

Universal, Loop Powered, Isolated, Signal Converter

**ITXPlus Rail mount
ITXPlusH Head mount
CBX100 Cable interface**



- Universal Input
- Converts, filters and isolates most common signals and sensor types
- Fully isolated
- Loop powered
- PC Programmable
- Cost effective
- Compact
- Rail mount or head mount versions
- Automatic CJC for thermocouple inputs
- Automatic lead length compensation for RTD inputs
- Sensor burnout detection
- Preset and user-defined linearisation



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ITXPlus Series - Universal, Loop Powered, Isolated, Signal Converters

Description

The ITX Plus is a truly universal, compact, loop powered, isolated, signal converter. You can program it to suit most input signals. It will measure, convert, filter, and isolate the signal and provide you with an industry standard 4-20mA output.

For linear temperature measurement, you can use any thermocouple or RTD type with the default tables. The ITX Plus will also accept resistance, potentiometer (position), millivolt, milliamp or voltage signals.

You don't even need to recalibrate to change the input type.

The program has inbuilt square root, linear, $x^{1.5}$ and $x^{2.5}$ transfer functions or you can set up a table of input/output values to characterise any unusual curve.

The set-up software is easy to use, works on any PC, and allows you to completely configure the unit - even while the loop is operating.

The cable interface (sold separately) provides full isolation between your PC and the transmitter (order as CBX100USB).

Technical Data

Inputs					Power Supply				
Type		Thermocouple, RTD, Milliamp, Voltage, Millivolt, Resistance			Type		Output loop powered		
Thermocouple inputs	Type	Standard	Lower limit	Upper limit	Min Span	Operating voltage		10-40Vdc	
	B		400°C	1828°C	200°C	Voltage effect		0.005% per volt	
	C		0°C	2000°C		Output			
	E	IEC584	-100°C	1000°C		Type		4-20mA (limited to 22mA)	
	J		-100°C	1200°C	50°C	Ripple		less than 20mV p/p at max load and span	
	K		-180°C	1372°C		Maximum loop load (4-20mA loop)		$[(V_s - 10)/0.02]\Omega$ (Typically 700Ω at 24Vdc)	
	L	DIN43710	-100°C	900°C		Output Action		Direct or reverse	
	N		-180°C	1300°C	100°C	Environmental Conditions			
	R	IEC584	-50°C	1760°C	200°C	Operating temperature		-10 to +70°C	
	S		-50°C	1760°C		Storage temperature		-20 to +70 °C	
	T		-200°C	400°C	50°C	Pollution Degree		2	
	W3	ASTM E98890	0°C	2300°C	200°C	Relative humidity		10-90% (non-condensing)	
W5					Insulation Co-ordination				
Other Thermocouple types		You can define 2-101 point linearising curves for other types			Ports		Input / Output / Case		
Cold Junction Compensation		Better than ±1.0°C			Rated Insulation Voltage		300Veff		
Sensor error detect		Yes			Measurement Category		III		
Milliamp		-10mA to +20mA into 40Ω (min span 1mA)			Impulse Withstand		4kV (1.2 / 50)		
Voltage		-5V to +10V into 2MΩ (min span 0.5V)			Isolation		2 kV (between ports)		
Millivolt		-100mV to +200mV into 2MΩ (min span 4mV)			Performance				
2, 3, 4-wire RTD	Type	Standard	Lower limit	Upper limit	Min Span	Temp drift		Less than 0.02% span/°C	
	Pt100	DIN43710	-200°C	850°C		Output Ripple		< 10mV peak-to-peak	
	Pt100	JIS	-200°C	630°C		Long term drift		0.1% per 10,000 hours	
	Pt200	DIN43710	-200°C	850°C	50°C	Update time		20-200mS	
	Pt200	JIS	-200°C	630°C		Digital filter range		1-100	
	Ni120	DIN43710	-80°C	320°C		EMI effect		Better than ±0.5% full scale	
	Cu100	DIN43710	-100°C	260°C	100°C	Output Response		400ms for 10-90% output change	
	Cable resistance per wire		5Ω Maximum			Housing			
	Sensor Current		0.1 mA			Type		ITXPlus ITXPlusH	
	Sensor cable resistance effect (3/4 wires)		< 0.002 Ω per Ω of cable resistance			Weight		ITXPlus ITXPlusH	
Resistance		0 to 10kΩ (min span 10Ω)			Dimensions		See mechanical drawings		
Potentiometer (end-to-end resistance)		1.2kΩ to 500kΩ			Digital communications				
Measurement Accuracy						Type		For set-up and calibration only	
Input Type	Span	Temp coefficient	Accuracy		Equipment required		CBX100/CBX100USB Interface module IBM PC		
			<500°C	±0.02°C per °C ambient					
E, J, K, L, N, T, U	>500°C	±0.01% Full scale per °C ambient	Better than ±1.0°C		Approvals				
					Products		Standards		
B, C, R, S, W3, W5		±0.02°C per °C ambient	Better than ±2.0°C		ITXPlus, ITXPlusH, CBX100		CAN/CSA C22.2 No. 1010.1:92 UL61010-1:2004		
					ITXPlus		EN50178:1998 BS EN 61326:1998 + A2		
mV, V, mA			Better than ±0.1% FS		LV Directive EMC				
RTD	All		Better than ±0.5°C						
Resistance		N/A	Better than ±0.1% FS						
Potentiometer			Better than ±0.2% FS						

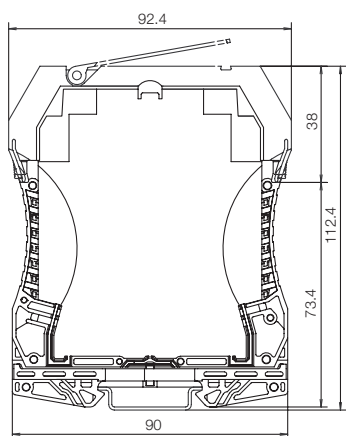
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ITXPlus Connections

Terminal	Signal	
5	Loop -	Output (4-20mA)
6	Loop +	
Notice polarity of outputs is reversed compared to ITX Plus H		
1	Signal +	Thermocouple
2	Signal -	
1	A _{sense}	4-wire RTD (or Resistance)
3	A	
2	B	
4	B _{sense}	
1	A _{sense}	3-wire RTD (or Resistance)
3	A	
2	B	
3	A	2-wire RTD (or Resistance)
2	B	
1	Signal +	Voltage (mV or V)
2	Signal -	
1	Signal +	Current (mA)
2	Signal -	
3	A	Potentiometer
1	Wiper	
2	B	

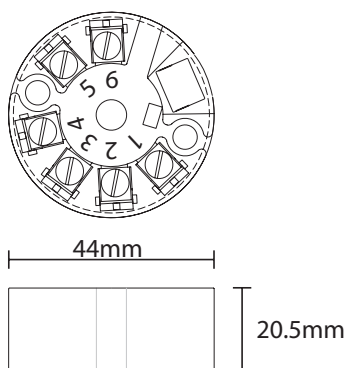
Mechanical drawing



ITXPlus H Connections

Terminal	Signal	
5	Loop +	Output (4-20mA)
6	Loop -	
Notice polarity of outputs is reversed compared to ITX Plus		
3	Signal +	Thermocouple
2	Signal -	
4	A _{sense}	4-wire RTD (or Resistance)
3	A	
2	B	
1	B _{sense}	
4	A _{sense}	3-wire RTD (or Resistance)
3	A	
2	B	
3	A	2-wire RTD (or Resistance)
2	B	
3	Signal +	Voltage (mV or V)
2	Signal -	
3	Signal +	Current (mA)
2	Signal -	
4	A	Potentiometer
3	Wiper	
2	B	

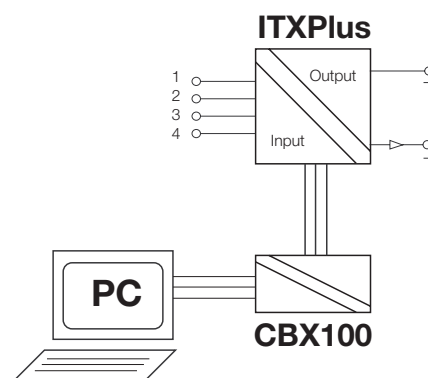
Mechanical drawing



CBX100USB Interface kit

- Connects ITXPlus to PC for Set-up and calibration
- Provides full isolation between PC and ITXPlus
- Software allows you to store the set-up of each transmitter on disk

Connection Diagram



Ordering Information

Type (Model Input/Output/Supply)	Cat. No.
ITXPlus 4-20mA/4-20mA	7940016563
ITXPlus Variable (Specify all setup parameters)	8944980000

Ordering Information

Type (Model Input/Output/Supply)	Cat. No.
ITXPlusH 4-20mA/4-20mA	7940010160
Default input range is 4-20mA. For others please specify.	

Ordering Information

Type	Cat. no.
CBX100USB & Software	7940025031
Head Mount Adapter (for use with ITXPlusH)	7940029545