TEMPERATURE TRANSMITTERS

FUZ SERIES

- UNIQUE PUSH BUTTON CALIBRATION
- RE-RANGEABLE WITHOUT A PC
- 10 YEAR WARRANTY
- RTD, TC, SLIDEWIRE OR THERMISTOR INPUT
- LED OVER-RANGE INDICATION
- GALVANIC ISOLATION ON TC TYPES
- DRIFT FREE LINEARISATION

INTRODUCTION

A simple push button operation, ranges and calibrates the FUZ 77 (4 to 20) mA temperature transmitter, eliminating the need for soldering links, potentiometers or PC's.

The FUZ 77 in-head transmitter incorporates the latest digital technology to ensure accurate drift free linearisation. It connects to an appropriate sensor and converts the output to a linear (4 to 20) mA output signal, providing a level of performance at a cost that was not possible with earlier analogue types.

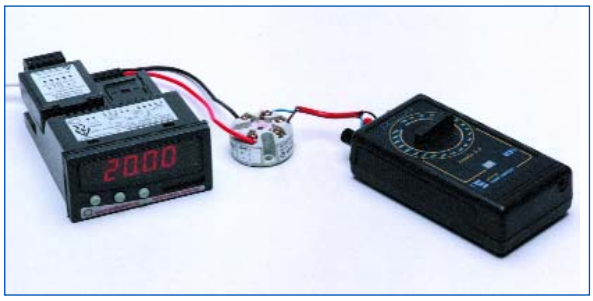
High accuracy and stability coupled with the flexibility of reduced stock holding and the quick and easy way of bench re-ranging makes the FUZ 77 the ideal choice for the majority of temperature sensing requirements.

The FUZ 77 is linearised to comply with all common RTD sensor standards i.e. 0.00385, 0.003916 etc. all common thermocouple types and 2252 Ω and 10 kΩ YSI Thermistors, and up to 10 kΩ potentiometers.

An on board LED indicates the successful completion of the range programming and also provides an instant indication of sensor health.

CALIBRATION PROCEDURE

1. *Connect a simulator/calibrator to the input and between 8 & 30 VDC to the output of the FUZ 77.*
2. *Set the simulator to the desired temperature at 4 mA. Press and HOLD the calibration button until the LED starts to blink.*
3. *Set the simulator to the desired temperature at 20 mA. Press the calibration button and release. The LED continues blinking and then shuts off confirming that the unit is calibrated.*



TYPICAL SET-UP
The above picture shows FUZ 77 TC, Indicator, and Thermocouple simulator.

TEMPERATURE TRANSMITTERS

SPECIFICATIONS @20˚C

GENERAL

Sample Rate	500 ms per sample
Sensor Lead Length	Maximum length 3 m to maintain CE compliance
Terminals	Screw terminals
Warm-up Time	120 s to full accuracy
Display	Slow flash indicates programming mode. Full on indicates out of range sensor
Switch	Momentary push button
Calibration Period	12 months to maintain published specification. 5 years to twice specification
Warranty	10 years

APPROVALS

EMC	BS EN 61326

ENVIRONMENTAL

Operating Temp. Range	(-20 to 80) ˚C
Ambient Humidity	(0 to 95) % non condensing
Ambient Storage Temp.	(-40 to 90) ˚C

ENCLOSURE

Material	ABS Case (Polyurethane Encapsulated)
Flammability	UL 94 HB

INPUT *FUZ 77*

Sensor & Ranges		3 wire Pt100 (Pt500 or Pt1000 to order)
Default Range		(0 to 100) ˚C
Accuracy		± 0.1 ˚C ± 0.1 % rdg (-100˚C to 500) ˚C *or Deg F equiv* ± 0.2 ˚C ± 0.2 % rdg (-200 ˚C to 850) ˚C *or deg F equiv*
Linearisation		BS EN 60751, BS 1904 (DIN 43760) JISC 1604 (0.003916)
Input/Out Isolation		N/A
Excitation Current		1 mA maximum
Lead Resistance (Max. Effect)		10 Ω per leg 0.02 % Full Range output/Ω (plus lead resistance mismatch)
Thermal Drift	Zero	± 0.01 ˚C/˚C
	Span	0.05 %/˚C
Minimum Span		5 ˚C

INPUT *FUZ 77* **TC**

Sensors & Ranges

FUZ 77 -1/TC	*K*	*(-200 to 1370) ˚C or deg F equivalent*
	J	*(-200 to 1200) ˚C or deg F equivalent*
	T	*(-200 to 400) ˚C or deg F equivalent*
FUZ 77- 2/TC	*R*	*(0 to 1760) ˚C or deg F equivalent*
	S	*(0 to 1760) ˚C or deg F equivalent*
	B	*(0 to 1820) ˚C or deg F equivalent*
FUZ 77- 3/TC	*J*	*(-200 to 1200) ˚C or deg F equivalent*
	L	*(-200 to 1200) ˚C or deg F equivalent*
	E	*(-200 to 1000) ˚C or deg F equivalent*
FUZ 77 - 4/TC	K	*(-200 to 1370) ˚C*
	N	(0 to 1300) ˚C
	R	(0 to 1760) ˚C

Other combinations available to special order

Default Range

FUZ 77-1	*K*	*(0 to 1000) ˚C or deg F equivalent*
FUZ 77-2	R	*(0 to 1600) ˚C or deg F equivalent*
FUZ 77-3	J	*(0 to 1000) ˚C or deg F equivalent*
FUZ 77-4	K	*(0 to 1000) ˚C or deg F equivalent*

Accuracy		± 0.04 % FS ± 0.04 % rdg or 0.5 ˚C (whichever is greater)
Linearisation		BS4937/IEC 584-1
Input/ Out Isolation		50 VDC (tested to 200 V)
Cold Junction Error		± 0.2 ˚C
Cold Junction Tracking		0.05 ˚C/˚C
Cold Junction Range		(-20 to 80) ˚C
Thermal Drift	Zero	± 4 mV/˚C Typical
	Span	0.01 %/˚C
Minimum Span		10 ˚C

INPUT *FUZ 77* **TH**

Sensors & Ranges

FUZ 77 -1/TH	YSI 2252 Ω	Type B
FUZ 77 -2/TH	YSI 10 kΩ	Type B

Default Range		(-25 to 125) °C
Accuracy		± 0.15 ˚C rng (0 to 100) ˚C ± 0.20 ˚C rng (-25 to 125) ˚C
Input/Out Isolation		N/A
Excitation Current		2252 Ω , 240 mA, 10 KΩ, 100mA
Thermal Drift	Zero	± 0.0 ˚C/˚C
	Span	0.05%/˚C
Minimum Span		5 ˚C

INPUT *FUZ 77* **W**

Sensors & Ranges

Slidewire Potentiometer	5 kΩ, 10 kΩ
Span	(10 to 100) % Travel
Offset (4 mA o/p)	(0 to 100) % Travel
Accuracy	0.05 % Typical
Default Range	(0 to 100) % Offset (4 mA o/p)

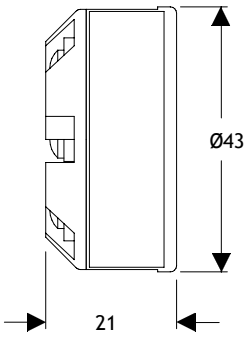
OUTPUTS (4 to 20) mA, 2 wire loop powered

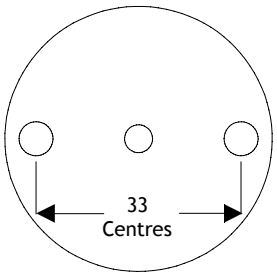
Max. Output Range	(3.8 to 22) mA
Operating Voltage	(8 to 30) DC
Accuracy	± 5 mA
Burnout	Upscale 22 mA (downscale to order) Red programming LED comes on when temperature is outside operating range.
Thermal Drift	0.3 mA/˚C
Response Time	500 ms to reach 70 % of final value
Loop Resistance	Maximum 800 R at 24 VDC
Loop Sensitivity	0.4 mA/V
Protection	Reverse connection protected

OEM & PRIVATE LABELING AVAILABLE

MECHANICAL DETAILS

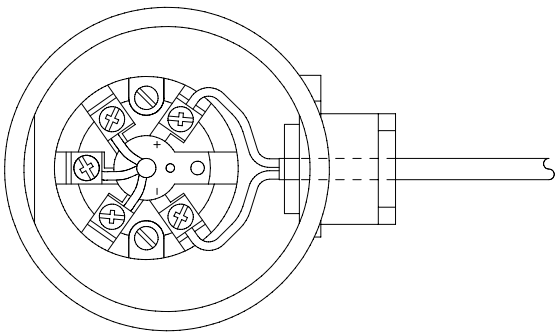
(All dimensions in mm)





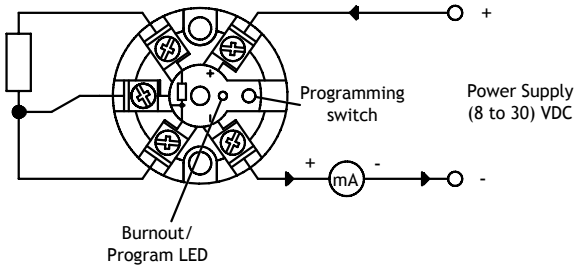
Fixing holes 2 x Ø5.5

Centre hole Ø4.0

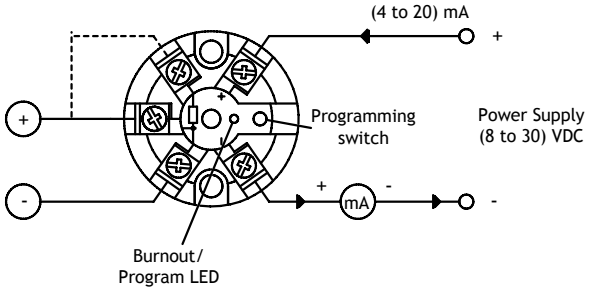


WIRING CONNECTIONS

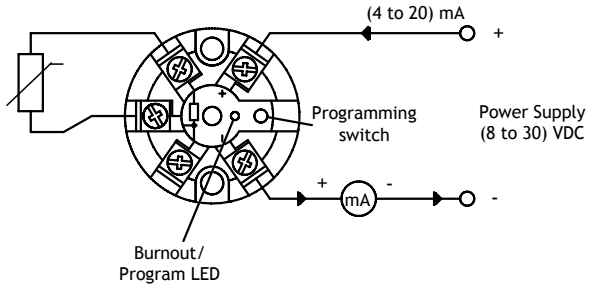
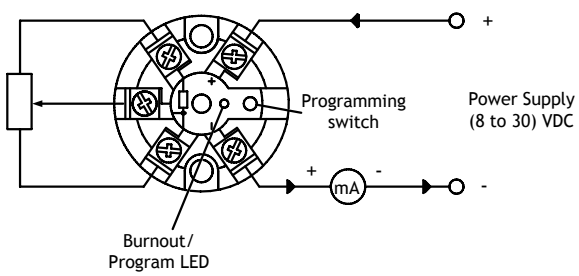
FUZ 77 **P**



FUZ 77 **TC**



FUZ 77 **TH**



*FUZ 77***W**