MCIH

TEMPERATURE SIGNAL CONDITIONER- FAST
(With RS-485 Configuration port)

Cerebrum Series
SuperModule-L100-X

FEATURES

- 18-Bit Sigma Delta Signal Conversion.
- 10 msec- Output Response Time.
- Wide Choice of Input Types.
- Linearisation of T/C and RTD Inputs.
- Supports 4 Wire RTD.
- 31-Point Characteriser Module.
- Realistic Cold Junction Compensation.
- Isolated Dual Buffered Voltage Outputs.
- Isolated CONFIG PORT - RS-485.



About SuperModule-L100-X.....

SuperModule-L100-X is a temperature signal conditioner specially engineered to work with fast response T/C signals. The module has a core containing 18 bit sigma Delta I/C working at 400 Hz sampling rate and a RISC microcontroller with 16 MHz clock. The embedded software is optimised to give the fastest execution, to realise an ultimate 10 msec output response timewith a 2.5 msec update interval.

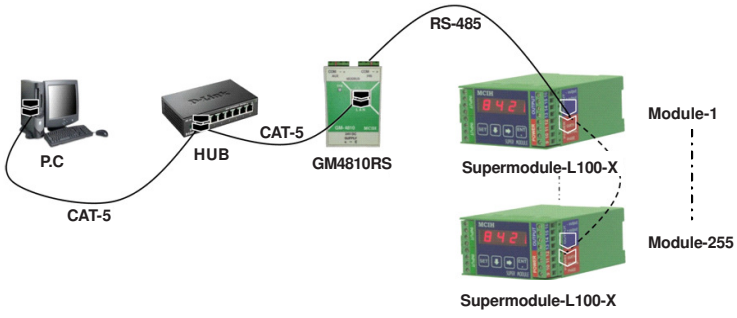
Super Module-L100-X features an isothermal Terminal Block with embeded CJC sensor. This ensures accurate tracking of terminal temperature thusminimising CJC errors.

SuperModule-L100-X has a rugged hardware offering reliable and stable performance in harsh environments. With Four Port Isolation, Super Module eliminates ground loop problems associated with field signals from earthed T/C's, RTD's, Loadcell outputs etc., and also protects the downstream systems like DCS, PLC and Panel instruments from lethal common mode voltages.

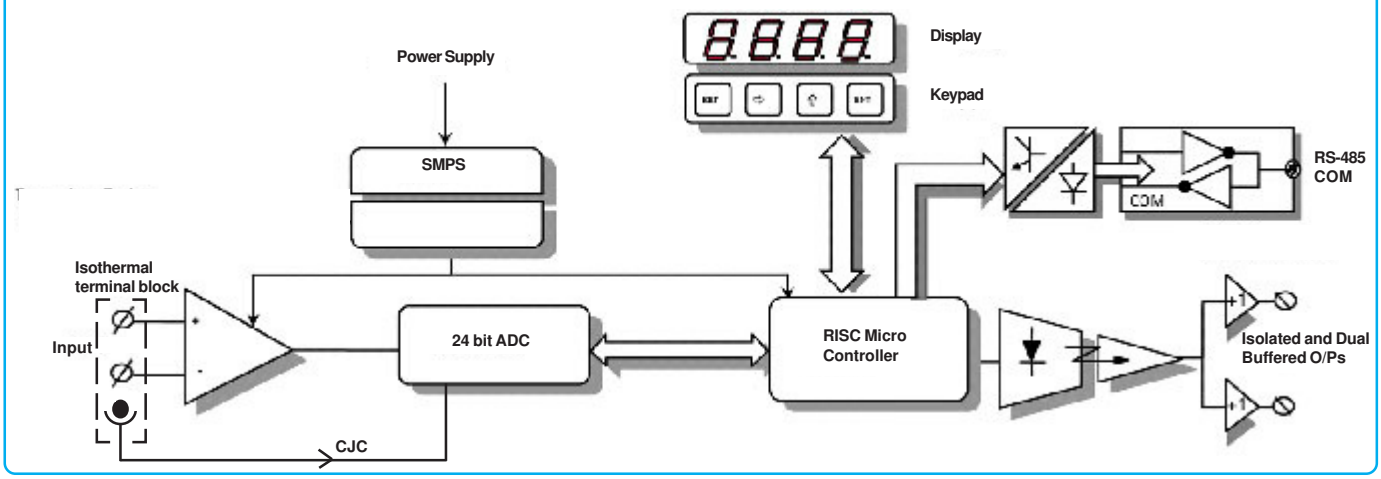
Super Module-L100-X does not have any potentiometer or DIP switch in its hardware, which means hardware access is not required for calibration or configuration. This unique feature enhances operational reliablity of the instrument. The password protected calibration mode makes it tamper proof

CONFIGURATION SCHEMATIC

Remote configuration of modules up to 255 nos, may be done from host PC thro LAN. Configuration software and LAN interface module are available.



FUNCTIONAL SCHEMATIC



PERFORMANCE SPECIFICATIONS

INPUT

Types and Accuracy(@ 25 °C)

Input [1]	Basic Range [2]	Accuracy	
		Below 0°C	Above 0°C
T/C-J	-200 to 700°C	± 0.4 °C	± 0.20°C
T/C-K	-200 to 1200°C	± 0.5 °C	± 0.25°C
T/C-E	0 to 800°C		± 0.15°C
T/C-T	-200 to 400°C	±2 °C	± 0.15°C
T/C-R	0 to 1700°C		± 0.60°C
T/C-S	0 to 1700°C		± 0.60°C
T/C-B	200 to 800 °C		± 4.0 °C
	800 to 1800°C		± 2.0 °C
T/C-C	0 to 2320°C		± 1.0 °C
T/C-N	- 270 to 1300°C	± 0.8 °C	± 0.30°C
Pt-100	- 200 to 850°C	± 0.15°C	± 0.15°C
Pt-500	- 200 to 850°C	± 0.15°C	± 0.15°C
Pt-1000	- 200 to 850°C	± 0.15°C	± 0.15°C

Input [1]	Basic Range [2]	Accuracy
mV	-75 to +75 mV	±0.1 % FS
Ohms1	0 to 400 Ω	±0.05% FS
Ohms2	0 to 4000 Ω	±0.05% FS
mA 1	0 to 20 mA	±0.05% FS
mA 2	4 to 20 mA	±0.05% FS
V 1	1 to 5 V	±0.05% FS
V2	0 to 10 V	±0.05% FS
V3	-10 to 10 V	±0.1 % FS

Impedance : 51Ω for mA, 1MΩ for Voltage and 10MΩ for mV inputs

Excitation : 400 µA for resistance inputs.

Sensor break : Configurable as Up scale / Down scale.

Filter : Programmable Digital Filter (0.01sec to 20sec)

Linearisation : Inbuilt thro' software for T/C & RTD.

INPUT (Continued)

CJC : By sensor embedded in terminals.

CJC Error : ± 0.5°C over operating temperature.

Temp Coeff : ± 20ppm / °C (Zero, Span).

Zero Stability : ± 0.01% F.S (6 months).

INDICATION

Type : Seven Segment LED.

No.of Digits : Four with decimal points.

OUTPUT

Type : Isolated.

Range : 0-5V/1-5V/0-10V selectable thro keypad.

No.of outputs : Two(Buffered) - short ckt protected / 5mA rating.

Impedance : < 1 ohm.

Accuracy : 0.02% of F.S (D/A accuracy only).

Update Rate : 400 update/sec (T/C inputs only).

Response time : 15msec (to reach within 0.1% of setting).

Temp Coeff : ± 20ppm/°C (Span).

Noise : 0.3mV rms(max).

ISOLATION

Type : Four port isolation by opto couplers. Input, Output, COMPORT and power supply ports are isolated from each other.

Voltage : 600V DC or AC peak.

CALIBRATION

Password protected, Calibration & configuration thro keypad / RS-485 COMPORT. No trimpot adjustments required.

Note 1: All T/Cs as per NIST Monograph 125. . Pt 100 as per DIN 43760. Range of temperature indicated refers to the working temperature range of respective thermo couple.

Note 2: Outputs can be ranged to any input range configured by the user. However the configured range should be within the basic range shown in the table.

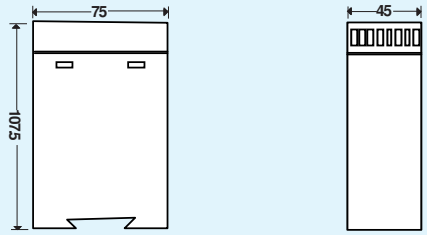
Specifications are subject to change with out any notice due to continuous development.

GENERAL SPECIFICATIONS

Power Supply : 20 to 35V DC (2W).
Operating Temp : 0 to 55 °C.

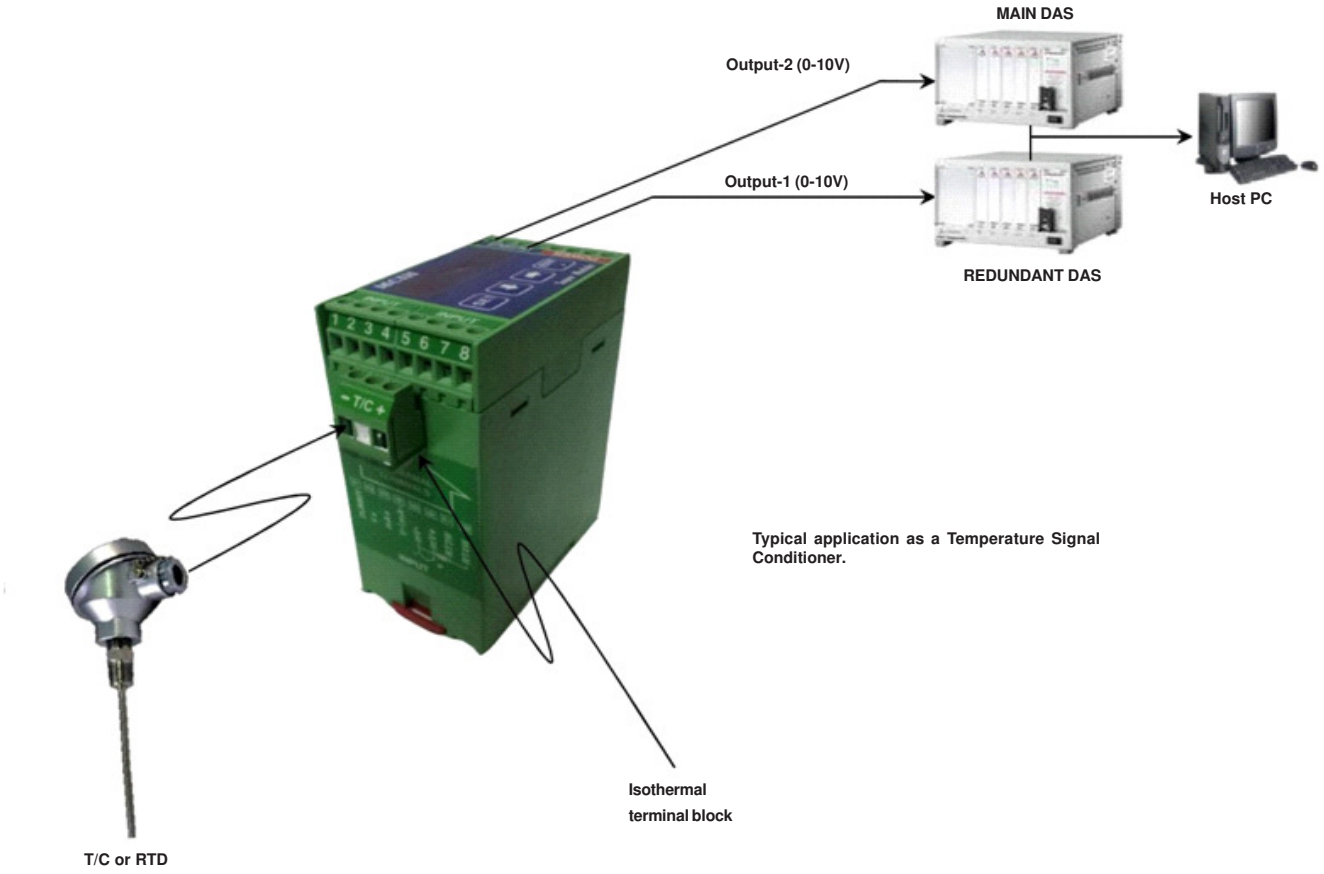
Storage Temp : 0 to 70 °C.
Humidity : 0-90% (Non Condensing).
Mounting : Back panel / Din rail 35mm - tophat.

DIMENSIONS : In mm and not to scale



ABS Plastic enclosure

APPLICATION SCHEMATIC



Typical application as a Temperature Signal Conditioner.

ORDERING INFORMATION

Power Supply	Model No.
20 to 35 V DC	**SuperModule-L100-X**

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