

MTL ICC300 SERIES



ICC321 Dual channel Programmable Temperature Converter



- ◆ **Galvanic isolation between power supply and each channel input and output**
- ◆ **User programmable Input types and ranges**
- ◆ **Universal inputs - 8 Thermocouple types, 2/3-wire RTDs or mV input**
- ◆ **Built-in THC/RTD Linearisation**
- ◆ **Configuration via PC COM port**
- ◆ **T- or G- section DIN-rail mounting.**

ICC321 is an independently powered dual channel, programmable temperature converter which converts low level DC signal from a thermocouple or 2/3-wire RTD into an isolated 4-20mA current signal. Each input and output is isolated from one another and from the power supply. Programming functions include sensor choice, linearisation, zero and span ranging, alarms, monitoring, testing and tagging.

Inputs are linearised accurate to 0.1°C for all sensors over the specified ranges. Units are calibrated in factory for all specified ranges of input and can be installed and re-ranged without any field calibration.

Open thermocouples or RTD lines and unit failures are detected and can initiate alarm status. The alarms can be set to provide either a 3.9mA or 21mA output, or can be disabled. For THC inputs requiring cold junction compensation, an integral CJC sensor is provided within the module. Configuration is carried out through a serial port on top of the module, using a PC software and a special interface hardware PCC321.

SPECIFICATION

Number of channels

Two

Can also be programmed for single input, two outputs.

Signal source

emf input,
Types J, K, E, T, R, B, S or N THCs to BS 4937
2/3-wire platinum RTDs to BS 1904/DIN 43760 (100Ω at 0°C)

Input signal range

-15mV to 75mV or 0Ω to 500Ω

Input signal span

4mV to 90mV or 20Ω to 500Ω

RTD excitation current

150μA typical

Transfer accuracy at 25°C

(including hysteresis, non-linearity and repeatability)

Inputs

THC/mV input : ±0.05% of input or ±15μV (whichever is greater)

RTD input : ±0.05% of input or ±100mΩ (whichever is greater)

Output : ±10μA

Temperature drift (typical)

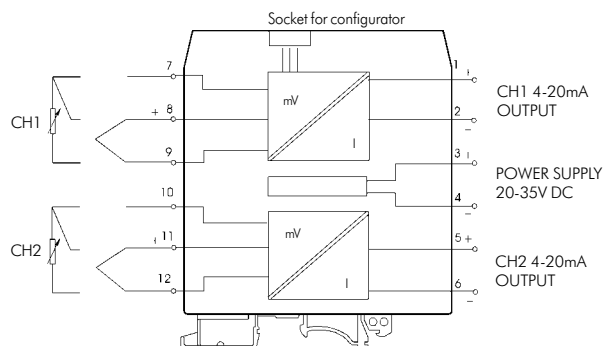
Inputs : ±0.005% of input per °C

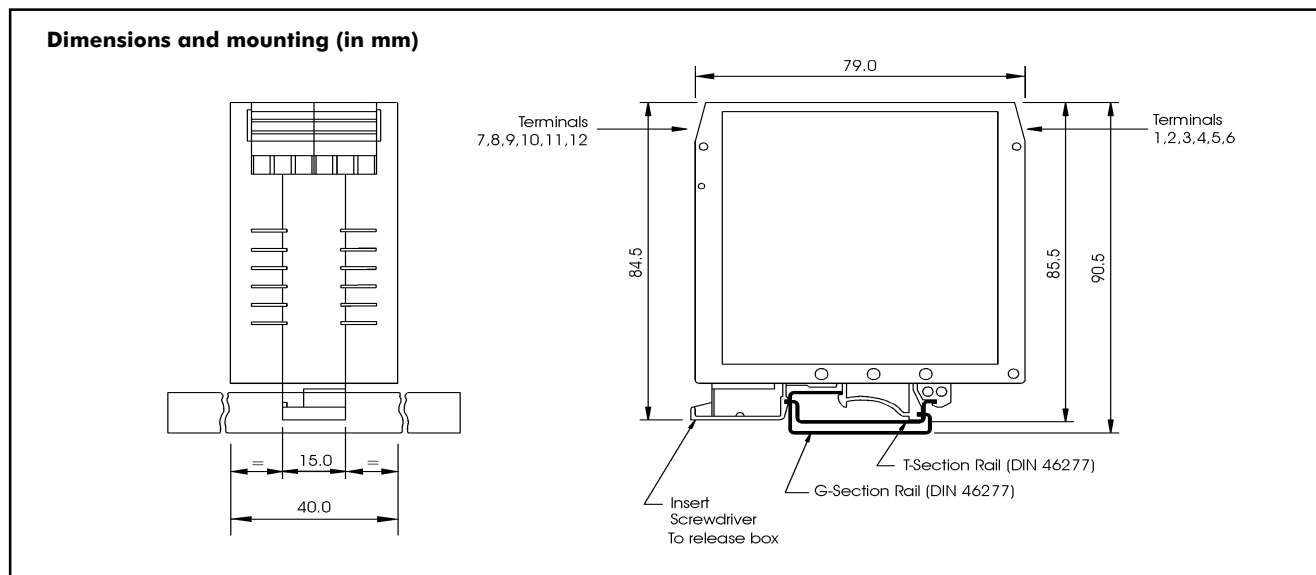
Output : ±1μA per °C

(specification continued overleaf)

Circuit diagram

ICC321





Input Sensor specific characteristics

THC inputs

Linearisation : Mathematical to 0.1°C precision, to BS 4937

CJC error (typical) : <0.5°C at 25°C

RTD Inputs

Linearisation : Mathematical to 0.1°C precision, to BS 1904/DIN 43760

Input current

<5nA at 25°C

<100nA at extreme temperature

Output range

4-20mA nominal

Sensor Failure (software selectable)

THC and mV inputs : Up scale or Down scale for open circuit sensor

RTD inputs : Up scale or Down scale for open circuit sensor, Down scale for short circuit sensor

Up scale current : 21mA

Down scale current : 3.9mA

Response time (typical)

Power up <5 sec

To reach 99% of span <1.5 sec

Update time (typical)

<0.5 sec per channel

Maximum load resistance

1000Ω

LED indication

Individual LEDs provided for channel status indication

Isolation (between power supply, input1, input2, output1 and output2)

250V AC rms (to EN 61010-1) tested at 2.3kV AC rms for 1 min.

Supply voltage

20-35V DC

Power requirement

140mA max. at 20V DC

120mA max. at 24V DC

95mA max. at 35V DC

Common mode rejection

150dB for 240V at 50Hz or 60Hz

Ambient temperature limits

-20°C to +55°C (Operating)

-40°C to +80°C (Storage)

Humidity

5-95% RH, non-condensing

Mounting

Directly onto T- or G-section DIN-rail to DIN 46277

Terminals

Accommodate 2.5mm² conductors

Casing

40mm width polyamide casing

Configuration

ICC321 can be configured through a PC COM port, using a special interface hardware PCC321 and a Windows 95 compatible PC software

TO ORDER

ICC321 - Dual channel programmable Temperature Converter

Units can be configured at factory for sensor type / input range on request

PCC321 - Interface hardware with a Windows 95 compatible PC software

Specifications subject to change without notice

MTL Instruments Ltd.

No 3, Old Mahabalipuram Road, Sholinganallur, Chennai 600 119, INDIA.

+91 (44) 4960552. Telefax : +91 (44) 4960477. Fax : +91 (44) 4961657.

E-mail : mds.engg@mtlindia.sprinrpg.ems.vsnl.net.in

A member of The MTL Instruments Group plc

