

MTL ICC200 SERIES



ICC221 temperature converter, THC/ emf input



- ◆ Galvanic isolation between input and output
- ◆ Versions available for a wide choice of THC inputs
- ◆ Optional choice of outputs; 1 to 5V or 4 to 20mA
- ◆ Eliminates earthing problems
- ◆ T- or G-section DIN-rail mounting

The ICC221 temperature converter accepts low-level dc signals from a thermocouple or a mV source and converts these into 4 to 20 mA or 1 to 5V dc outputs (depending upon options) proportional to the mV input and not to temperature. Individual models are factory calibrated to monitor various ranges for any one of five types of thermocouple according to the users' requirements. Also optional is the choice of upscale or downscale safety drives for thermocouple burnout, while for thermocouple inputs, the converter is provided with built-in cold-junction compensation. Galvanic isolation between input and output signals simplifies interface wiring by eliminating possible earthing and ground loop problems.

SPECIFICATION

Number of channels

One

Input signal options

THCs: See ordering code for details
THCs: to BS4937
mV: 0 to 60mV

Input current

<5nA (downscale)
<150nA (upscale)

Output signal options

4 to 20mA: (ICC221-xx-O1-xx)
1 to 5V dc: (ICC221-xx-O2-xx)

Isolation between input and output

1500V dc/ac

Power supply required

For 4 to 20mA output
 $V_s \text{ min} = 17 + (R_L \times 0.02)V \text{ dc}$
 $V_s \text{ max} = 35V \text{ dc}$
For 1 to 5V output
 $V_s = 22 \text{ to } 35V \text{ dc}$

Maximum load (R_L) (current only)

$50(V_s - 17)\Omega$

Span adjustment

Approximately $\pm 2.5\%$ of span

Zero adjustment

Approximately $\pm 2.5\%$ of span

Transfer accuracy at 25°C (including non-linearity and hysteresis)

THC input: Within 0.1% of span $\pm 1^\circ\text{C}$
mV input: Within 0.1% of span

Temperature drift (span)

$\pm 0.005\%$ of input span/ $^\circ\text{C}$

Temp drift (suppression/elevation[E])

$\pm 0.01\%$ of $E/^\circ\text{C}$

Temperature drift (zero)

mV input: $\pm 0.01\%$ of span/ $^\circ\text{C}$ or $\pm 1\mu\text{V}/^\circ\text{C}$, whichever is greater

THC input (except type R):

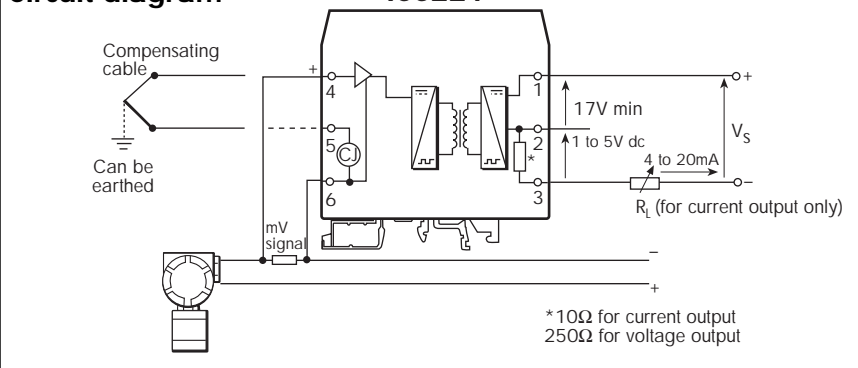
$\pm 0.01\%$ of span/ $^\circ\text{C}$ or $\pm 0.03^\circ\text{C}/^\circ\text{C}$, whichever is greater

THC input (type R):

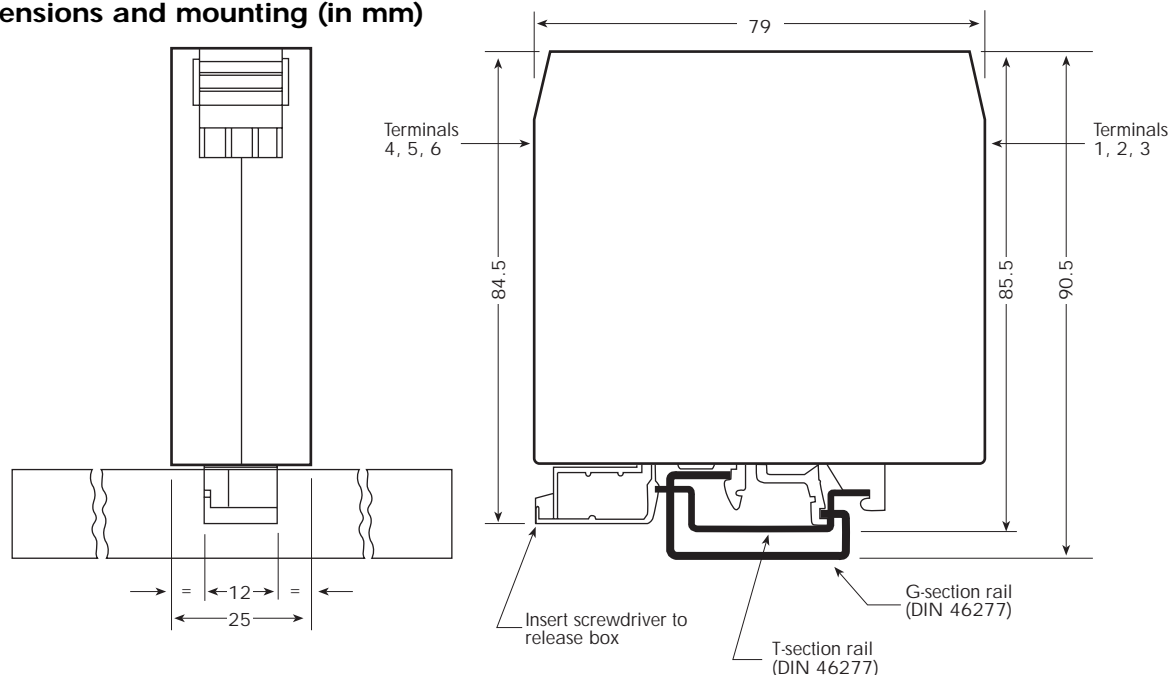
$\pm 0.01\%$ of span/ $^\circ\text{C}$ or $\pm 0.07^\circ\text{C}$, whichever is greater

(specification continued overleaf)

Circuit diagram



Dimensions and mounting (in mm)



Response time

To reach 90% of span: 40ms

To reach 99.9% of span: 250ms

Safety drive options on THC burnout

Upscale current: >21mA; 29mA maximum

Downscale current: <3.5mA

Common mode rejection ratio

150dB typical

RFI susceptibility

Conforms to IEC801.3

Ambient temperature limits

-20°C to +55°C (operating)

-40°C to +80°C (storage)

Humidity

5 to 95% RH, non-condensing

Terminals

Accommodate 2.5mm² conductors

Casing

25mm width polyamide casing

Mounting

Directly onto T- or G-section DIN-rail to DIN46277

TO ORDER:-

Please order by quoting **ICC221** followed by the appropriate

input, output and **safety drive** codes from the adjacent table.

Example: ICC221-T3-O2-D2 refers to an ICC221 unit for a T-type THC (with a range of 0 to 400°C), using the 1 to 5V output option and with a 'downscale' safety drive.

Input		Output		Safety drive	
Option (THC type & range °C)	Order code	Option	Order code	Option	Order code
T, 0 to 200	T1	4 to 20 mA	O1	Upscale	D1
T, 0 to 300	T2	1 to 5V	O2	Downscale	D2
T, 0 to 400	T3				
E, 0 to 600	E1				
J, 0 to 200	J1				
J, 0 to 300	J2				
J, 0 to 400	J3				
J, 0 to 500	J4				
J, 0 to 600	J5				
J, 0 to 800	J6				
K, 0 to 200	K1				
K, 0 to 300	K2				
K, 0 to 400	K3				
K, 0 to 500	K4				
K, 0 to 600	K5				
K, 0 to 800	K6				
K, 0 to 1000	K7				
K, 0 to 1200	K8				
R, 0 to 1600	R1				
mV, 0 to 60mV	V1				

Specification subject to change without notice

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