Z-4TC
## Data Acquisition Module - 4 Thermocouple Inputs

General Features

The Z-4TC data acquisition module allows the simultaneous acquisition of up to 4 thermocouple or low level voltage signals. Each channel can be configured to a different thermocouple type and selectable software filters ensure reliable values from real world applications. High speed and robust ModBus RS485 serial communications offers almost universal connectivity. Connections are via quality, plug in screw terminals although enormous savings can be made using the innovative "QuickFix" bus system. This passive bus clips into standard DIN rail and provides both the power and serial communications connections. Modules can be freely added and removed from the bus without interruption of the communications or power to other modules
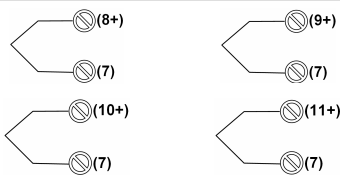
Electrical connections
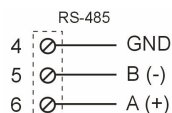
Power
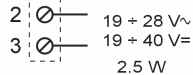
2 ⊘ 19 ÷ 28 V~	Supply must be within the specified tolerance of 19 to 40 Vdc (not polarity conscious), or 19 to 28 Vac. **Failure to observe these precautions will result in serious damage to the instrument.** The equipment must be protected by a suitably sized fuse.
3 ⊘ 19 ÷ 40 V=	
2.5 W	

Inputs

Please Note:- the negative terminals (7 & 12) are internally connected, so care must be taken to maintain electrical isolation between the thermocouple hot junctions. This is normally achieved by using standard isolated junction thermocouple assemblies, or by careful installation of grounded junction sensors.

Serial Interface

RS-485

4 ⊘ — GND	
5 ⊘ — B (-)	
6 ⊘ — A (+)	

QuickFix Bus
The Power and Serial interface connections are also available on a recessed plug in the base of the unit. The QuickFix bus clips into 35mm DIN rail and is designed to allow fast, easy installation of a group of modules. Also allows hot swapping of modules.

Technical Specifications

ELECTRICAL

Power Supply	19 – 40 Vdc / 19 – 28 Vac / 50-60 Hz 9-28 Vdc option
Power Consumption	Max 2.5W; 1.6W @ 24 Vdc
Isolation	1,500 Vac between inputs // all other low voltage circuits
Overload Protection	Inputs protected against overloads to 60 V
Power Supply Transients	Transient protection to 400 W/ms
Transducer Power Supply	None
Status Indicators	▪ Power ON ▪ Error ▪ Data Transmit (Tx) ▪ Data Receive (Rx)
Installation Category	II
Pollution Category	2
Ingress Protection	IP20

COMMUNICATIONS, PROCESSING, MEMORY

Interface	2 wire RS485 serial comms
Baud Rates	1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600 bps
Parity	None, even, odd
Protocol	ModBUS RTU slave
Message turn round time	< 20 ms (@ 38400 baud)
Input Sample Time	200 / 400 ms (to update all 4 channels))
Communication Distance	1, 200 m maximum without line repeater
Connectivity	Max 32 nodes
Data Retention	EEPROM storage of configuration parameters, minimum 10 years retention

Configurations & standards

Programming software	Configure and set online parameters via serial connection with the Z-Setup package or Ethernet with the Z-NET package (requires Z-TWS)
DIP Switch	Force default communication parameters
Accessories & options	9-28Vdc
Standards CE	EN50081-2　　　EN 55011 EN 50082-2　　　EN 61000-2-2/4 EN 50140/141　　EN 61010-1 EN 60742

MECHANICAL DATA

Operating Temperature	0 ~ +55 °C
Storage Temperature	-20 ~ +70 °C
Humidity	30 ~ 90% @ +40 °C (non condensing)
Dimensions	17.5 x 100 x 112 mm (W x H x D)
Weight	140 g Approx
Case	Nylon 6, 30% fibreglass filled – Self Extinguishing class V0
Hot swapping	Yes
Connections	Plug in, screw terminals for 2.5mm² conductors (max)
Mounting	Symmetrical 35mm DIN rail (Top Hat section)

SIGNALS & MEASUREMENT

Number of Channels	4
Type	▪ Thermocouples: J, K, R, S, T, B, E, N ▪ Voltage: Bipolar
Range	▪ ± 80 mVdc
Input Impedance	▪ > 10MΩ
Resolution	5µV (10µV @ 14 bit)
Accuracy	0.1% of range
Linearity	0.02%
Stability	▪ Thermal stability : 0.01%/°C
Response time	-
Other Features	Thermocouple burnout detection Cold Junction Compensation Selectable input filter (1-60 sec)