

Datasheet

# ANSI High Temperature Glassfibre Twin Twisted Exposed Welded Tip Thermocouples with Standard Plug Termination

Types K 5, 10 or 20 metres long (ANSI MC96.1)

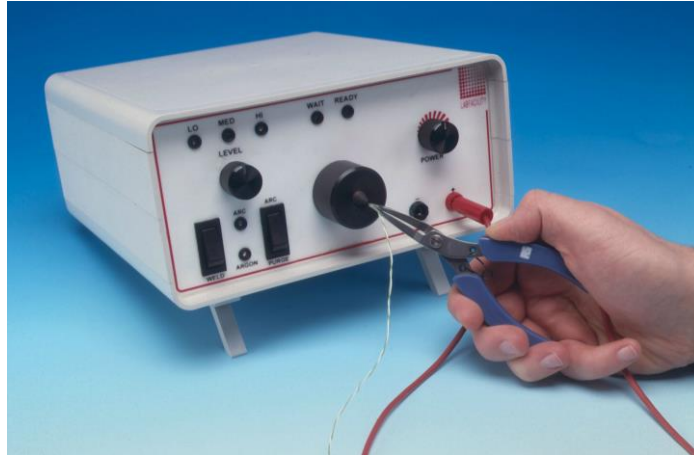


- Thermocouple type K
- Fast response, welded exposed junction
- 5, 10 or 20-metre-long high temperature glassfibre insulated twisted cable
- Good temperature resistance (not suitable in fluids)
- 1/0.711mm conductors (21awg)
- Temperature range 0°C to +700°C
- Standard plug termination
- Tolerance to ANSI MC96.1 Class 2
- Colour code to ANSI MC96.1
- Ideal for test & development applications

| T/C Type | Conductors | Length    | +Positive tail wire | -Negative tail wire | Allied code | RS order code   |
|----------|------------|-----------|---------------------|---------------------|-------------|-----------------|
| 'K'      | 1/0.711mm  | 5 metres  | Yellow              | Red                 |             | <b>131-4749</b> |
| 'K'      | 1/0.711mm  | 10 metres | Yellow              | Red                 |             | <b>131-4750</b> |
| 'K'      | 1/0.711mm  | 20 metres | Yellow              | Red                 |             | <b>131-4751</b> |

# Making your own Thermocouples?

## L60 Thermocouple & Fine Wire Welder



The Thermocouple Welder is a compact, simple-to-use instrument designed for thermocouple and fine wire welding

It is primarily designed for use by sensor manufacturers to produce commercial grade thermocouple junctions; it is ideal for producing large numbers of exposed junction thermocouples for test and development laboratories. The L60 Thermocouple Welder is ideally suited to transducer and RTD extension lead attachment

Use of the Thermocouple Welder does not require special skills and most operatives will be capable of producing quality work with little practice. The instrument is supplied with a full range of user accessories including a footswitch

Suitable for use with wires of up to 1.1mm diameter an argon gas shield facility is included but a satisfactory thermocouple junction is produced without the need for argon. The output energy of the L60 Thermocouple Welder can be varied up to 60 Joules

- Simple to use Thermocouple Welder
- Designed for the production of commercial grade thermocouple junctions (See below for range of thermocouple cables)
- Also suitable for other fine wire work
- Front panel or footswitch operation
- Argon gas shield facility

### Supplied complete with the following accessories:

- Wire Holding Pliers & Lead
- Safety Glasses
- Magnifying Eyeglass
- Carbon Electrodes
- Spare 2A Fuse
- Argon Hose
- Mains Lead
- Footswitch for greater ease of use



Carbon Electrode

### ORDERING INFORMATION

**MODEL**  
FINE WIRE WELDER  
Spare Carbon Electrodes (x5) for 1.1mm 250V Fine Wire Welder

**Allied Code**  
70825788  
70656473

**RS ORDER NUMBER**  
**363-0351**  
**814-0184**

## SPECIFICATIONS

### General

Energy Output 0-60 Joules  
Welding Capacity Wires up to 1.1mm diameter  
Duty Cycle Minimum 5-10 welds/min

### MECHANICAL

Physical Dimensions 220mm Wide x 120mm High x 250mm Depth  
Weight 4kg

### ELECTRICAL

Power Supply 110-120 Vac or 220-250 Vac, 50-60Hz  
Power Consumption Max 170VA dropping to 20VA during charging

### MAINTENANCE

Apart from keeping the electrode in good order, no other maintenance is required

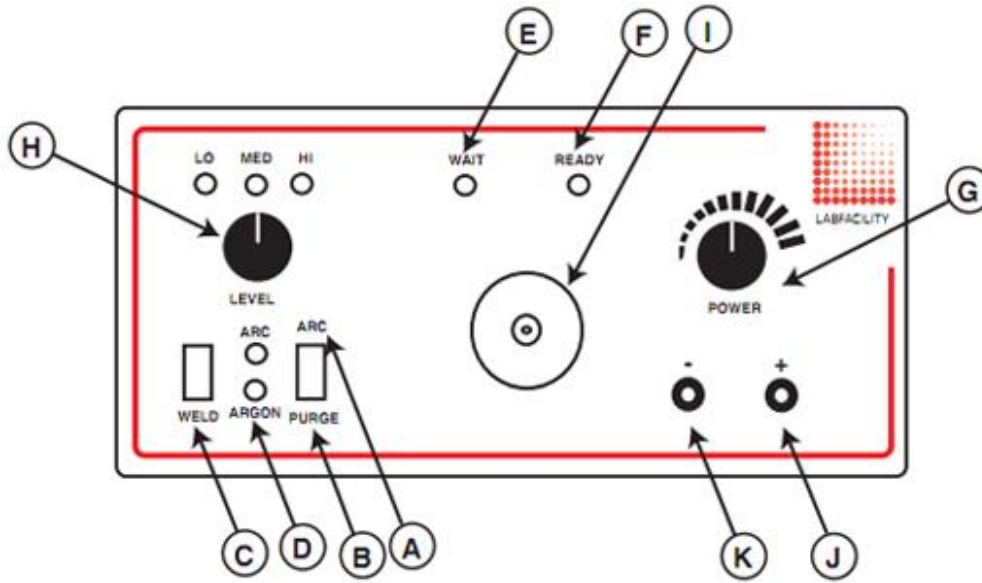
(Front View)



(Rear View)



**Thermocouple Welder Controls**



- A Arc Argon gas and weld current controlled by the "Weld" switch. LED indication
- B Purge Allows the gas line and electrode shield to be purged of air prior to a new welding period
- C Weld Switch Initiates a welding operation (in "arc" mode also opens the Argon valve)
- D Argon LED Indicates when the Argon control valve is open and gas is flowing
- E Wait LED Glows when weld charge is building
- F Ready LED "Ready to Weld" indication
- G Power Rotary control of the capacitor charge voltage
- H Level Selector Selects the total capacitance available giving the following values with LED indication  
  - "LO" = 0 to 6 Joules
  - "MED" = 0 to 28 Joules
  - "HI" = 0 to 64 Joules

- I Electrode Holder Holds the replaceable carbon electrode which is accessible by removing the outer Argon Shield
- J Red Socket Output socket for using the pliers supplied
- K Black Socket Output socket, this provides an additional earth

**IEC PTFE Insulated Twin Twisted Pair Thermocouple Cable**

Available in Thermocouple Types K, J T & N



Type 'K'

Type 'T'

- PTFE twin twisted pair for extending or making simple thermocouples
- Single pair of PTFE insulated conductors twisted together
- Good mechanical strength and flexibility, resistant to oils, acids and other adverse fluids
- Suitable for steam & pressure applications, autoclaves, sterilizers etc.
- 25 & 50 metre reel lengths
- Tolerance Class 1 for optimum accuracy
- Insulation rating -75°C to 260°C
- Colour coded to IEC-584-3

| T/C Type | Conductors | Cores         | Reel Length | Allied code | RS order code   |
|----------|------------|---------------|-------------|-------------|-----------------|
| J        | 1/0.2mm    | +Black/-White | 25 metres   | 70657194    | <b>827-5980</b> |
| J        | 1/0.2mm    | +Black/-White | 50 metres   | 70657195    | <b>827-5984</b> |
| J        | 1/0.315mm  | +Black/-White | 25 metres   | 70657198    | <b>827-5993</b> |
| J        | 1/0.315mm  | +Black/-White | 50 metres   | 70657199    | <b>827-5996</b> |
| K        | 1/0.315mm  | +Green/-White | 25 metres   | 70657200    | <b>827-6000</b> |
| K        | 1/0.315mm  | +Green/-White | 50 metres   | 70657205    | <b>827-6019</b> |
| T        | 1/0.315mm  | +Brown/-White | 25 metres   | 70657208    | <b>827-6028</b> |
| T        | 1/0.315mm  | +Brown/-White | 50 metres   | 70657206    | <b>827-6022</b> |
| J        | 1/0.508mm  | +Black/-White | 25 metres   | 70657197    | <b>827-5990</b> |
| J        | 1/0.508mm  | +Black/-White | 50 metres   | 70657201    | <b>827-6003</b> |
| K        | 1/0.508mm  | +Green/-White | 25 metres   | 70657203    | <b>827-6012</b> |
| K        | 1/0.508mm  | +Green/-White | 50 metres   | 70657204    | <b>827-6016</b> |
| J        | 7/0.2mm    | +Black/-White | 25 metres   | 70657202    | <b>827-6006</b> |
| K        | 7/0.2mm    | +Green/-White | 25 metres   | 70657207    | <b>827-6025</b> |
| T        | 7/0.2mm    | +Brown/-White | 25 metres   | 70657209    | <b>827-6031</b> |
| N        | 7/0.2mm    | +Pink/-White  | 25 metres   | 70657210    | <b>827-6034</b> |

## IEC PVC Insulated Flat Pair Thermocouple Extension & Compensating Cable

PVC Insulated Flat Pair (to IEC-584)



- PVC insulated flat pair construction
- Conductors laid flat PVC insulated with overall PVC sheath
- All round general purpose cable, both waterproof and very flexible
- Thermocouple extension types for K, J, T & N
- Compensating types VX (KCB) & U (RCA) for types K & R/S Thermocouples respectively
- Stranded conductors available, either 7/0.2mm or 13/0.2mm

- Available in 10, 25, 100 & 200 metre lengths
- Tolerance Class 2
- Insulation rating -10°C to 105°C
- Colour code (cores & jacket) to IEC-584-3

|                      | <b>Conductors</b> | <b>Cores</b>   | <b>Jacket</b> | <b>Reel Length</b> | <b>Allied Code</b> | <b>RS order code</b> |
|----------------------|-------------------|----------------|---------------|--------------------|--------------------|----------------------|
| <b>Extension:</b>    |                   |                |               |                    |                    |                      |
| KX                   | 7/0.2mm           | +Green/-White  | Green         | 10 metres          | 70657084           | <b>827-5615</b>      |
| KX                   | 7/0.2mm           | +Green/-White  | Green         | 25 metres          | 70641729           | <b>236-3820</b>      |
| KX                   | 7/0.2mm           | +Green/-White  | Green         | 50 metres          | 70657085           | <b>827-5619</b>      |
| KX                   | 7/0.2mm           | +Green/-White  | Green         | 100 metres         | 70646156           | <b>611-7889</b>      |
| KX                   | 7/0.2mm           | +Green/-White  | Green         | 200 metres         | 70657088           | <b>827-5628</b>      |
|                      |                   |                |               |                    |                    |                      |
| JX                   | 7/0.2mm           | +Black/-White  | Black         | 10 metres          | 70641640           | <b>219-4753</b>      |
| JX                   | 7/0.2mm           | +Black/-White  | Black         | 25 metres          | 70657078           | <b>827-5592</b>      |
| JX                   | 7/0.2mm           | +Black/-White  | Black         | 50 metres          | 70657079           | <b>827-5596</b>      |
| JX                   | 7/0.2mm           | +Black/-White  | Black         | 100 metres         | 70641737           | <b>236-3915</b>      |
| JX                   | 7/0.2mm           | +Black/-White  | Black         | 200 metres         | 70657081           | <b>827-5606</b>      |
|                      |                   |                |               |                    |                    |                      |
| TX                   | 7/0.2mm           | +Brown/-White  | Brown         | 10 metres          | 70641637           | <b>219-4703</b>      |
| TX                   | 7/0.2mm           | +Brown/-White  | Brown         | 25 metres          | 70641734           | <b>236-3870</b>      |
| TX                   | 7/0.2mm           | +Brown/-White  | Brown         | 50 metres          | 70657095           | <b>827-5653</b>      |
| TX                   | 7/0.2mm           | +Brown/-White  | Brown         | 100 metres         | 70651749           | <b>762-1146</b>      |
| TX                   | 7/0.2mm           | +Brown/-White  | Brown         | 200 metres         | 70657098           | <b>827-5662</b>      |
|                      |                   |                |               |                    |                    |                      |
| NX                   | 7/0.2mm           | +Pink/-White   | Pink          | 10 metres          | 70641635           | <b>219-4668</b>      |
| NX                   | 7/0.2mm           | +Pink/-White   | Pink          | 25 metres          | 70657091           | <b>827-5637</b>      |
| NX                   | 7/0.2mm           | +Pink/-White   | Pink          | 50 metres          | 70657089           | <b>827-5631</b>      |
| NX                   | 7/0.2mm           | +Pink/-White   | Pink          | 100 metres         | 70657092           | <b>827-5640</b>      |
|                      |                   |                |               |                    |                    |                      |
|                      | <b>Conductors</b> | <b>Cores</b>   | <b>Jacket</b> | <b>Reel Length</b> | <b>Allied Code</b> | <b>RS order code</b> |
| <b>Compensating:</b> |                   |                |               |                    |                    |                      |
| VX (KCB)             | 7/0.2mm           | +Green/-White  | Green         | 10 metres          | 70657082           | <b>827-5609</b>      |
| VX (KCB)             | 7/0.2mm           | +Green/-White  | Green         | 25 metres          | 70641629           | <b>219-4551</b>      |
| VX (KCB)             | 7/0.2mm           | +Green/-White  | Green         | 50 metres          | 70657080           | <b>827-5603</b>      |
| VX (KCB)             | 7/0.2mm           | +Green/-White  | Green         | 100 metres         | 70641630           | <b>219-4573</b>      |
| VX (KCB)             | 7/0.2mm           | +Green/-White  | Green         | 200 metres         | 70657083           | <b>827-5612</b>      |
|                      |                   |                |               |                    |                    |                      |
| VX (KCB)             | 13/0.2mm          | +Green/-White  | Green         | 10 metres          | 70657086           | <b>827-5621</b>      |
| VX (KCB)             | 13/0.2mm          | +Green/-White  | Green         | 25 metres          | 70657087           | <b>827-5625</b>      |
| VX (KCB)             | 13/0.2mm          | +Green/-White  | Green         | 50 metres          | 70657090           | <b>827-5634</b>      |
| VX (KCB)             | 13/0.2mm          | +Green/-White  | Green         | 100 metres         | 70651750           | <b>762-1152</b>      |
|                      |                   |                |               |                    |                    |                      |
| U (RCA)              | 7/0.2mm           | +Orange/-White | Orange        | 10 metres          | 70657096           | <b>827-5656</b>      |
| U (RCA)              | 7/0.2mm           | +Orange/-White | Orange        | 25 metres          | 70646158           | <b>611-7902</b>      |
| U (RCA)              | 7/0.2mm           | +Orange/-White | Orange        | 50 metres          | 70657097           | <b>827-5659</b>      |
|                      |                   |                |               |                    |                    |                      |
| U (RCA)              | 13/0.2mm          | +Orange/-White | Orange        | 10 metres          | 70641641           | <b>219-4769</b>      |
| U (RCA)              | 13/0.2mm          | +Orange/-White | Orange        | 25 metres          | 70657093           | <b>827-5643</b>      |
| U (RCA)              | 13/0.2mm          | +Orange/-White | Orange        | 50 metres          | 70657094           | <b>827-5647</b>      |

# IEC PTFE Single Shot Thermocouple Cable

Type K, 10 metre reel

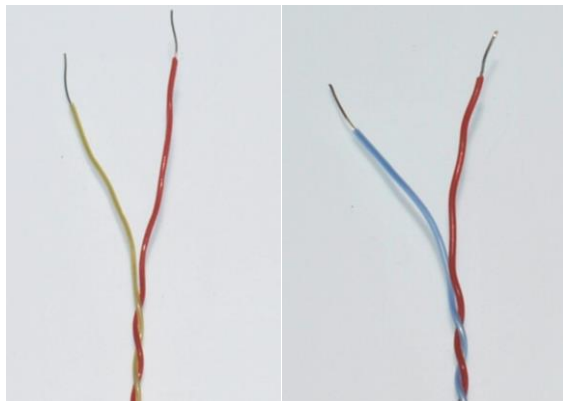


- Thermocouple type K
- 10 metre spool length
- 7/0.2mm diameter conductor
- Operating range: -75°C to +250°C
- Teflon insulated single shot construction
- Resistant to chemicals, oils and fluids
- Suitable for aerospace applications and is widely used in autoclaves
- Colour coded to IEC-584-3

| Type | Outer       | Length    | Allied code | RS Code  |
|------|-------------|-----------|-------------|----------|
| K    | Green/White | 10 metres | 70657216    | 827-6053 |

# ANSI PFA Insulated Twin Twisted Pair Thermocouple Cable

Available in Thermocouple Types K & T (ANSI MC96.1)



Type KX

Type TX

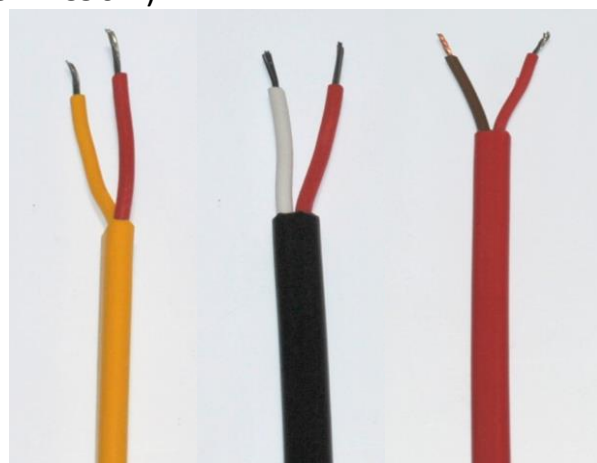
- PFA Teflon® twin twisted pair for extending or making simple thermocouples
- Single pair of PFA insulated conductors twisted together
- Good mechanical strength and flexibility, resistant to oils, acids and other adverse fluids, gasses, steam etc.
- Thermocouple types K & T with 1/0.2mm OR 1/0.3 conductors. 7/0.2mm option available for type K
- 25, 50 & 100 metre reel lengths
- Tolerance Class 1 for optimum accuracy
- Insulation rating -75°C to 260°C
- Colour coded to ANSI MC96.1

RS220/1016

| T/C Type | Conductors | Cores        | Reel Length | Allied code | RS order code   |
|----------|------------|--------------|-------------|-------------|-----------------|
| KX       | 1/0.2mm    | +Yellow/-Red | 25 metres   | 70656106    | <b>814-0030</b> |
| KX       | 1/0.2mm    | +Yellow/-Red | 50 metres   | 70656111    | <b>814-0049</b> |
| KX       | 1/0.2mm    | +Yellow/-Red | 100 metres  | 70656109    | <b>814-0042</b> |
| KX       | 7/0.2mm    | +Yellow/-Red | 25 metres   | 70656110    | <b>814-0046</b> |
| KX       | 7/0.2mm    | +Yellow/-Red | 50 metres   | 70656113    | <b>814-0055</b> |
| KX       | 7/0.2mm    | +Yellow/-Red | 100 metres  | 70656114    | <b>814-0058</b> |
| KX       | 1/0.3mm    | +Yellow/-Red | 25 metres   | 70656104    | <b>814-0024</b> |
| KX       | 1/0.3mm    | +Yellow/-Red | 50 metres   | 70656107    | <b>814-0033</b> |
| KX       | 1/0.3mm    | +Yellow/-Red | 100 metres  | 70656108    | <b>814-0036</b> |
| TX       | 1/0.3mm    | +Blue/-Red   | 25 metres   | 70656121    | <b>814-0080</b> |
| TX       | 1/0.3mm    | +Blue/-Red   | 50 metres   | 70656126    | <b>814-0099</b> |
| TX       | 1/0.3mm    | +Blue/-Red   | 100 metres  | 70656124    | <b>814-0092</b> |
| TX       | 1/0.2mm    | +Blue/-Red   | 25 metres   | 70656125    | <b>814-0096</b> |
| TX       | 1/0.2mm    | +Blue/-Red   | 50 metres   | 70656128    | <b>814-0106</b> |
| TX       | 1/0.2mm    | +Blue/-Red   | 100 metres  | 70656129    | <b>814-0109</b> |

## ANSI PVC Thermocouple Extension & Compensating Cable

PVC Insulated Flat Pair (ANSI MC96.1)



Type KX

Type JX

Type TX

- PVC insulated flat pair construction
- Conductors laid flat PVC insulated with overall PVC sheath
- All round general purpose cable, both waterproof and very flexible
- Thermocouple extension types for K, J, & T
- Compensating types VX (KCB) for types K Thermocouples
- Stranded conductors available, 7/0.2mm
- Available in 25, 100 & 200 metre lengths
- Tolerance Class 2
- Insulation rating -10°C to 105°C
- Colour code (cores & jacket) to ANSI MC96.1



| <b>T/C Type</b>      | <b>Conductors</b> | <b>Cores</b> | <b>Jacket</b> | <b>Reel Length</b> | <b>Allied code</b> | <b>RS order code</b> |
|----------------------|-------------------|--------------|---------------|--------------------|--------------------|----------------------|
| <b>Extension:</b>    |                   |              |               |                    |                    |                      |
| KX                   | 7/0.2mm           | +Yellow/-Red | Yellow        | 25 m               | 70656102           | <b>814-0018</b>      |
| KX                   | 7/0.2mm           | +Yellow/-Red | Yellow        | 100 m              | 70656105           | <b>814-0027</b>      |
| KX                   | 7/0.2mm           | +Yellow/-Red | Yellow        | 200 m              | 70656103           | <b>814-0020</b>      |
| JX                   | 7/0.2mm           | + White/-Red | Black         | 25 m               | 70656096           | <b>813-9995</b>      |
| JX                   | 7/0.2mm           | + White/-Red | Black         | 100 m              | 70656098           | <b>814-0005</b>      |
| JX                   | 7/0.2mm           | + White/-Red | Black         | 200 m              | 70656099           | <b>814-0008</b>      |
| TX                   | 7/0.2mm           | +Blue/-Red   | Blue          | 25 m               | 70656119           | <b>814-0074</b>      |
| TX                   | 7/0.2mm           | +Blue/-Red   | Blue          | 100 m              | 70656122           | <b>814-0083</b>      |
| TX                   | 7/0.2mm           | +Blue/-Red   | Blue          | 200 m              | 70656123           | <b>814-0086</b>      |
| <b>Compensating:</b> |                   |              |               |                    |                    |                      |
| VX (KCB)             | 7/0.2mm           | +Yellow/-Red | Yellow        | 25 m               | 70656127           | <b>814-0103</b>      |
| VX (KCB)             | 7/0.2mm           | +Yellow/-Red | Yellow        | 100 m              | 70656130           | <b>814-0112</b>      |
| VX (KCB)             | 7/0.2mm           | +Yellow/-Red | Yellow        | 200 m              | 70656131           | <b>814-0115</b>      |