

OPERATION MANUAL

77 AND 77A

Thermocouples K-J-E-Tz and RTD Pt-100

JENCO ELECTRONICS, LTD.

MANUFACTURER OF PRECISION INSTRUMENTS

Model 77 and 77A are factory calibrated per the information on the product label. They may be re-calibrated any time to any upper temperature within the capability of the product and the sensor type used. Both upper and lower temperature may be adjusted on RTD models. See accompanying data sheet for temperature range capabilities and technical knowledge. Manufacture offers recalibration service for a nominal charge.

THEORY OF OPERATION:

Model 77 and 77A are 2 wire transmitters intended to accept thermocouple or RTD input and produce a current output in the range of 4 to 20mA DC

Current output (and LED brightness) is proportional to actual measured temperature and the calibrated upper temperature as described in the procedure below. Current output tracks thermocouple's millivolt input signal with 0.1%. Thermocouple input is not electrically isolated from current output, so installation precaution must be observed to avoid ground loops. Insulated (un-grounded) thermocouple probes are strongly recommended.

In use, resistance across output terminal of this transmitter is continuously adjusted to cause appropriate current flow (per Ohm's Law) in the range between 4 and 20mA at any voltage between 12 and 24 VDC

SPECIFICATION:

Thermocouple/RTD type is factory pre-ret. Temperature range is user adjustable via range selecting solder pads, plus 25 turn trimmers for ZERO and SPAN. Input: Thermocouple or RTD as indicated on nameplate. Output signal: 4-20mA. Output accuracy (thermocouple): sensor output 0.1%. Supply voltage required: 12-24 VDC. Sensor burnout detection: 25mA. Case: Gray ABS, 1.69 diameter X 1.14 High (43x29mm). Pilot: LED, brightness proportional to output.

	77	77A
Ambient range	-10 to +70C	-40 to +85F
Span drift	.1%/C	.005%/C
Zero drift	2u V/C	0.01% span
Minimum Span		T/C : 100°C RTD: 75°C
Supply voltage effect+	1u V/V	.5u V/V
Cold jct. Compensation#	0.5 C/C	.03 C/C Ta=-40,+70C .05 C/C Ta=-40,+85C

+ RTD version: model 77 =.01%/V, model 77A=.006%/V

Not applicable to RTD types.



FITS STANDARD THERMOWELL HEADS
 12-24 VDC POWERED
 3 USER-SELECT MEASUREMENT RANGES
 CURRENT PROPORTIONAL LED BRIGHTNESS

FACTORY CALIBRATED
 USER ADJUSTABLE ZERO/SPAN
 2 AMBIENT TEMPERATURE RANGES
 FACTORY CUSTOM CALIBRATION AVAILABLE

User Adjustable Temperature Span($^{\circ}\text{C}$) for 4-20 mA Output*

Jumper	K	J	T	E	RTD
1	0-230	0-190	0-200	0-215	-50-150
2	0-230/500	0-190 / 390	0-200/400	0-215/450	0-150/300
3	0-500/1200	0-390 / 760	N/A	0-450/1000	0-300/600

*For jumper selection indicated, upper temperature limit is user adjustable within this range. Factory stocks calibrated units in the standard configurations listed. Non-standard configurations available on special order. Lower temperature limit (4mA) is fixed at 0°C (32°F) for thermocouple models; 4mA is adjustable on RTD models from -50°C to $+50^{\circ}\text{C}$ (-58°F to $+122^{\circ}\text{F}$).

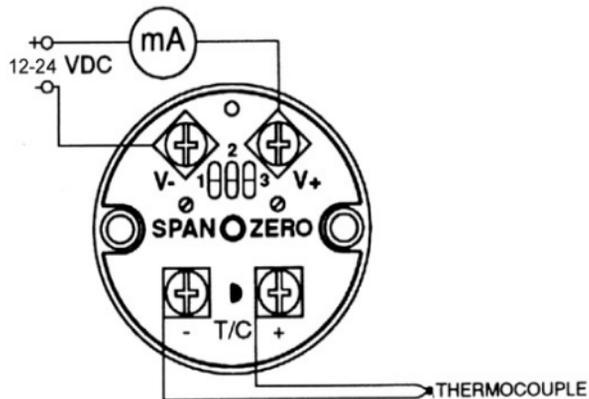
Factory Standard Stock Items*

Type	Temp Range	Model Number
K	0 to 300C(32 to 572F)	77 /01/+0000/+0300/CEL
		77A /01/+0000/+0300/CEL
	0 to 600C(32 tot 1112F)	77 /01/+0000/+0600/CEL
		77A /01/+0000/+0600/CEL
	0 to 1200C(32 to 2192F)	77 /01/+0000/+1200/CEL
	77A /01/+0000/+1200/CEL	
J	0 to 300C (32 to 572F)	77 /02/+0000/+0300/CEL
		77A /02/+0000/+0300/CEL
	0 to 700C (32 to 1292F)	77 /02/+0000/+0700/CEL
		77A /02/+0000/+0700/CEL
E	0 to 1000C(32 to 1832F)	77 /03/+0000/+1000/CEL
		77A /03/+0000/+1000/CEL
T	0 to 100C (32 to 212F)	77 /04/+0000/+0100/CEL
		77A /04/+0000/+0100/CEL
	0 to 400C (32 to 752F)	77 /04/+0000/+0400/CEL
		77A /04/+0000/+0400/CEL

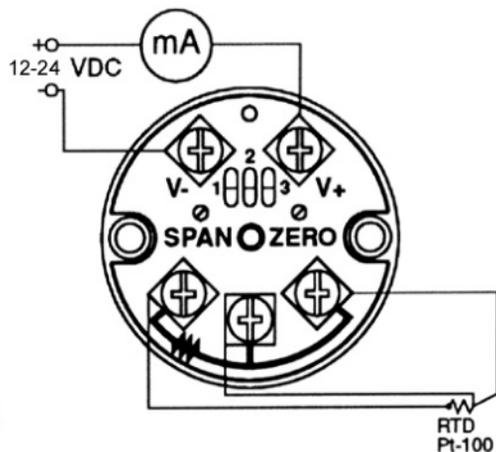
RTD	-50 to 50C (-58 to 122F)	77 /11/-0050/+0050/CEL
		77A /11/-0050/+0050/CEL
	0 to 100C (32 to 212F)	77 /11/+0000/+0100/CEL
		77A /11/+0000/+0100/CEL
	0 to 250F (-18 to 121C)	77 /11/+0000/+0250/CEL
		77A /11/+0000/+0250/CEL
	0 tot 500F (-18 to 260C)	77 /11/+0000/+0500/CEL
		77A /11/+0000/+0500/CEL
	0 to 600C(32 to 1112F)	77 /11/+0000/+0600/CEL
		77A /11/+0000/+0600/CEL

*These calibration settings are stocked and considered standard. Custom calibration is available on special order. User may recalibrate any unit to any temperature within its capabilities.

CONNECTION DIAGRAMS

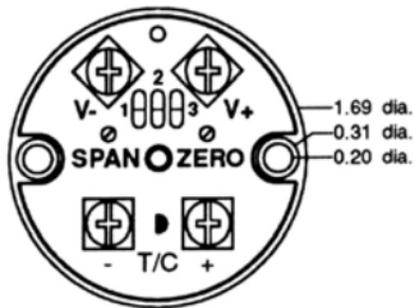


THERMOCOUPLE
MODELS 77/77A

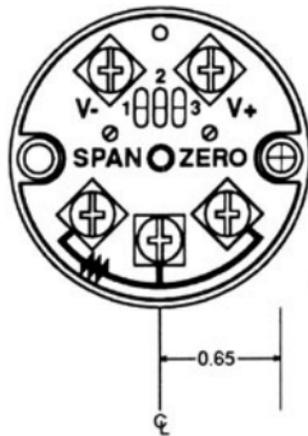


RTD MODELS
77/77A

TOP VIEW

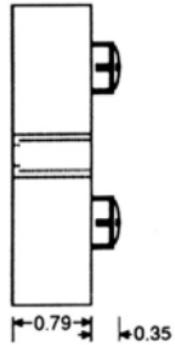


THERMOCOUPLE
MODELS 77/77A



RTD MODELS
77/77A

SIDE VIEW



WARRANTY

Jenco Instruments, Ltd. Warrants this product to be free from significant deviations in material and workmanship for a period of 1 year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse, within the year period, please return-freight-prepaid and the correction of the defect will be made without charge. If you purchased the item from our Jenco distributors and it is under warranty, please contact them to notify us of the situation. Jenco Service Department alone will determine if the product problem is due to deviations or customer misuse.

Out-of-warranty products will be repaired on a charge basis.

RETURN OF ITEMS

Authorization must be obtained from one of our representatives before returning items for any reason. When applying for authorization, please have the model and serial number handy, including data regarding the reason for return. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Jenco will not be responsible for damage resulting from careless or insufficient packing. A fee will be charged on all unauthorized returns.

NOTE: Jenco Instruments, Inc reserves the right to make improvements in design, construction, and appearance of our products without notice.

JENCO INSTRUMENTS, INC.

7968 Arjons Drive, Suite C
San Diego, CA 92126 USA
TEL: 858-578-2828 FAX: 858-578-2886
E-MAIL: jencoi@ix.netcom.com

JENCO ELECTRONICS, LTD.

PO. BOX LINKOU 117
TAIPEI, TAIWAN
TEL: 02 601-6191 FAX: 02 601-7206
E-MAIL: jencoe@ms2.hinet.net

SHANGHAI JENCO ELECTRONICS, LTD.

18 Wang Dong Zhong Road Sijing Town, Songjiang SHANGHAI, CHINA
TEL: (86-021)5761-9599 FAX: (86-021)5761-9598
E-MAIL: jenco@public.sta.net.cn
Homepage: <http://www.jenco.com.cn>