

# PA-XTS Analogue to RS485 Converter

## DESCRIPTION

PA-XTS 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 Opto-isolator
- 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

PA-XTS - Channels - Type/Range - Modbus - Aux

COD	Channels	COD	DC Input	RTD	Thermocouple	CODE	Temperature range	CODE	Com.	CODE	Aux
08N	8 CH(N-Iso)	A3	0~20mA	P	K J E T	A	-50~+100°C	81	RS 485 Modbus	DL	24V DC
08I	8 CH(Iso)	A4	4~20mA	●		B	-10~+40°C				
16N	16 CH(N-Iso)	V1	0~5V	●		C	0~50°C				
16I	16 CH(Iso)	V2	0~10V	●	●	D	0~100°C				
		V3	1~5V	●	●	E	0~200°C				
		V4	-10V~10V	●	●	F	0~400°C				
				●	●	G	0~500°C				
				●	●	H	0~600°C				
				●	●	I	0~800°C				
				●	●	J	0~1000°C				
				●	●	K	0~1200°C				
				●	●	L	0~1300°C				
				●	●	O	Specify range				

N-Iso: Non-Isolated  
Iso: Isolated

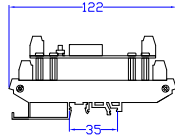
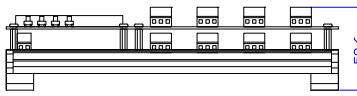
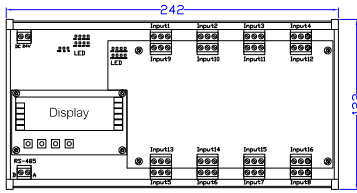
## TECHNICAL SPECIFICATION

<b>Processor:</b>	Microchip DS PIC
<b>Protocol:</b>	RS485, Modbus RTU Mode
<b>Accuracy</b>	DC Signal : $\pm 0.1\%$ of FS $\pm 1$ C RTD PT100Ω : $\pm 0.2\%$ of FS $\pm 1$ C T/C : $\pm 0.5\%$ of FS $\pm 1$ C
<b>Sampling rate</b>	60 Times/sec
<b>Analogue input</b>	8 OR 16 Channels
<b>Input range:</b>	Voltage: (0)1~5V /0~10Vdc Current: (0)4~20mAdc RTD:PT100Ω(Max 800°C) T/C : K、J、E、T Type (Max 1300°C)
<b>Resolution:</b>	16 bits ADC
<b>Cold-junction comp.:</b>	28 °C $\pm$ 10 °C(T/C input)
<b>Input overload display</b>	Exceeds the input range of 5% to display $\square\square FL$ lower the input range of 5% to display $\square\square FL$
<b>Panel indication:</b>	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
<b>Buttons</b>	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:

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

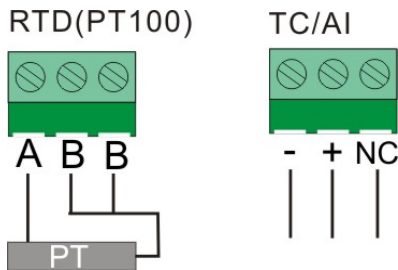
## DIMENSIONS



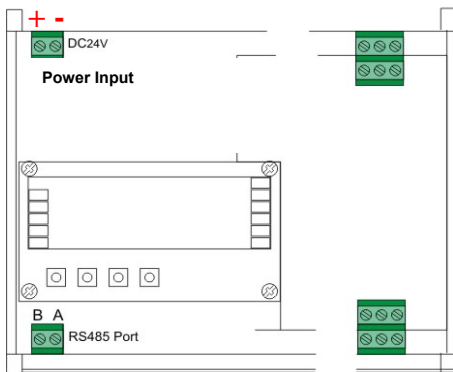
Unit:mm

## CONNECTION

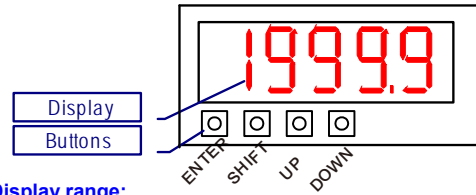
### RTD&T/C and Analogue Signal



### Aux and RS485 connection



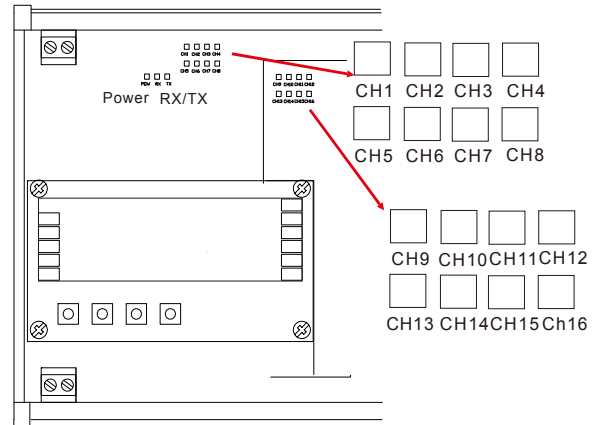
## DISPLAY



- **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



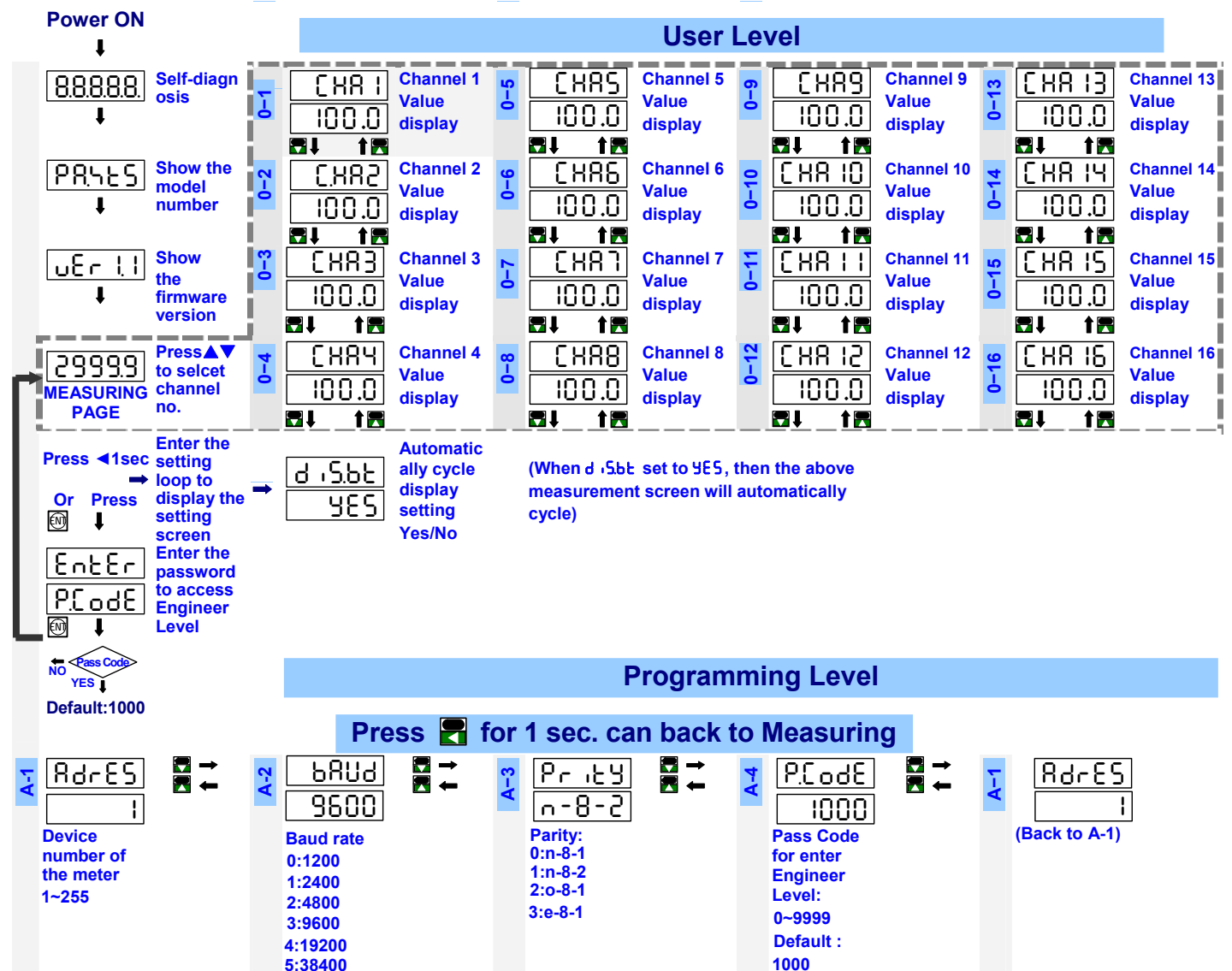
The status indicator CH1 ~ CH16, when no signal input, the LED is blinking; signal input, the LED lights up. The POWER LED: illuminates when the power access. RX / TX: RS-485communication, the LED lights up.

## 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	
0019H	Channel 10 Type	8:TC-T		R	
001AH	Channel 11 Type	9:TC-N		R	
001BH	Channel 12 Type	10:PT100		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	Adress	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	