data:	8 bits
Parity check	Even, odd or none
Stop Bits:	1bits or 2bits
Aux Power	
Power:	DC24V(18~36Vdc)
Power consumption	no isolation, ≤ 3 w (nonpolar) isolation, ≤ 8 w
Electrical Spec.	
Isolation:	Terminals /AI / Power isolation
Port isolation:	Non-isolation(Com GND), Option for DC 500V isolation
Dielectric strength:	AC 1KV,1 min、Terminal /AI / Power
Insulation:	$\geq 100M\Omega$ 、at 500Vdc、Terminal /AI / Power
Working environment	
Temperature:	0~60 °C
Humidity:	20~95 %RH, Non-condensing
Storage temperature:	-10~70 °C
Coefficient:	≤ 100 PPM/°C
Mechanical Structure	
Dimensions	242(L)x122(W)x56.9(With Cover:70)(h) mm
Casing:	ABS(UL 94V-0) ; Cover: Acrylic
Mounting:	Panel 35 DIN rail
Terminal:	Plastic nylon-66 (UL 94V-0)
Weight:	500g(Non-Isolation),620g(Isolation)
Terminal screws to withstand torque	5kg-cm(Max.)

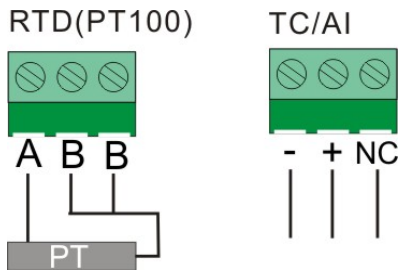
DIMENSIONS



Unit:mm

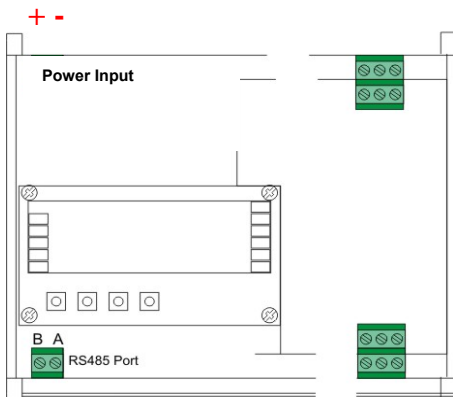
CONNECTION

RTD&T/C and Analogue Signal

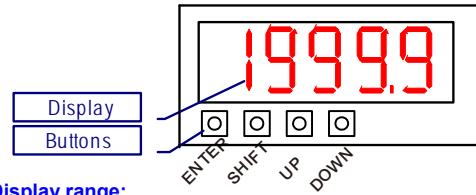


Aux and RS485 connection

Terminal screws to withstand torque: 5kg-cm



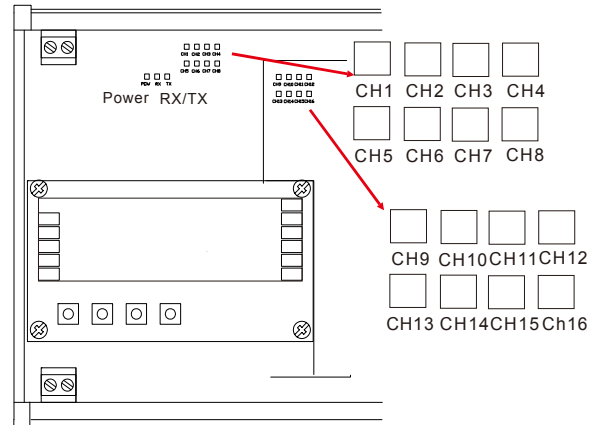
DISPLAY



- **Display range:** 0.8" (20.0mm) RED LED 4 1/2 Digits.
- **RS485** : 2 red square LED
When receiving data , Rx blinks,
When sending data , Tx blinks
When LED blink faster mean data speed is higher
- **Control buttons:** 4 Buttons Enter(function) / Shift(escape) / Up key / Down key
- **Password:** Setting range:0000-9999;
Password for parameters setting level

Password can be change at parameters level, should password is lost please contact us direct.

LED Indication



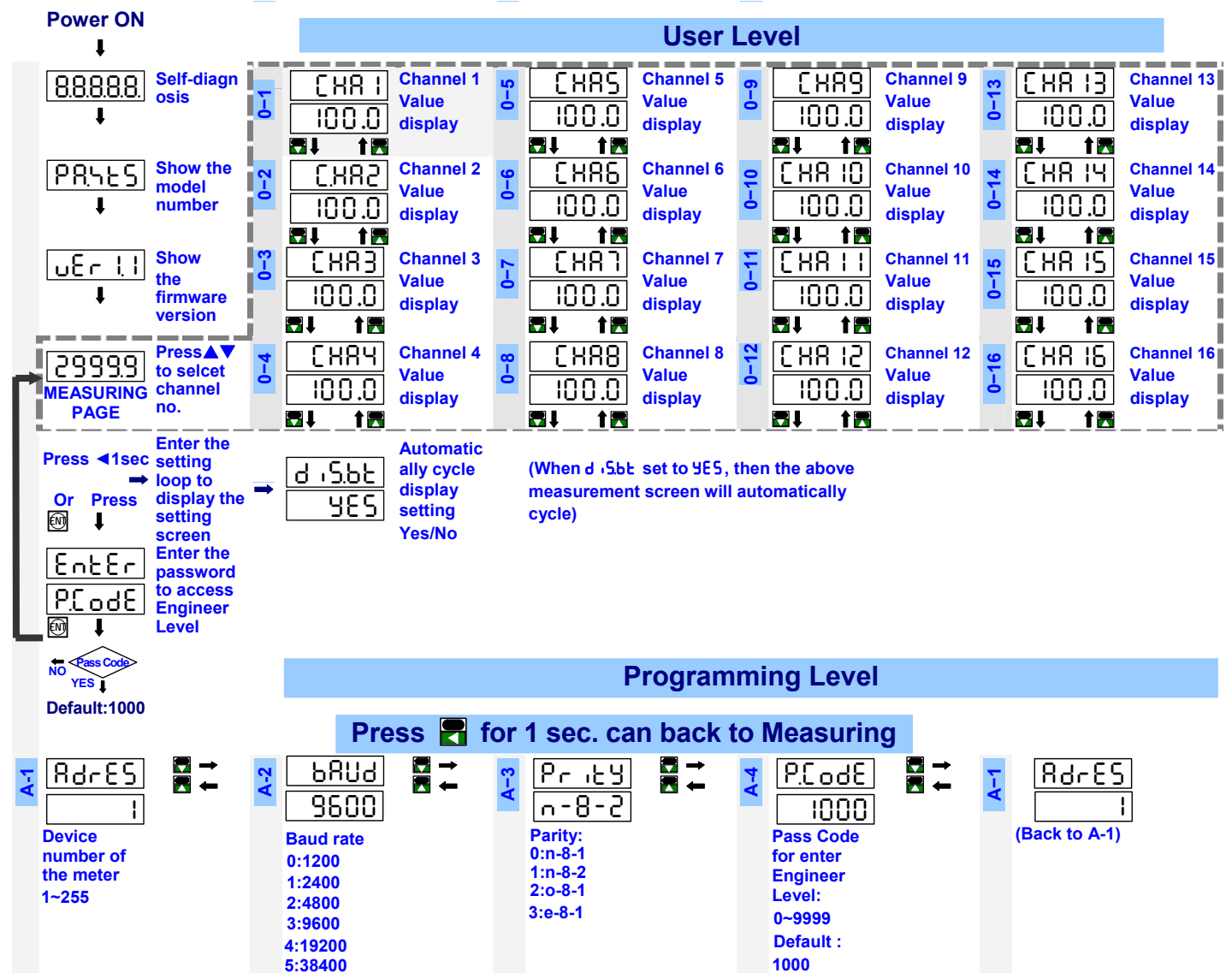
The status indicator CH1 ~ CH16, when no signal input, the LED is blinking; signal input, the LED lights up. The POWER LED: illuminates when the power access. RX / TX: RS-485communication, the LED lights up.

OPERATING KEY

- **Push Buttons:** 4 Keys Enter(function) / Shift(escape) / Up key / Down key
- **Function key as computer** and Enter. At any level press button to enter or confirm, press button to previous level ()"to escape.
- **At any level after 2 minutes idle or hold "Shift" Key for more than 1Sec, screen will return to normal display.**

	Functions	Setting status
= Enter/Fun key	(1) At any screen , press button to enter level or functions (2) Enter functions for setting.	(3)After setting, data is stored in EEPROM , Entering next level.
=Shift key	(1)In measuring screen, press button more than 1 sec to enter user level. (2)In menu, press button more than 1 sec to return level (3)In menu, press button more than 1 to return to measuring screen.	(4)In setting, press button, to shift figure position (5)In setting, press button more than 1 sec to function screen.
= Up key	(1)In function, press button back to previous screen	(2)In setting press button functions selection. (3)In parameter setting, press button increase value.
= Down key	(1)In function, press button enter next screen.	(2)In setting, press button function selection. (3) In parameter setting, press button decrease value.

OPERATING DIAGRAM



MODBUS ADDRESS FOR I/O

● Input value data address:

Address	Name	Display & Range	LED	R/W	NOTE
0000H	Channel 1 Data	-19999~19999	CHA1	R	
0001H	Channel 2 Data	-19999~19999	CHA2	R	
0002H	Channel 3 Data	-19999~19999	CHA3	R	
0003H	Channel 4 Data	-19999~19999	CHA4	R	
0004H	Channel 5 Data	-19999~19999	CHA5	R	
0005H	Channel 6 Data	-19999~19999	CHA6	R	
0006H	Channel 7 Data	-19999~19999	CHA7	R	
0007H	Channel 8 Data	-19999~19999	CHA8	R	
0008H	Channel 9 Data	-19999~19999	CHA9	R	
0009H	Channel 10 Data	-19999~19999	CHA10	R	
000AH	Channel 11 Data	-19999~19999	CHA11	R	
000BH	Channel 12 Data	-19999~19999	CHA12	R	
000CH	Channel 13 Data	-19999~19999	CHA13	R	
000DH	Channel 14 Data	-19999~19999	CHA14	R	
000EH	Channel 15 Data	-19999~19999	CHA15	R	
000FH	Channel 16 Data	-19999~19999	CHA16	R	

●Display value parameters data address:

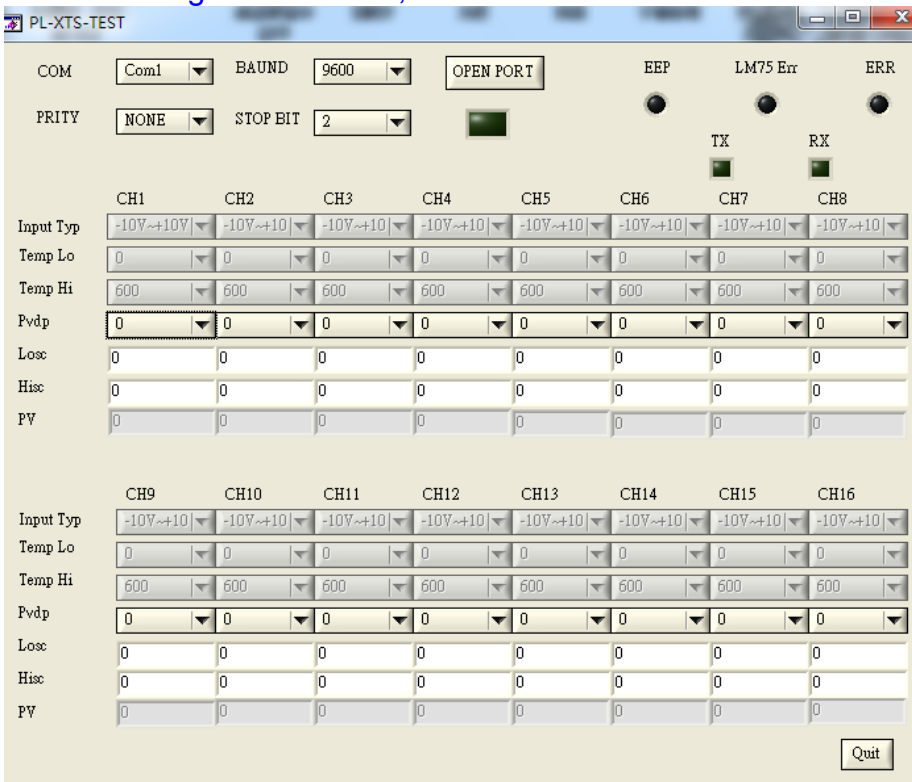
Address	Name	Range	Default	R/W	NOTE
0010H	Channel 1 Type	0: -10~10v	By order	R	
0011H	Channel 2 Type	1:4-20mA/0~10V		R	
0012H	Channel 3 Type	2:TC-K		R	
0013H	Channel 4 Type	3:TC-J		R	
0014H	Channel 5 Type	4:TC-R		R	
0015H	Channel 6 Type	5:TC-S		R	
0016H	Channel 7 Type	6:TC-B		R	
0017H	Channel 8 Type	7:TC-E		R	
0018H	Channel 9 Type	8:TC-T		R	
0019H	Channel 10 Type	9:TC-N		R	
001AH	Channel 11 Type	10:PT100		R	
001BH	Channel 12 Type			R	
001CH	Channel 13 Type			R	
001DH	Channel 14 Type			R	
001EH	Channel 15 Type			R	
001FH	Channel 16 Type			R	
0020H	Channel 1 DP	0~4	By order	R/W	
0021H	Channel 2 DP	0:0		R/W	
0022H	Channel 3 DP	1:0.0		R/W	
0023H	Channel 4 DP	2:0.00		R/W	
0024H	Channel 5 DP	3:0.000		R/W	
0025H	Channel 6 DP	4:0.0000		R/W	
0026H	Channel 7 DP			R/W	
0027H	Channel 8 DP			R/W	
0028H	Channel 9 DP			R/W	
0029H	Channel 10 DP			R/W	
002AH	Channel 11 DP			R/W	
002BH	Channel 12 DP			R/W	
002CH	Channel 13 DP			R/W	
002DH	Channel 14 DP			R/W	
002EH	Channel 15 DP			R/W	
002FH	Channel 16 DP			R/W	
0030H	Channel 1 Low Scale	-19999~19999	By order	R/W	
0031H	Channel 2 Low Scale			R/W	
0032H	Channel 3 Low Scale			R/W	
0033H	Channel 4 Low Scale			R/W	
0034H	Channel 5 Low Scale			R/W	
0035H	Channel 6 Low Scale			R/W	
0036H	Channel 7 Low Scale			R/W	
0037H	Channel 8 Low Scale			R/W	
0038H	Channel 9 Low Scale			R/W	
0039H	Channel 10 Low Scale			R/W	
003AH	Channel 11 Low Scale			R/W	
003BH	Channel 12 Low Scale			R/W	
003CH	Channel 13 Low Scale			R/W	
003DH	Channel 14 Low Scale			R/W	
003EH	Channel 15 Low Scale			R/W	
003FH	Channel 16 Low Scale			R/W	
0040H	Channel 1 High Scale	-19999~19999	By order	R/W	
0041H	Channel 2 High Scale			R/W	
0042H	Channel 3 High Scale			R/W	
0043H	Channel 4 High Scale			R/W	
0044H	Channel 5 High Scale			R/W	
0045H	Channel 6 High Scale			R/W	
0046H	Channel 7 High Scale			R/W	
0047H	Channel 8 High Scale			R/W	
0048H	Channel 9 High Scale			R/W	
0049H	Channel 10 High Scale			R/W	
004AH	Channel 11 High Scale			R/W	
004BH	Channel 12 High Scale			R/W	
004CH	Channel 13 High Scale			R/W	
004DH	Channel 14 High Scale			R/W	
004EH	Channel 15 High Scale			R/W	
004FH	Channel 16 High Scale			R/W	

● Setting parameters value data address:

Address	Name	Range	Default	R/W	NOTE
0050H	Address	1~255	1	R/W	
0051H	Baud rate	0:1200 1:2400 2:4800 3:9600 4:19200 5:38400	3:9600	R/W	
0052H	Prity	0:n-8-1 1:n-8-2 2:o-8-1 3:e-8-1	1:n-8-2	R/W	
0053H	P-Code	0~9999	1000	R/W	
0054H	Automatically cycle display	0:NO 1:YES	NO	R/W	

■ Software Settings

After installing the software ,Run PAXTS.exe



- (1) Set COM / PRITY / BAUND / STOP BIT, press OPEN PORT
- (2) Input Type & PV , Only display
- (3) PT / TC drop-down selection signal input range, range is as follows:
Temp Lo:-50/0/50/100/200/250 Temp Hi: 100/200//800/1000/1200
- (4) DC signal input, Selectable decimal 0/0.0/0.00/ 0.000/ 0.0000
Losc(Low Scale) / Hisc(High Scale) range :-19999~19999

ERROR CODE

EEP Indicator lights : data error; (Please contact us)

LM75 Indicator lights : Temperature Sensor Error;(Check the sensor and wiring)

ERR Indicator lights : Connection Failed; (Check the hardware connections, baud rate, stop bits)