LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

Thermocouple Connector Product Guide

www.labfacility.com email: sales@labfacility.com tel: +44 (0) 1243 871280

Due to their location in often adverse environments such as hot working zones of furnaces and machinery, temperature sensors are liable to corrosion and mechanical damage. The need for occasional replacement is inevitable and the use of suitable connectors permits error-free fast, positive and reliable interchange with no risk of dangerous cross connection.

These thermocouple plugs and sockets have a technical and practical advantage over other types when terminating thermocouple wires or compensating cable in a wide variety of sizes. The wires are sandwiched between plates of thermocouple compatible material with a clamping screw, accommodating from very fine wires to stranded cables (up to 0.75mm2).

The connectors are colour coded and polarised and will mate with other makes of plugs and sockets. They can be mounted directly on to sheaths of up to 3mm diameter in the case of the miniature version or 1/4" (6.35mm) with the standard version by means of the brass bush available.

The sockets can be supplied as in-line or panel mounting versions with rectangular or circular fascias. The connectors are ruggedly made of glass filled thermoplastic for reliable operation up to 220°C sustained temperature.

The use of thermocouple compatible material eliminates measurement error due to the interconnection and the bright ISA colour coded body ensures clear identity of the type of thermocouple in use.

- Miniature and standard connectors
- Compensated connections ensure high accuracy
- Types K, J, T, E, N, R/S or Copper Copper
- Colour coding ensures clear identification (IEC, ANSI & JIS available)
- Compatible with all other makes of equivalent connectors
- Polarised connector pins guarantee correct polarity
- Withstand high temperature, 220°C continuous
- Rugged construction
- In line or panel mounting connectors, single or multi-way
- Inexpensive
- PCB mounting available
- Duplex versions available
- Wide range of accessories available
- Barrier terminal strips

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

International Thermocouple Colour Codes For Connector Bodies

All Labfacility connectors use true thermocouple alloys for optimum accuracy except for Type R, S & B which use compensating alloys.

Type	'+' Contact	'-' Contact
K	Nickel Chromium	Nickel Alloy
J	Iron	Copper Nickel
T	Copper	Copper Nickel
N	Nickel / Chromium / Silicon	Nickel Silicon
R/S	Copper	Copper Alloy
B	Copper	Copper
E	Nickel Chromium	Copper Nickel
Cu	Copper	Copper

www.labfacility.com

email: sales@labfacility.com

tel: +44 (0) 1243 871280

Miniature Thermocouple Connectors - Plugs

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

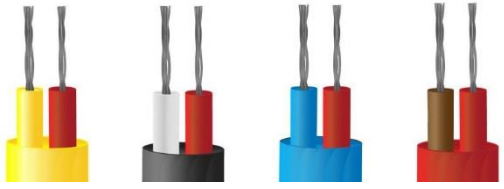
A IEC Miniature Plug

B ANSI Miniature Plug

C JIS Miniature Plug

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1100-001	XE-1130-001	XE-9150-001
J	Iron	Copper Nickel	XE-1160-001	XE-9060-001	XE-9170-001
T	Copper	Copper Nickel	XE-1190-001	XE-1220-001	XE-9250-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1250-001	XE-1270-001	-
R/S	Copper	Copper Alloy	XE-1290-001	XE-1310-001	XE-9190-001
B	Copper	Copper	XE-1350-001	XE-9000-001	XE-9210-001
E	Nickel Chromium	Copper Nickel	XE-1330-001	XE-9030-001	XE-9230-001
Cu	Copper	Copper	XE-1370-001	XE-1370-001	XE-1370-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors - Sockets

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

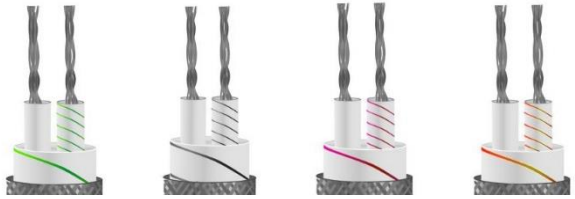
A IEC Miniature Socket

B ANSI Miniature Socket

C JIS Miniature Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1102-001	XE-1132-001	XE-9152-001
J	Iron	Copper Nickel	XE-1162-001	XE-9062-001	XE-9172-001
T	Copper	Copper Nickel	XE-1192-001	XE-1222-001	XE-9252-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1252-001	XE-1272-001	-
R/S	Copper	Copper Alloy	XE-1292-001	XE-1312-001	XE-9192-001
B	Copper	Copper	XE-1352-001	XE-9002-001	XE-9212-001
E	Nickel Chromium	Copper Nickel	XE-1332-001	XE-9032-001	XE-9232-001
Cu	Copper	Copper	XE-1372-001	XE-1372-001	XE-1372-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Plug & Socket (Pair)

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

3D Video

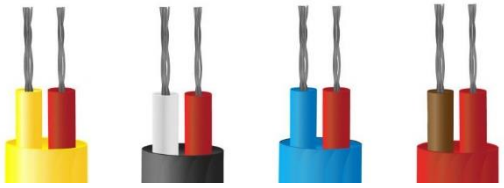
A IEC Miniature Plug & Socket

B ANSI Miniature Plug & Socket

C JIS Miniature Plug & Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1105-001	XE-1135-001	XE-1028-001
J	Iron	Copper Nickel	XE-1000-001	XE-1014-001	XE-1029-001
T	Copper	Copper Nickel	XE-1195-001	XE-1225-001	XE-1030-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1002-001	XE-1016-001	-
R/S	Copper	Copper Alloy	XE-1001-001	XE-1015-001	XE-1031-001
B	Copper	Copper	XE-1003-001	XE-1017-001	XE-1032-001
E	Nickel Chromium	Copper Nickel	XE-1004-001	XE-1018-001	XE-1033-001
Cu	Copper	Copper	XE-1005-001	XE-1019-001	XE-1034-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

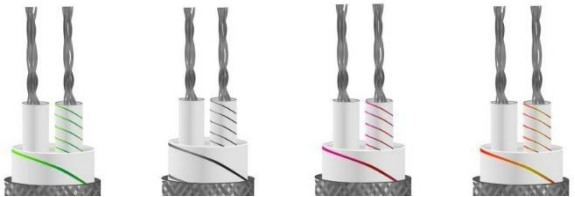
A IEC Miniature Quick-wire Plugs

B ANSI Miniature Quick-wire Plugs

C JIS Miniature Quick-wire Plugs

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1111-001	XE-1141-001	XE-9162-001
J	Iron	Copper Nickel	XE-1171-001	XE-9071-001	XE-9182-001
T	Copper	Copper Nickel	XE-1201-001	XE-1231-001	XE-9262-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1261-001	XE-1281-001	-
R/S	Copper	Copper Alloy	XE-1301-001	XE-1321-001	XE-9202-001
B	Copper	Copper	XE-1361-001	XE-9011-001	XE-9222-001
E	Nickel Chromium	Copper Nickel	XE-1341-001	XE-9041-001	XE-9242-001
Cu	Copper	Copper	XE-1381-001	XE-1381-001	XE-1381-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Quick-wire Sockets

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

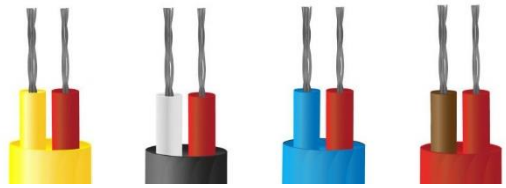
A IEC Miniature Quick-wire Sockets

B ANSI Miniature Quick-wire Sockets

C JIS Miniature Quick-wire Sockets

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1112-001	XE-1142-001	XE-9163-001
J	Iron	Copper Nickel	XE-1172-001	XE-9072-001	XE-9183-001
T	Copper	Copper Nickel	XE-1202-001	XE-1232-001	XE-9263-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1262-001	XE-1282-001	-
R/S	Copper	Copper Alloy	XE-1302-001	XE-1322-001	XE-9203-001
B	Copper	Copper	XE-1362-001	XE-9012-001	XE-9223-001
E	Nickel Chromium	Copper Nickel	XE-1342-001	XE-9042-001	XE-9243-001
Cu	Copper	Copper	XE-1382-001	XE-1382-001	XE-1382-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Quick-wire Plug & Socket (Pair)

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

3D Video

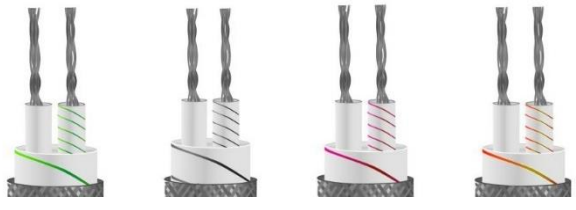
A IEC Miniature Quick-wire Plug & Socket

B ANSI Miniature Quick-wire Plug & Socket

C JIS Miniature Quick-wire Plug & Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1006-001	XE-1020-001	XE-1035-001
J	Iron	Copper Nickel	XE-1007-001	XE-1021-001	XE-1036-001
T	Copper	Copper Nickel	XE-1008-001	XE-1022-001	XE-1037-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1010-001	XE-1024-001	-
R/S	Copper	Copper Alloy	XE-1009-001	XE-1023-001	XE-1038-001
B	Copper	Copper	XE-1011-001	XE-1025-001	XE-1039-001
E	Nickel Chromium	Copper Nickel	XE-1012-001	XE-1026-001	XE-1040-001
Cu	Copper	Copper	XE-1013-001	XE-1027-001	XE-1041-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Rectangular Fascia Socket

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

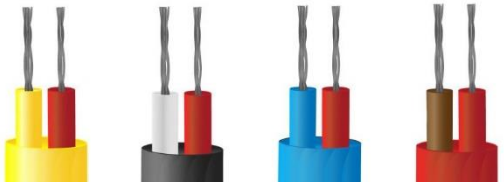
A IEC Miniature Rectangular Fascia Socket

B ANSI Miniature Rectangular Fascia Socket

C JIS Miniature Rectangular Fascia Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1107-001	XE-1137-001	XE-9157-001
J	Iron	Copper Nickel	XE-1167-001	XE-9067-001	XE-9177-001
T	Copper	Copper Nickel	XE-1197-001	XE-1227-001	XE-9257-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1257-001	XE-1277-001	-
R/S	Copper	Copper Alloy	XE-1297-001	XE-1317-001	XE-9197-001
B	Copper	Copper	XE-1357-001	XE-9007-001	XE-9217-001
E	Nickel Chromium	Copper Nickel	XE-1337-001	XE-9037-001	XE-9237-001
Cu	Copper	Copper	XE-1377-001	XE-1377-001	XE-1377-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Panel Mount with Stainless Steel Bracket

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

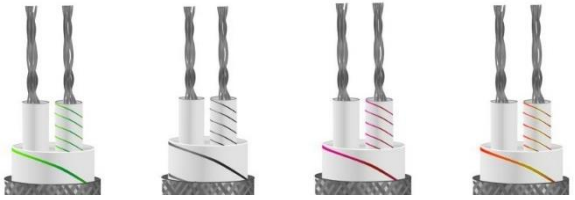
A IEC Miniature Panel Mount with Stainless Steel Bracket

B ANSI Miniature Panel Mount with Stainless Steel Bracket

C JIS Miniature Panel Mount with Stainless Steel Bracket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1108-001	XE-1138-001	XE-9158-001
J	Iron	Copper Nickel	XE-1168-001	XE-9068-001	XE-9178-001
T	Copper	Copper Nickel	XE-1198-001	XE-1228-001	XE-9258-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1258-001	XE-1278-001	-
R/S	Copper	Copper Alloy	XE-1298-001	XE-1318-001	XE-9198-001
B	Copper	Copper	XE-1358-001	XE-9008-001	XE-9218-001
E	Nickel Chromium	Copper Nickel	XE-1338-001	XE-9038-001	XE-9238-001
Cu	Copper	Copper	XE-1378-001	XE-1378-001	XE-1378-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Miniature Thermocouple Connectors – Quick-wire Panel Mount with Stainless Steel Bracket

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

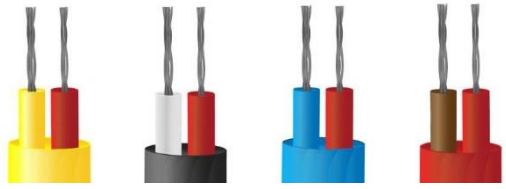
A IEC Miniature Quick-wire Panel Mount with Stainless Steel Bracket

B ANSI Miniature Quick-wire Panel Mount with Stainless Steel Bracket

C JIS Miniature Quick-wire Panel Mount with Stainless Steel

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1106-001	XE-1136-001	XE-9159-001
J	Iron	Copper Nickel	XE-1166-001	XE-9066-001	XE-9179-001
T	Copper	Copper Nickel	XE-1196-001	XE-1226-001	XE-9259-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1256-001	XE-1276-001	-
R/S	Copper	Copper Alloy	XE-1296-001	XE-1316-001	XE-9199-001
B	Copper	Copper	XE-1356-001	XE-9006-001	XE-9219-001
E	Nickel Chromium	Copper Nickel	XE-1336-001	XE-9036-001	XE-9239-001
Cu	Copper	Copper	-	-	-



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

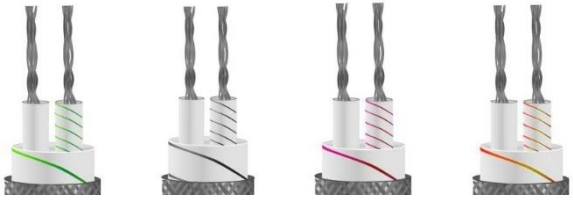
A IEC Miniature PCB Socket

B ANSI Miniature PCB Socket

C JIS Miniature PCB Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1109-001	XE-1139-001	XE-9160-001
J	Iron	Copper Nickel	XE-1169-001	XE-9069-001	XE-9180-001
T	Copper	Copper Nickel	XE-1199-001	XE-1229-001	XE-9260-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1259-001	XE-1279-001	-
R/S	Copper	Copper Alloy	XE-1299-001	XE-1319-001	XE-9200-001
B	Copper	Copper	XE-1359-001	XE-9009-001	XE-9220-001
E	Nickel Chromium	Copper Nickel	XE-1339-001	XE-9039-001	XE-9240-001
Cu	Copper	Copper	XE-1379-001	XE-1379-001	XE-1379-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

3D Video

3D Video

A High-Temp (425°C) Plug

B High-Temp (425°C) Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B
			Plug	Socket
			Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1156-001	XE-1157-001
J	Iron	Copper Nickel	XE-1186-001	XE-1187-001

3D Video

3D Video

A High-Temp (650°C) Ceramic Plug

B High-Temp (650°C) Ceramic Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	Plug	Socket	Plug	Socket
			IEC Colour Code		ANSI Colour Code	
			Order Code	Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1113-001	XE-1114-001	XE-1143-001	XE-1144-001
J	Iron	Copper Nickel	XE-1173-001	XE-1174-001	XE-9073-001	XE-9074-001
T	Copper	Copper Nickel	XE-1203-001	XE-1204-001	XE-1233-001	XE-1234-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1263-001	XE-1264-001	XE-1283-001	XE-1284-001
R/S	Copper	Copper Alloy	XE-1303-001	XE-1304-001	XE-1323-001	XE-1324-001
B	Copper	Copper	XE-1363-001	XE-1364-001	-	
E	Nickel Chromium	Copper Nickel	XE-1343-001	XE-1344-001	XE-9043-001	XE-9044-001

Standard Thermocouple Connectors – Plugs

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

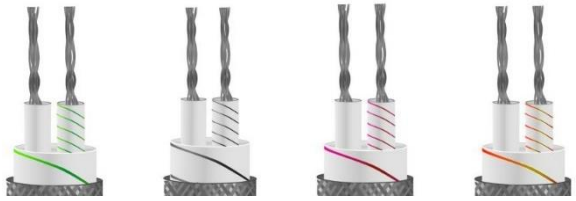
A IEC Standard Plug

B ANSI Standard Plug

C JIS Standard Plug

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1400-001	XE-1430-001	XE-9270-001
J	Iron	Copper Nickel	XE-1460-001	XE-9130-001	XE-9290-001
T	Copper	Copper Nickel	XE-1490-001	XE-1520-001	XE-9370-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1550-001	XE-1570-001	-
R/S	Copper	Copper Alloy	XE-1590-001	XE-1610-001	XE-9310-001
B	Copper	Copper	XE-1650-001	XE-9090-001	XE-9330-001
E	Nickel Chromium	Copper Nickel	XE-1630-001	XE-9110-001	XE-9350-001
Cu	Copper	Copper	XE-1670-001	XE-1670-001	XE-1670-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

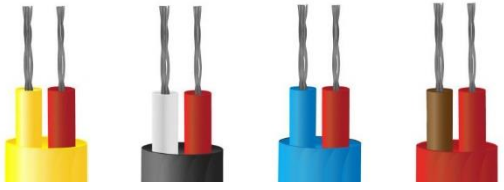
A IEC Standard Sockets

B ANSI Standard Sockets

C JIS Standard Sockets

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1402-001	XE-1432-001	XE-9272-001
J	Iron	Copper Nickel	XE-1462-001	XE-9132-001	XE-9292-001
T	Copper	Copper Nickel	XE-1492-001	XE-1522-001	XE-9372-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1552-001	XE-1572-001	-
R/S	Copper	Copper Alloy	XE-1592-001	XE-1612-001	XE-9312-001
B	Copper	Copper	XE-1652-001	XE-9092-001	XE-9332-001
E	Nickel Chromium	Copper Nickel	XE-1632-001	XE-9112-001	XE-9352-001
Cu	Copper	Copper	XE-1672-001	XE-1672-001	XE-1672-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Plug & Socket (Pair)

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

3D Video

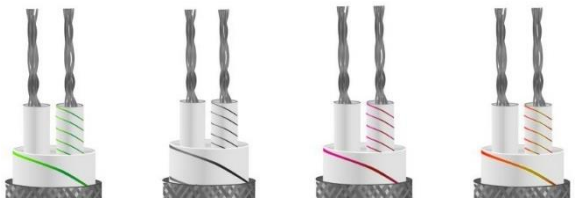
A IEC Standard Plug & Socket

B ANSI Standard Plug & Socket

C JIS Standard Plug & Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1042-001	XE-1058-001	XE-1074-001
J	Iron	Copper Nickel	XE-1043-001	XE-1059-001	XE-1075-001
T	Copper	Copper Nickel	XE-1044-001	XE-1060-001	XE-1076-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1046-001	XE-1062-001	-
R/S	Copper	Copper Alloy	XE-1045-001	XE-1061-001	XE-1077-001
B	Copper	Copper	XE-1047-001	XE-1063-001	XE-1078-001
E	Nickel Chromium	Copper Nickel	XE-1048-001	XE-1064-001	XE-1079-001
Cu	Copper	Copper	XE-1049-001	XE-1065-001	XE-1080-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

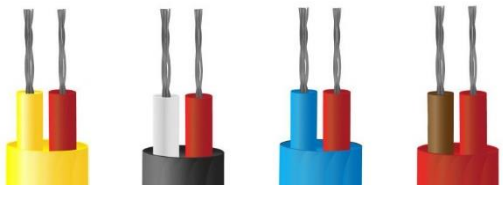
A IEC Standard Quick-wire Plugs

B ANSI Standard Quick-wire Plugs

C JIS Standard Quick-wire Plugs

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1411-001	XE-1441-001	XE-9282-001
J	Iron	Copper Nickel	XE-1471-001	XE-9141-001	XE-9302-001
T	Copper	Copper Nickel	XE-1501-001	XE-1531-001	XE-9382-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1561-001	XE-1581-001	-
R/S	Copper	Copper Alloy	XE-1601-001	XE-1621-001	XE-9322-001
B	Copper	Copper	XE-1661-001	XE-9101-001	XE-9342-001
E	Nickel Chromium	Copper Nickel	XE-1641-001	XE-9121-001	XE-9362-001
Cu	Copper	Copper	XE-1681-001	XE-1681-001	XE-1681-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

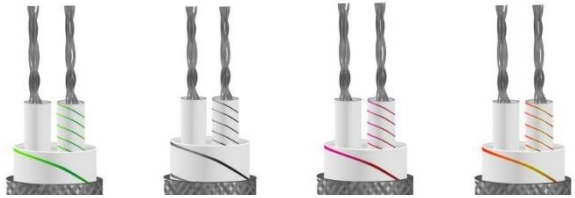
A IEC Standard Quick-wire Sockets

B ANSI Standard Quick-wire Sockets

C JIS Standard Quick-wire Sockets

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1412-001	XE-1442-001	XE-9283-001
J	Iron	Copper Nickel	XE-1472-001	XE-9142-001	XE-9303-001
T	Copper	Copper Nickel	XE-1502-001	XE-1532-001	XE-9383-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1562-001	XE-1582-001	-
R/S	Copper	Copper Alloy	XE-1602-001	XE-1622-001	XE-9323-001
B	Copper	Copper	XE-1662-001	XE-9102-001	XE-9343-001
E	Nickel Chromium	Copper Nickel	XE-1642-001	XE-9122-001	XE-9363-001
Cu	Copper	Copper	XE-1682-001	XE-1682-001	XE-1682-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Quick-wire Plug & Socket (Pair)

3D Video

3D Video

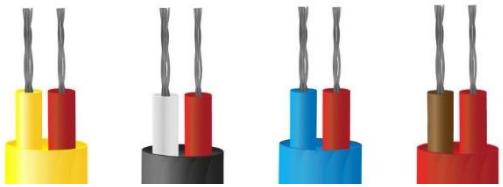
A IEC Standard Quick-wire Plug & Socket

B ANSI Standard Quick-wire Plug & Socket

C JIS Standard Quick-wire Plug & Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1050-001	XE-1066-001	XE-1081-001
J	Iron	Copper Nickel	XE-1051-001	XE-1067-001	XE-1082-001
T	Copper	Copper Nickel	XE-1052-001	XE-1068-001	XE-1083-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1054-001	XE-1070-001	-
R/S	Copper	Copper Alloy	XE-1053-001	XE-1069-001	XE-1084-001
B	Copper	Copper	XE-1055-001	XE-1071-001	XE-1085-001
E	Nickel Chromium	Copper Nickel	XE-1056-001	XE-1072-001	XE-1086-001
Cu	Copper	Copper	XE-1057-001	XE-1073-001	XE-1087-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Fascia Sockets

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

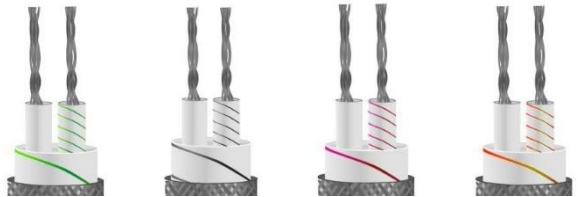
A IEC Standard Fascia Sockets

B ANSI Standard Fascia Sockets

C JIS Standard Fascia Sockets

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1407-001	XE-1437-001	XE-9277-001
J	Iron	Copper Nickel	XE-1467-001	XE-9137-001	XE-9297-001
T	Copper	Copper Nickel	XE-1497-001	XE-1527-001	XE-9377-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1557-001	XE-1577-001	-
R/S	Copper	Copper Alloy	XE-1597-001	XE-1617-001	XE-9317-001
B	Copper	Copper	XE-1657-001	XE-9097-001	XE-9337-001
E	Nickel Chromium	Copper Nickel	XE-1637-001	XE-9117-001	XE-9357-001
Cu	Copper	Copper	XE-1677-001	XE-1677-001	XE-1677-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

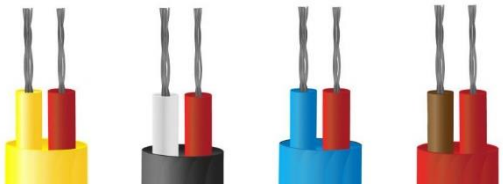
A IEC Standard Panel Mount with Stainless Steel Bracket

B ANSI Standard Panel Mount with Stainless Steel Bracket

C JIS Standard Panel Mount with Stainless Steel Bracket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1408-001	XE-1438-001	XE-9278-001
J	Iron	Copper Nickel	XE-1468-001	XE-9138-001	XE-9298-001
T	Copper	Copper Nickel	XE-1498-001	XE-1528-001	XE-9378-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1558-001	XE-1578-001	-
R/S	Copper	Copper Alloy	XE-1598-001	XE-1618-001	XE-9318-001
B	Copper	Copper	XE-1658-001	XE-9098-001	XE-9338-001
E	Nickel Chromium	Copper Nickel	XE-1638-001	XE-9118-001	XE-9358-001
Cu	Copper	Copper	-	-	-



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Quick-wire Panel Mount with Stainless Steel Bracket

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

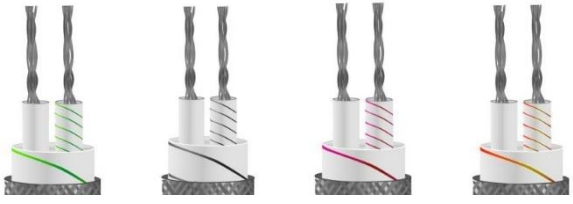
Click to view Schematic Drawing

A IEC Standard Quick-wire Panel Mount with Stainless Steel Bracket

B ANSI Standard Quick-wire Panel Mount with Stainless Steel Bracket

C JIS Standard Quick-wire Panel Mount with Stainless Steel Bracket

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1409-001	XE-1439-001	XE-9279-001
J	Iron	Copper Nickel	XE-1469-001	XE-9139-001	XE-9299-001
T	Copper	Copper Nickel	XE-1499-001	XE-1529-001	XE-9379-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1559-001	XE-1579-001	-
R/S	Copper	Copper Alloy	XE-1599-001	XE-1619-001	XE-9319-001
B	Copper	Copper	XE-1659-001	XE-9099-001	XE-9339-001
E	Nickel Chromium	Copper Nickel	XE-1639-001	XE-9119-001	XE-9359-001
Cu	Copper	Copper	-	-	-



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Duplex Plug

3D Video

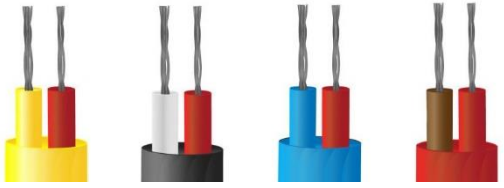
A IEC Standard Duplex Plug

B ANSI Standard Duplex Plug

C JIS Standard Duplex Plug

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1416-001	XE-1446-001	XE-9286-001
J	Iron	Copper Nickel	XE-1476-001	XE-9146-001	XE-9306-001
T	Copper	Copper Nickel	XE-1506-001	XE-1536-001	XE-9386-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1566-001	XE-1586-001	-
R/S	Copper	Copper Alloy	XE-1606-001	XE-1626-001	XE-9326-001
B	Copper	Copper	XE-1666-001	XE-9106-001	XE-9346-001
E	Nickel Chromium	Copper Nickel	XE-1646-001	XE-9126-001	XE-9366-001
Cu	Copper	Copper	XE-1686-001	XE-1686-001	XE-1686-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Standard Thermocouple Connectors – Duplex Socket

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

3D Video

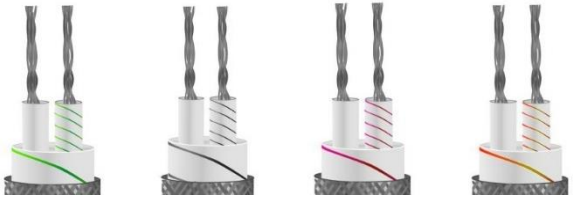
A IEC Standard Duplex Socket

B ANSI Standard Duplex Socket

C JIS Standard Duplex Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B	C
			IEC Colour Code	ANSI Colour Code	JIS Colour Code
			Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1417-001	XE-1447-001	XE-9287-001
J	Iron	Copper Nickel	XE-1477-001	XE-9147-001	XE-9307-001
T	Copper	Copper Nickel	XE-1507-001	XE-1537-001	XE-9387-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1567-001	XE-1587-001	-
R/S	Copper	Copper Alloy	XE-1607-001	XE-1627-001	XE-9327-001
B	Copper	Copper	XE-1667-001	XE-9107-001	XE-9347-001
E	Nickel Chromium	Copper Nickel	XE-1647-001	XE-9127-001	XE-9367-001
Cu	Copper	Copper	XE-1687-001	XE-1687-001	XE-1687-001



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

Click to view Schematic Drawing

A

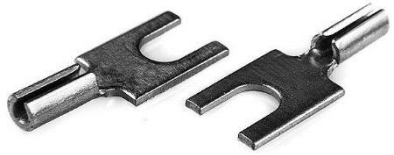
IEC Barrier Terminal Block

B

ANSI Barrier Terminal Block

C

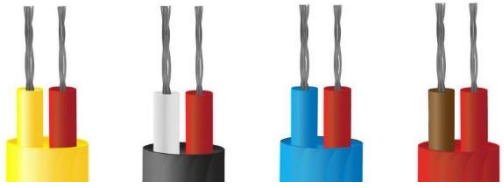
JIS Barrier Terminal Block



D

Spade Terminals (pack of 20 pairs)

Type	'+' Contact	'-' Contact	A	B	C	D
			IEC Colour Code	ANSI Colour Code	JIS Colour Code	Spade Terminals
			Order Code	Order Code	Order Code	Order Code (pack of 20 pairs)
K	Nickel Chromium	Nickel Alloy	XE-1940-001	XE-1950-001	XE-1960-001	XE-1982-020
J	Iron	Copper Nickel	XE-1942-001	XE-1951-001	XE-1961-001	XE-1985-020
T	Copper	Copper Nickel	XE-1941-001	XE-1952-001	XE-1962-001	XE-1983-020
N	Nickel / Chromium / Silicon	Nickel Silicon	-	-	-	-
R/S	Copper	Copper Alloy	XE-1943-001	XE-1953-001	XE-1963-001	XE-1984-020
B	Copper	Copper	-	-	-	-
E	Nickel Chromium	Copper Nickel	-	-	-	-
Cu	Copper	Copper	XE-1944-001	XE-1944-001	XE-1944-001	XE-1986-020



Don't Forget Your Thermocouple Cable!

Click Here to View Our Extensive Range.

CLICK HERE

3D Video

3D Video

A High-Temp (425°C) Plastic Plug

B High-Temp (425°C) Plastic Socket

Click to view Schematic Drawing

Type	'+' Contact	'-' Contact	A	B
			Plug	Socket
			Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1420-001	XE-1422-001
J	Iron	Copper Nickel	XE-1486-001	XE-1487-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1568-001	XE-1569-001
R/S	Copper	Copper Alloy	XE-1608-001	XE-1609-001

3D Video

3D Video

A High-Temp (650°C) Ceramic Plug

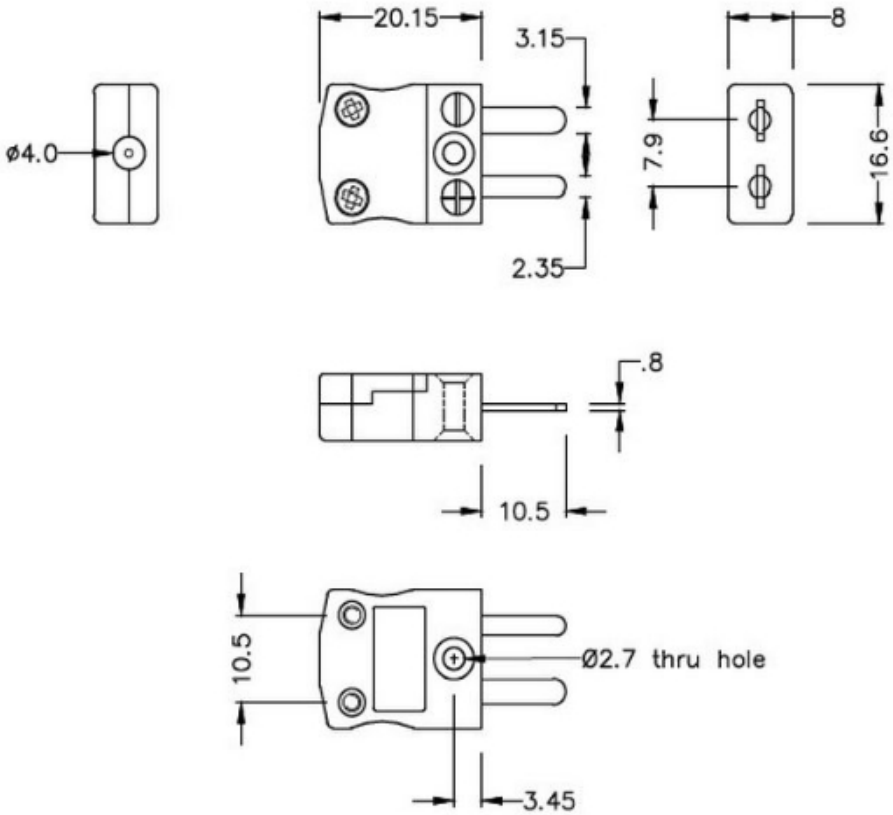
B High-Temp (650°C) Ceramic Socket

Click to view Schematic Drawing

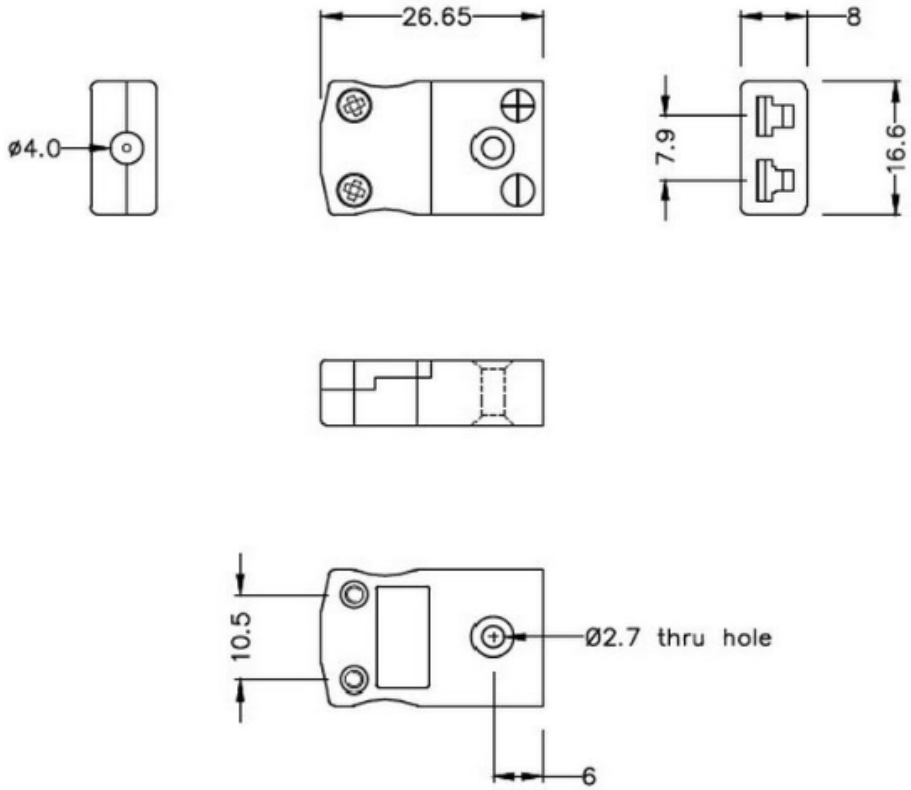
Type	'+' Contact	'-' Contact	Plug	Socket	Plug	Socket
			IEC Colour Code		ANSI Colour Code	
			Order Code	Order Code	Order Code	Order Code
K	Nickel Chromium	Nickel Alloy	XE-1413-001	XE-1414-001	XE-1443-001	XE-1444-001
J	Iron	Copper Nickel	XE-1473-001	XE-1474-001	XE-9143-001	XE-9144-001
T	Copper	Copper Nickel	XE-1503-001	XE-1504-001	XE-1533-001	XE-1534-001
N	Nickel / Chromium / Silicon	Nickel Silicon	XE-1563-001	XE-1564-001	XE-1583-001	XE-1584-001
R/S	Copper	Copper Alloy	XE-1603-001	XE-1604-001	XE-1623-001	XE-1624-001
E	Nickel Chromium	Copper Nickel	XE-1643-001	XE-1644-001	XE-9123-001	XE-9124-001

	Panels for Fascia Sockets (Type FF)	Panels for Miniature & Standard Fascia Sockets (Type FF) - Flat aluminium panel. 26 varieties available
	Panels for Fascia Sockets (Type SSPF)	Panels for Miniature & Standard Sockets with Stainless Steel Fascia Bracket - (type SSPF) 2 Way, 4 Way, 6 Way, 12 Way
	Locking Brackets for Miniature & Standard Connectors	Locking Brackets in both miniature and standard sizes for use with thermocouple connectors
	Panel Blanking Sockets	Panel Blanking Sockets for miniature or standard thermocouple connectors. Used for blanking off unused panel cut-outs
	Strain Relief Grommet	Strain Relief Grommet for Miniature Connectors
	Thermocouple Cable Clamps	Thermocouple Cable Clamps - Double sided for miniature and standard connectors
	Crimp on Brass Probe Supports	Crimp on Brass Probe Support for Miniature or Standard Thermocouple Connectors
	Compression Cable Clamp - Standard	Only suitable for Standard Thermocouple Connectors

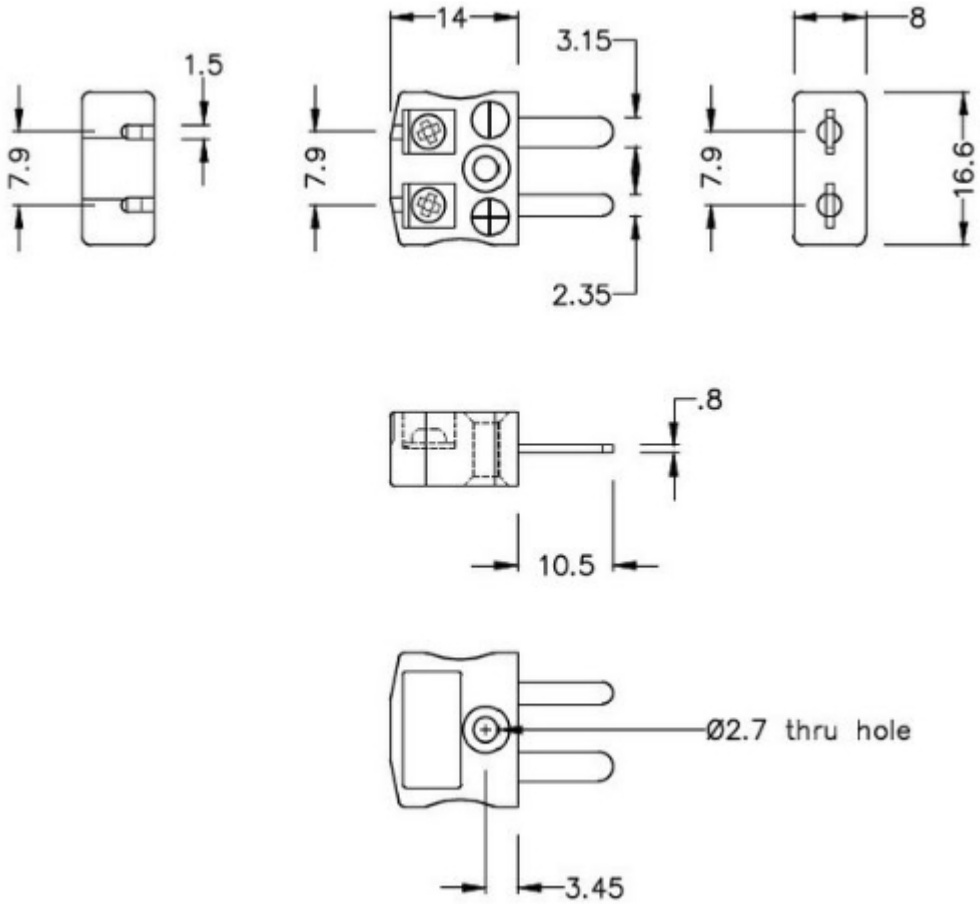
	Braze on Brass Probe Support - Standard	For Standard Connectors. Available in various sizes
	Braze on Probe Support - Duplex	Support for Duplex Connectors in various sizes
	Tube Adaptors Duplex	Tube Adaptors for Duplex Connectors. Available in various sizes
	Cable Strain Relief Washers	Available in Miniature or Standard size. Packs of 100
	Spare Nylon Clip	For Fascia Sockets Available for Miniature and Standard Connectors
	Rubber Boot	Rubber Boots available for Miniature and Standard Connectors
	Spare Stainless Steel Clip	Spare Brackets (Stainless Steel) Available for Miniature and Standard Connectors
	Cable Tidy	Cable Tidy for Miniature Connectors



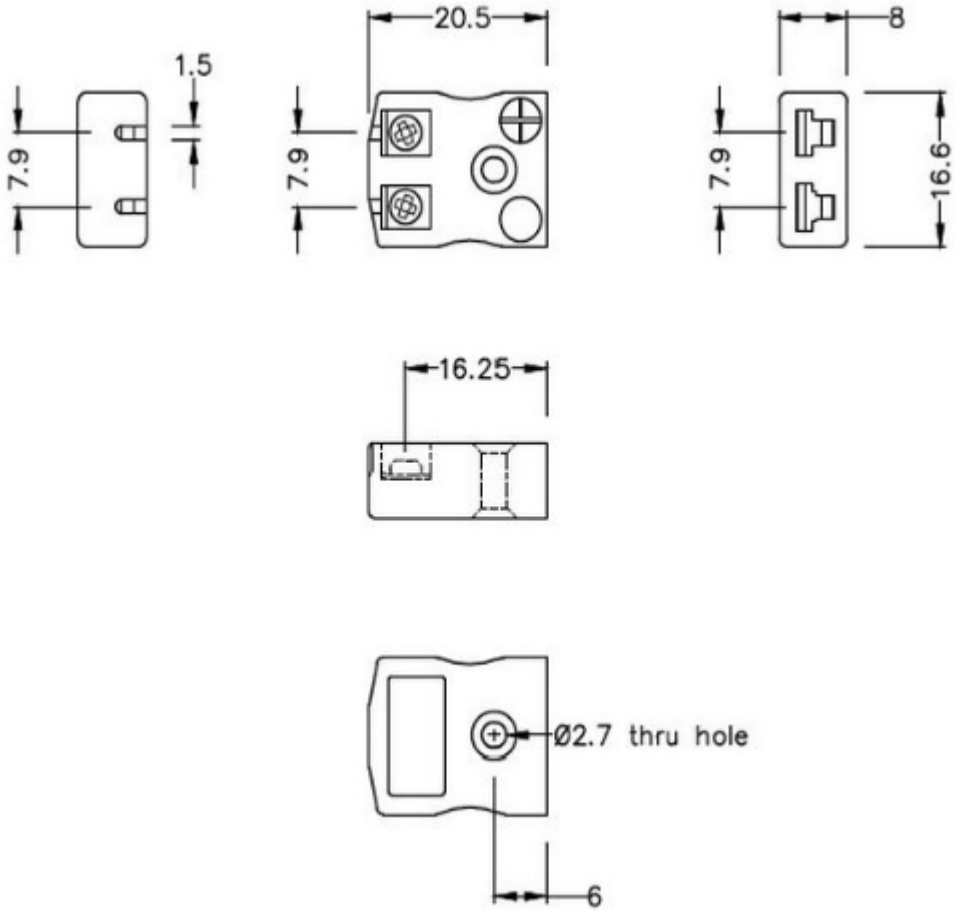
Click here to view Miniature Thermocouple Connectors - Plugs



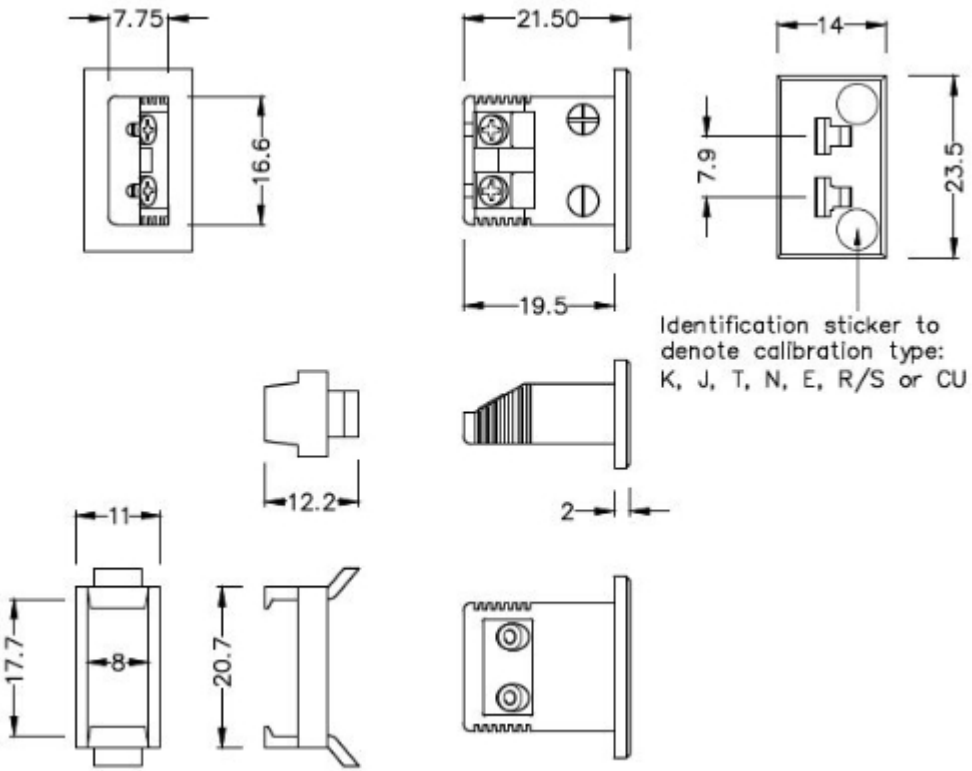
Click here to view Miniature Thermocouple Connectors - Sockets



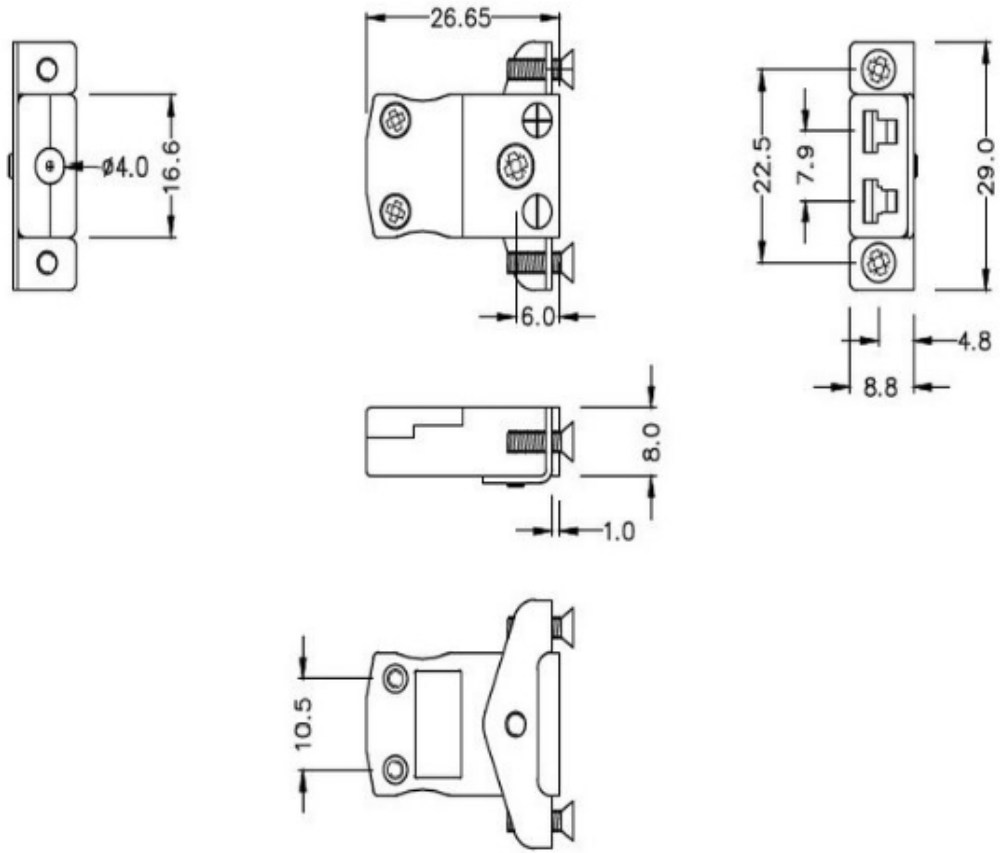
Click here to view Miniature Thermocouple Connectors – Quick-wire Plugs



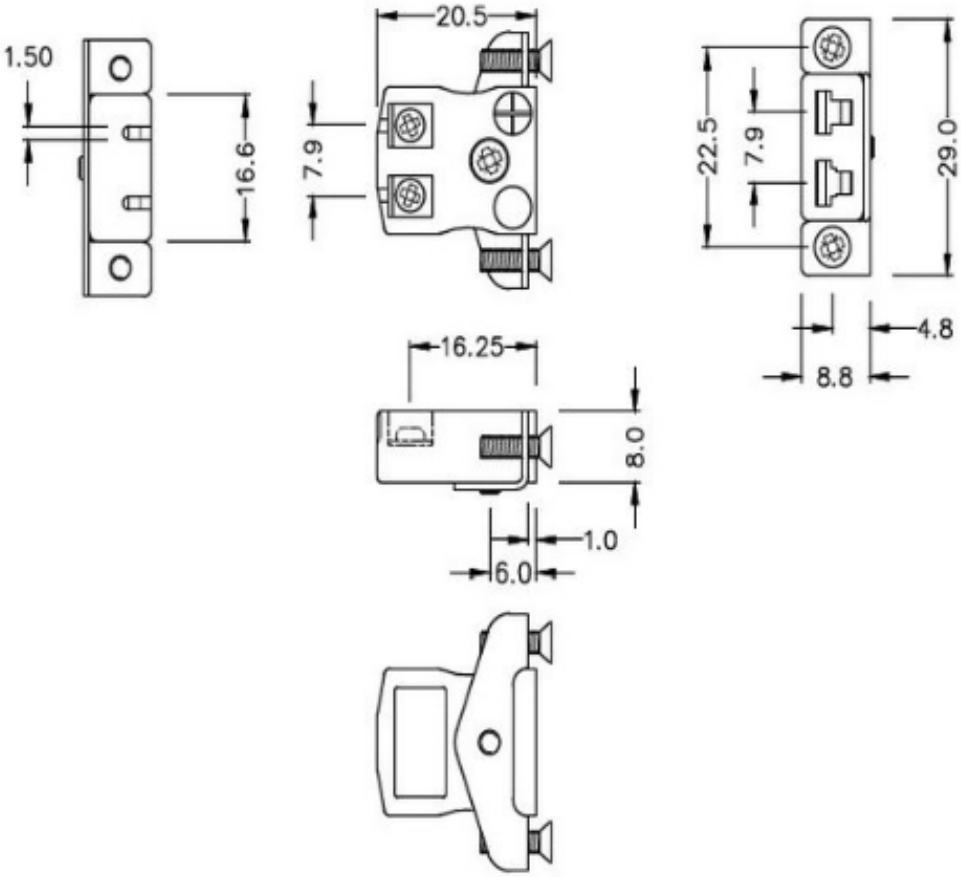
Click here to view Miniature Thermocouple Connectors – Quick-wire Sockets



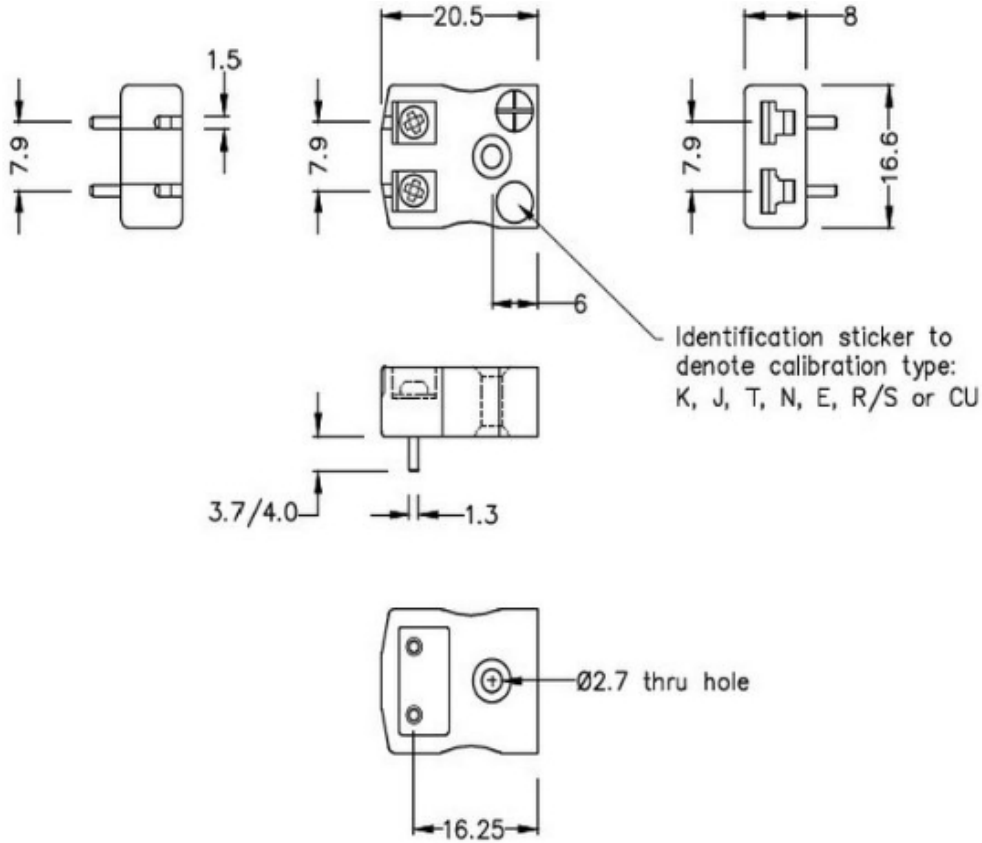
Click here to view Miniature Thermocouple Connectors – Rectangular Fascia Socket



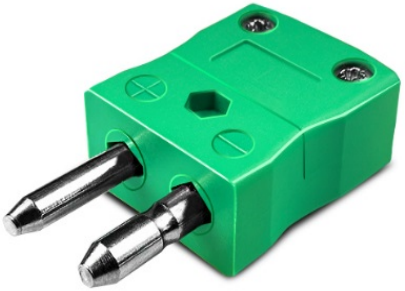
Click here to view Miniature Thermocouple Connectors – Panel Mount with Stainless Steel Bracket

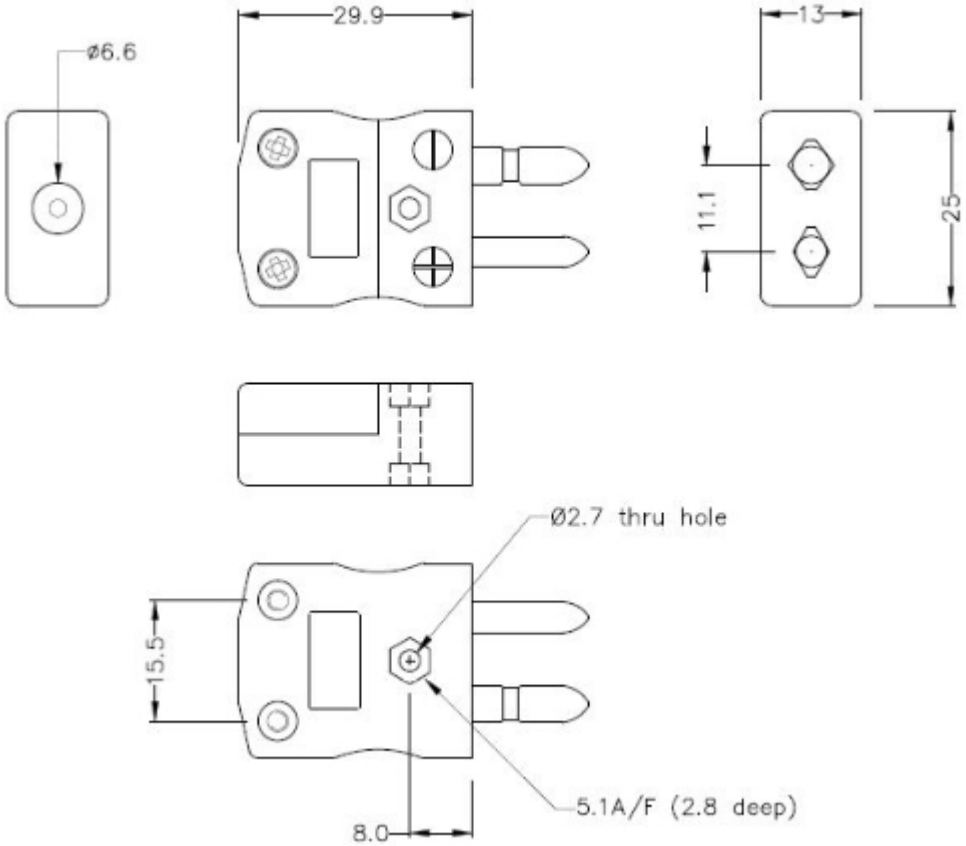


Click here to view Miniature Thermocouple Connectors – Quick-wire Panel Mount with Stainless Steel Bracket

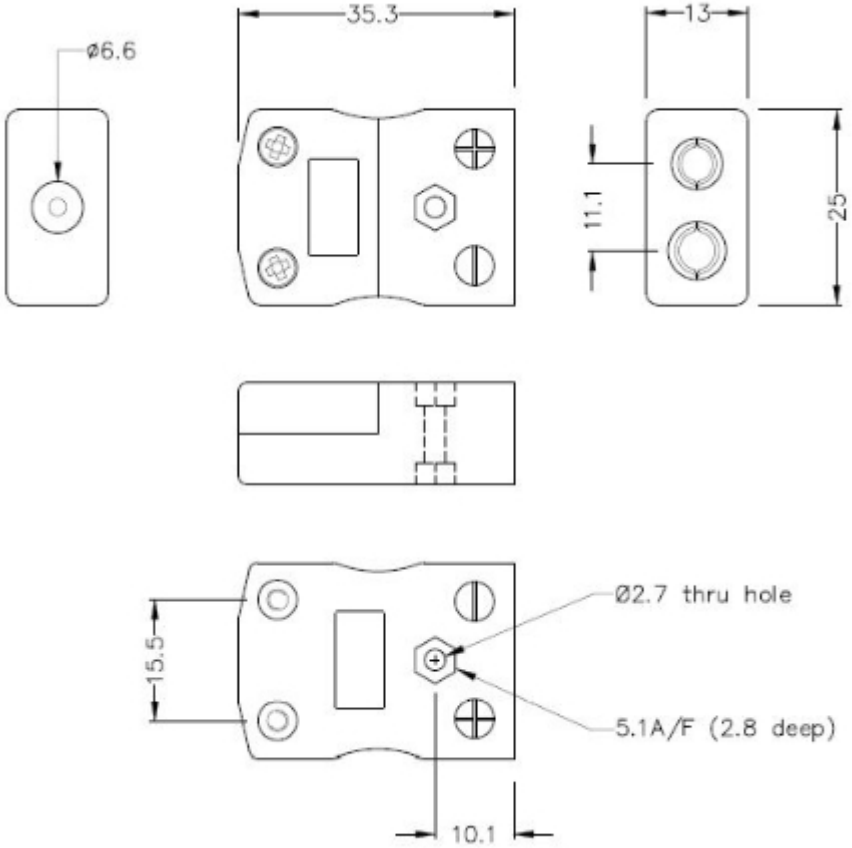


Click here to view Miniature Thermocouple Connectors – PCB Socket

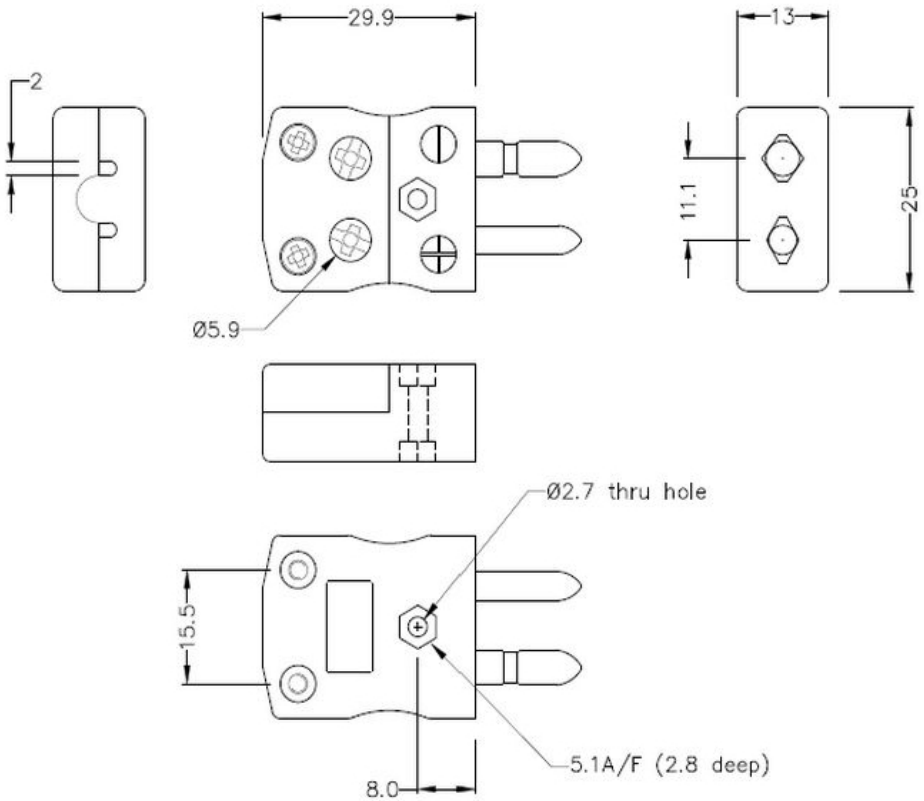




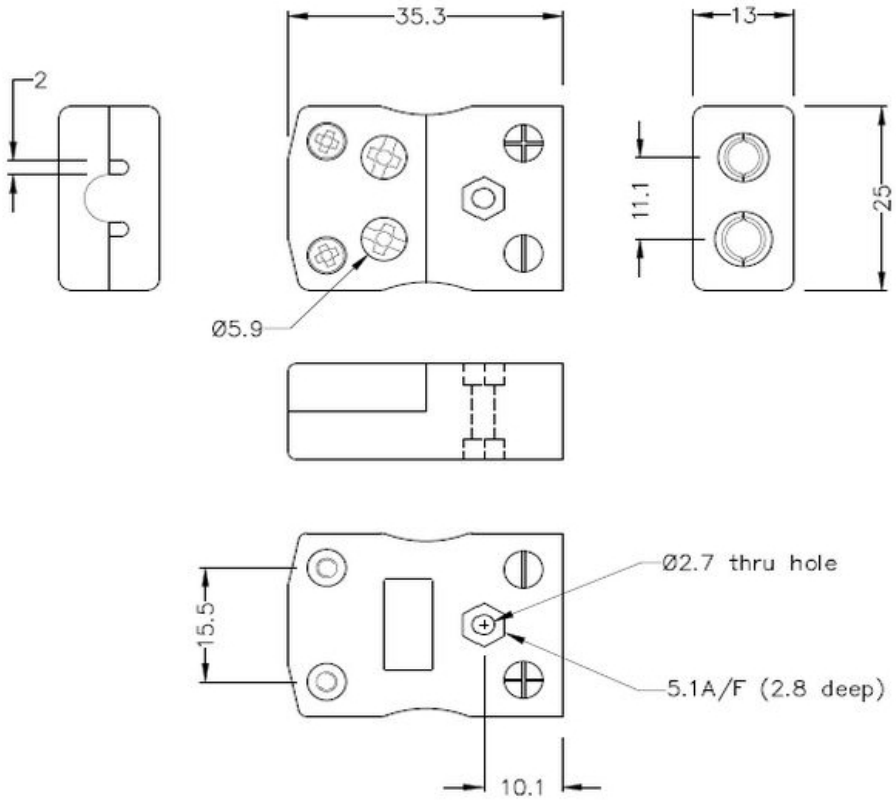
Click here to view Standard Thermocouple Connectors – Plugs



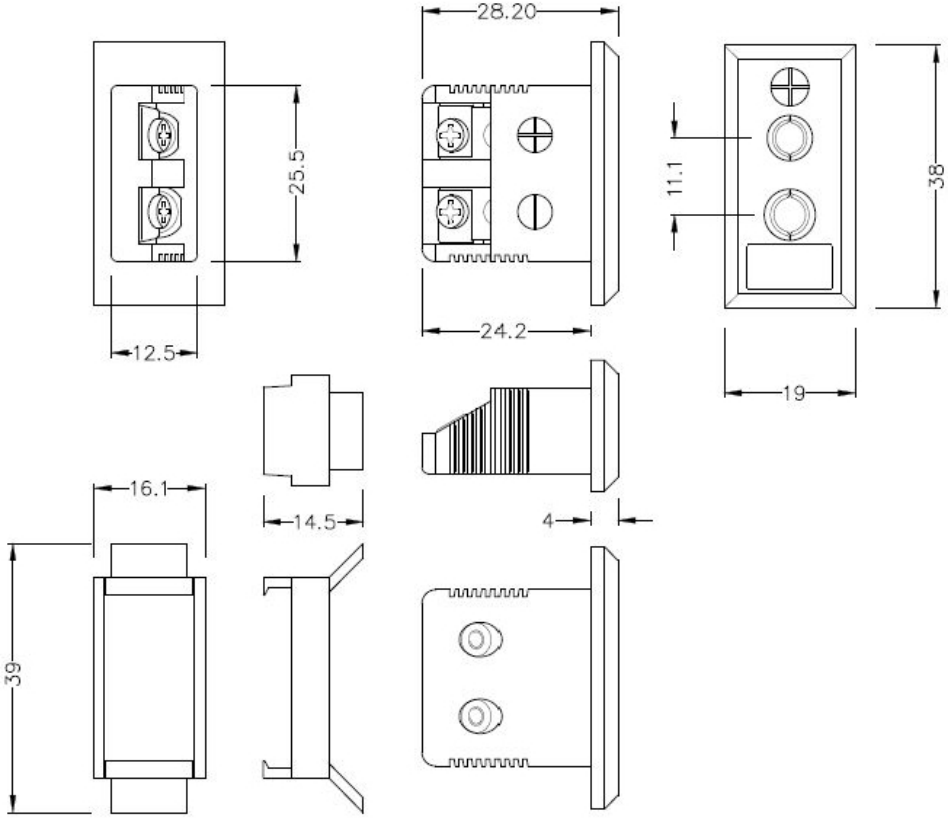
Click here to view Standard Thermocouple Connectors – Sockets



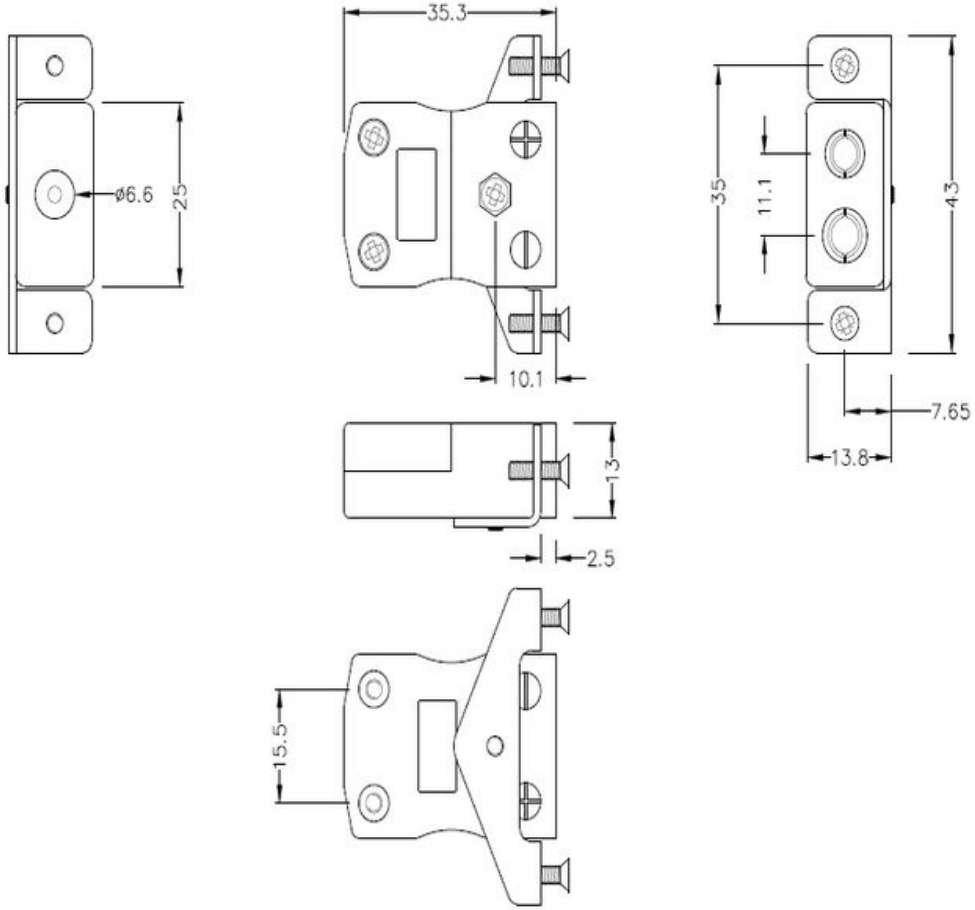
Click here to view Standard Thermocouple Connectors – Quick-wire Plugs



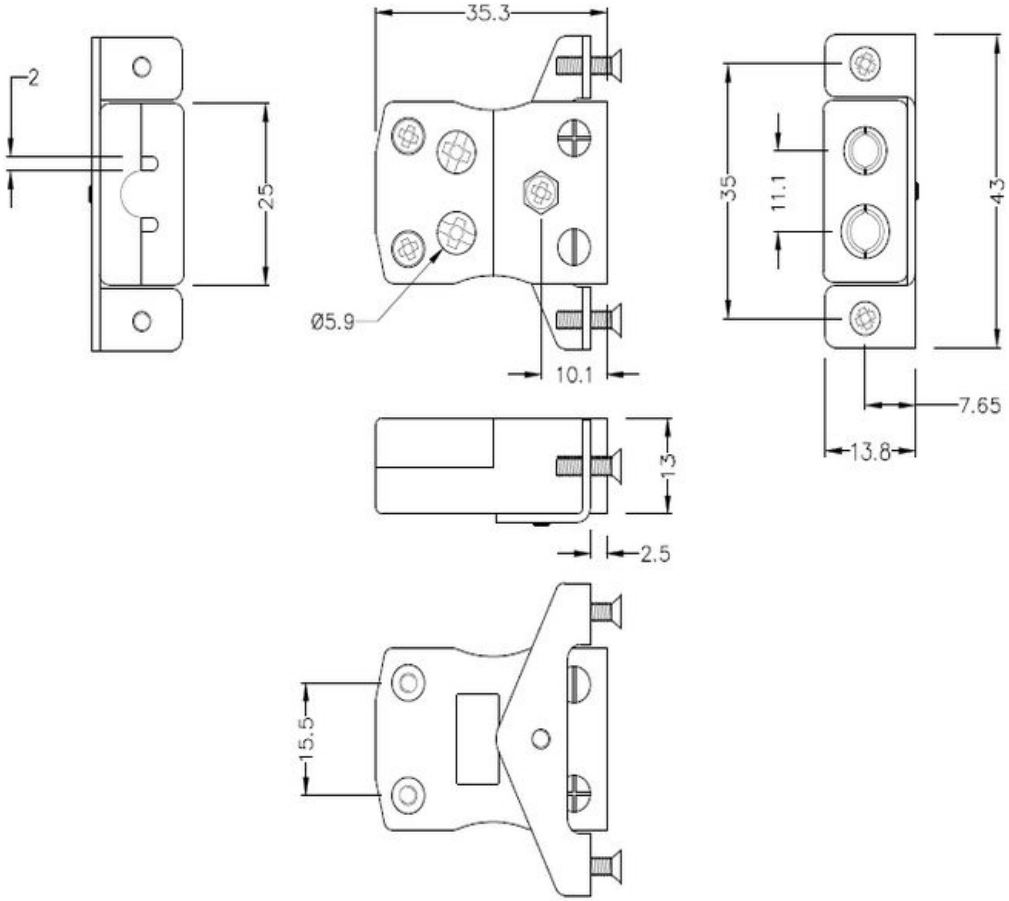
Click here to view Standard Thermocouple Connectors – Quick-wire Sockets



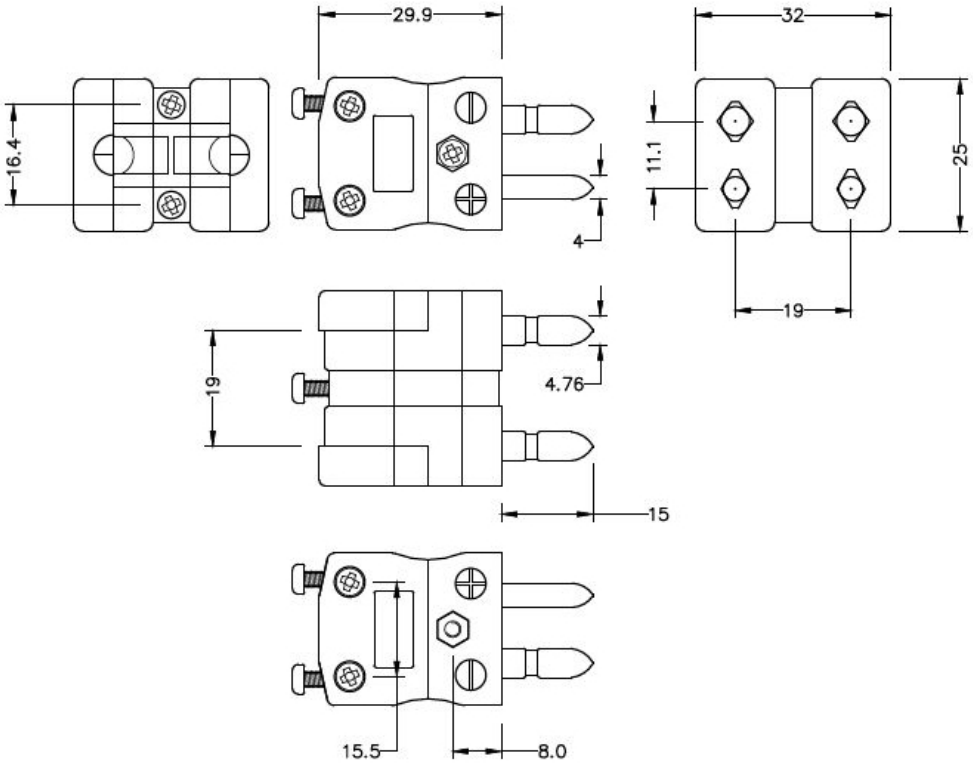
Click here to view Standard Thermocouple Connectors – Fascia Sockets



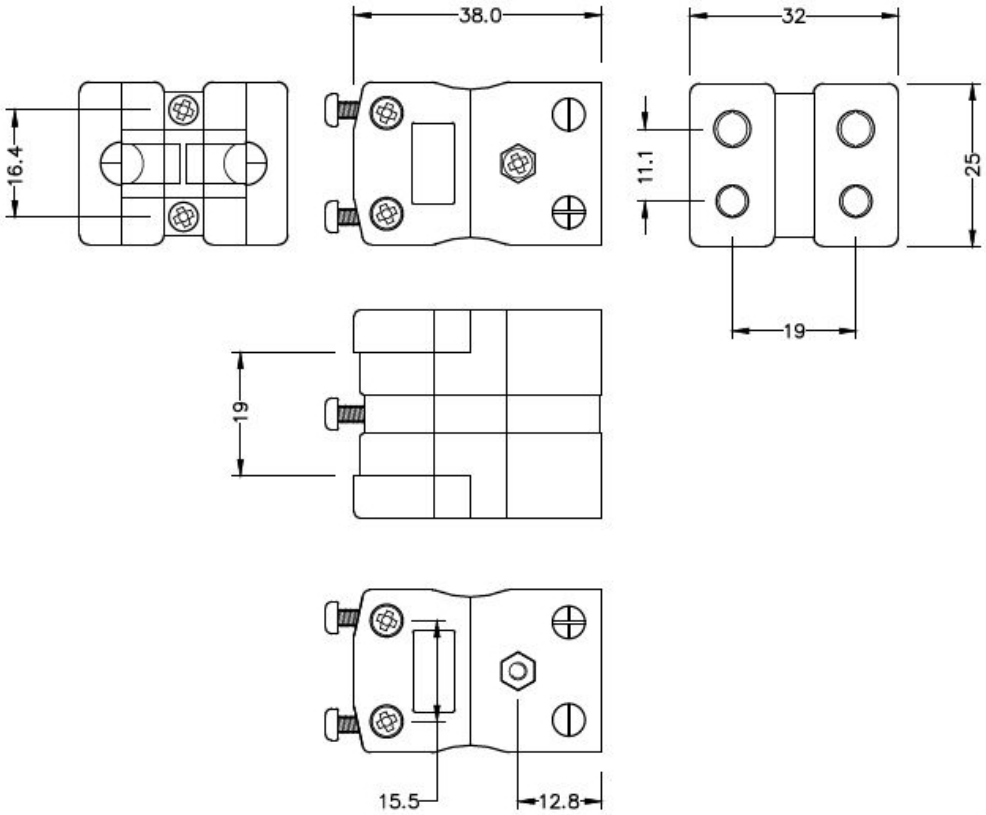
Click here to view Standard Thermocouple Connectors – Panel Mount with Stainless Steel Bracket



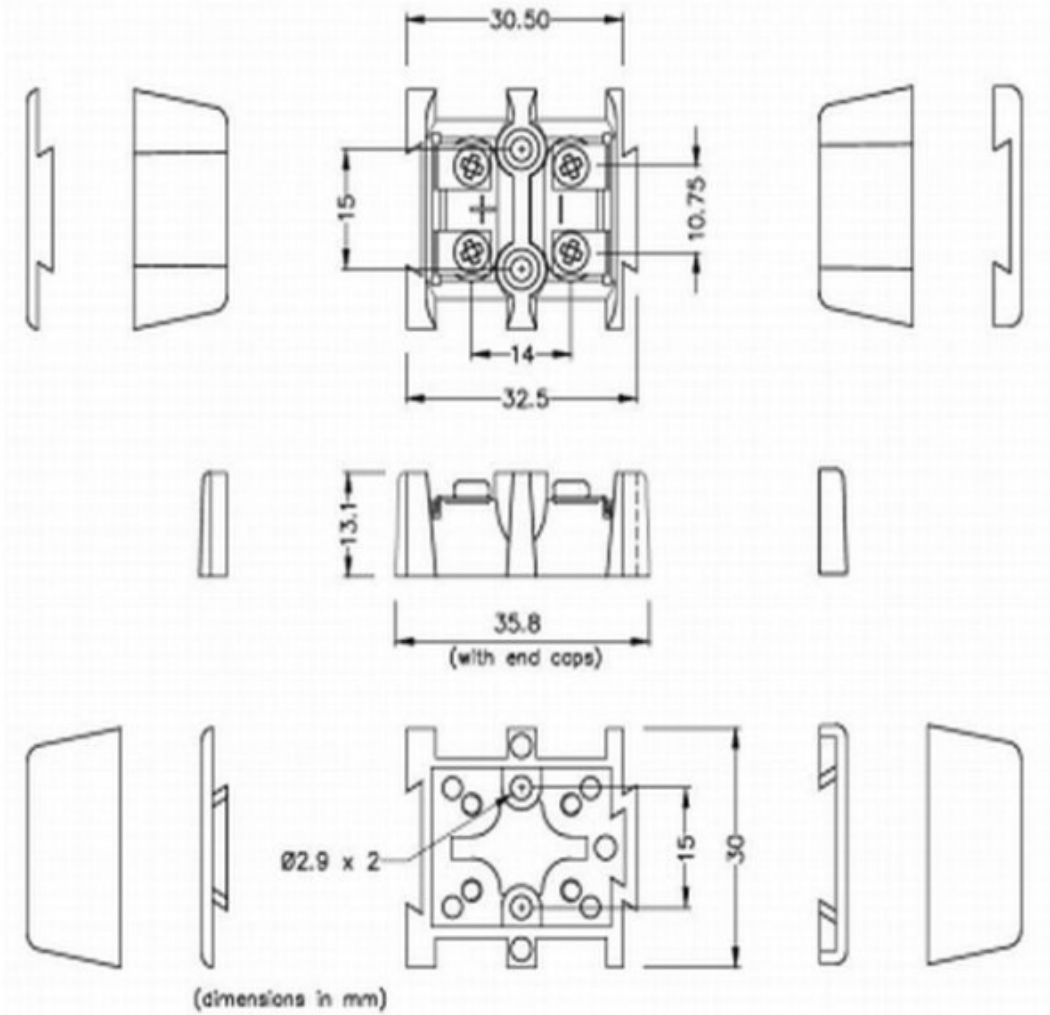
Click here to view Standard Thermocouple Connectors – Quick-wire Panel Mount with Stainless Steel Bracket



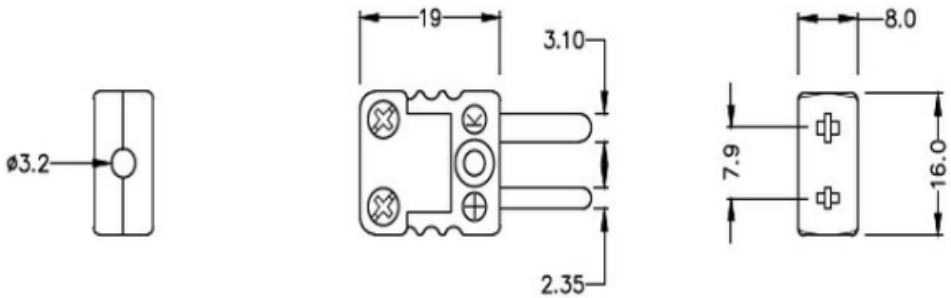
Click here to view Standard Thermocouple Connectors – Duplex Plug

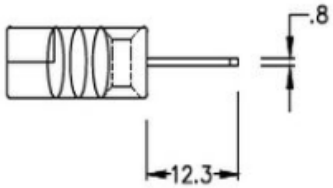


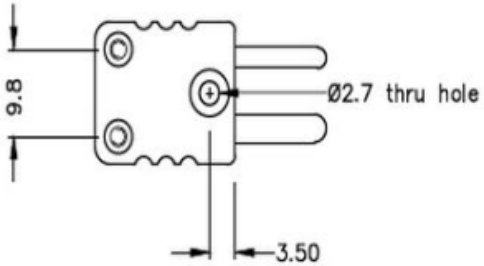
Click here to view Standard Thermocouple Connectors – Duplex Socket



Click here to view Barrier Terminal Block Thermocouple Connector

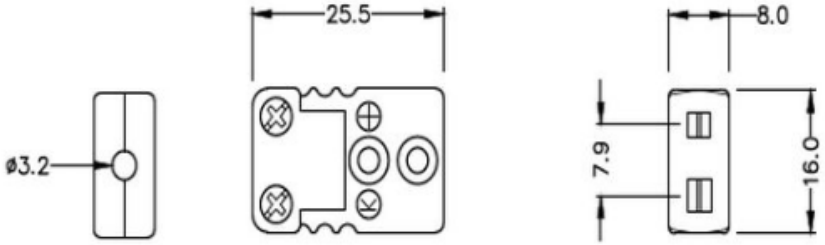


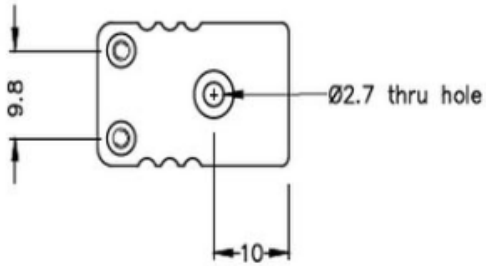




(dimensions in mm)

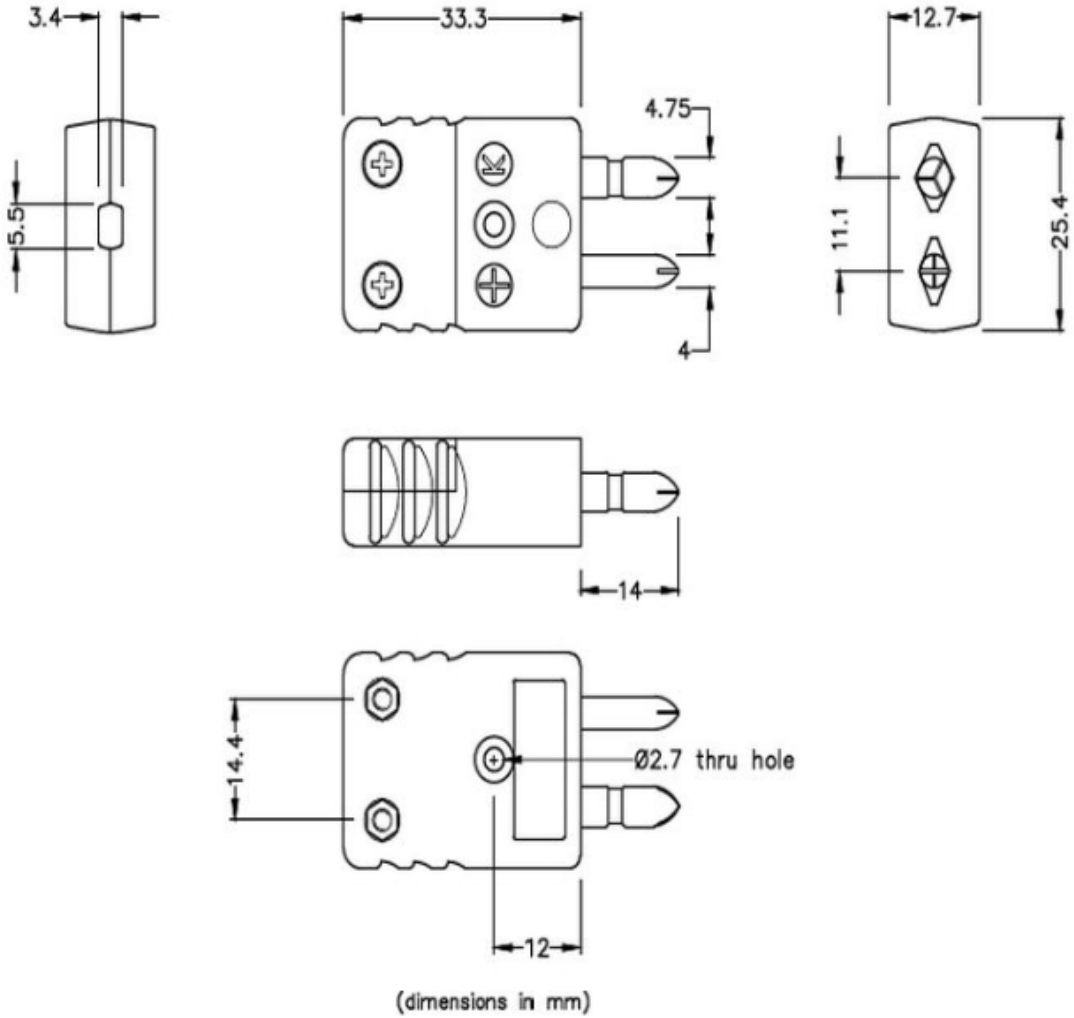
Click here to view High Temperature Miniature Thermocouple Connector– Plug



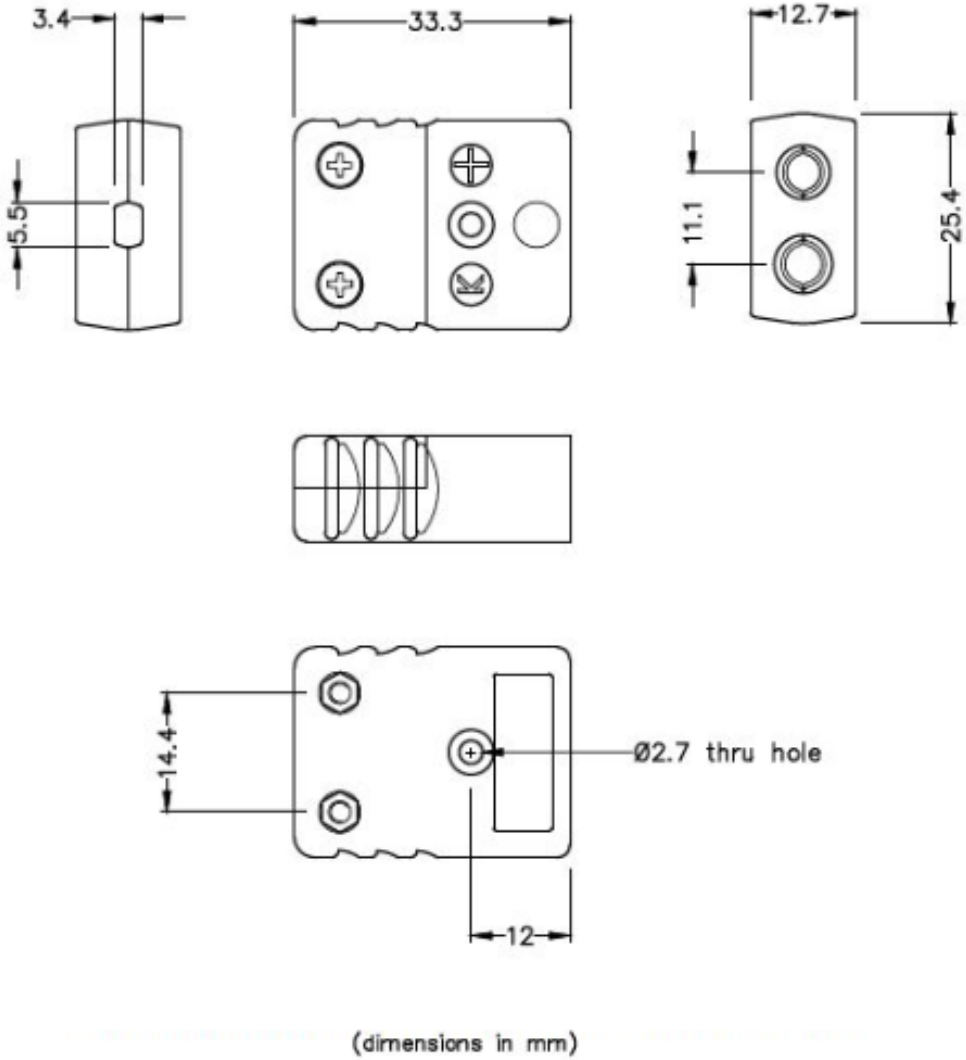


(dimensions in mm)

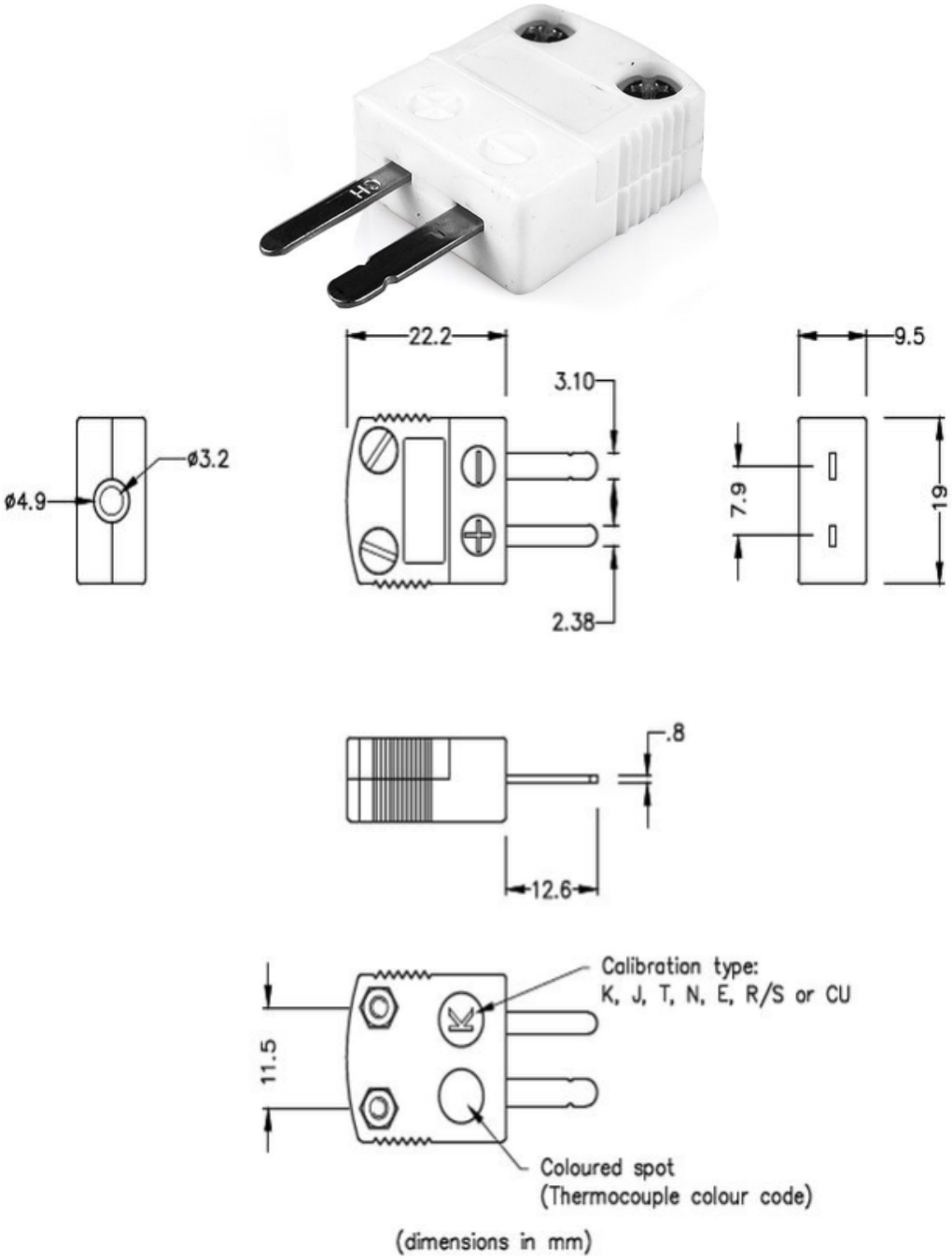
Click here to view High Temperature Miniature Thermocouple Connector– Socket



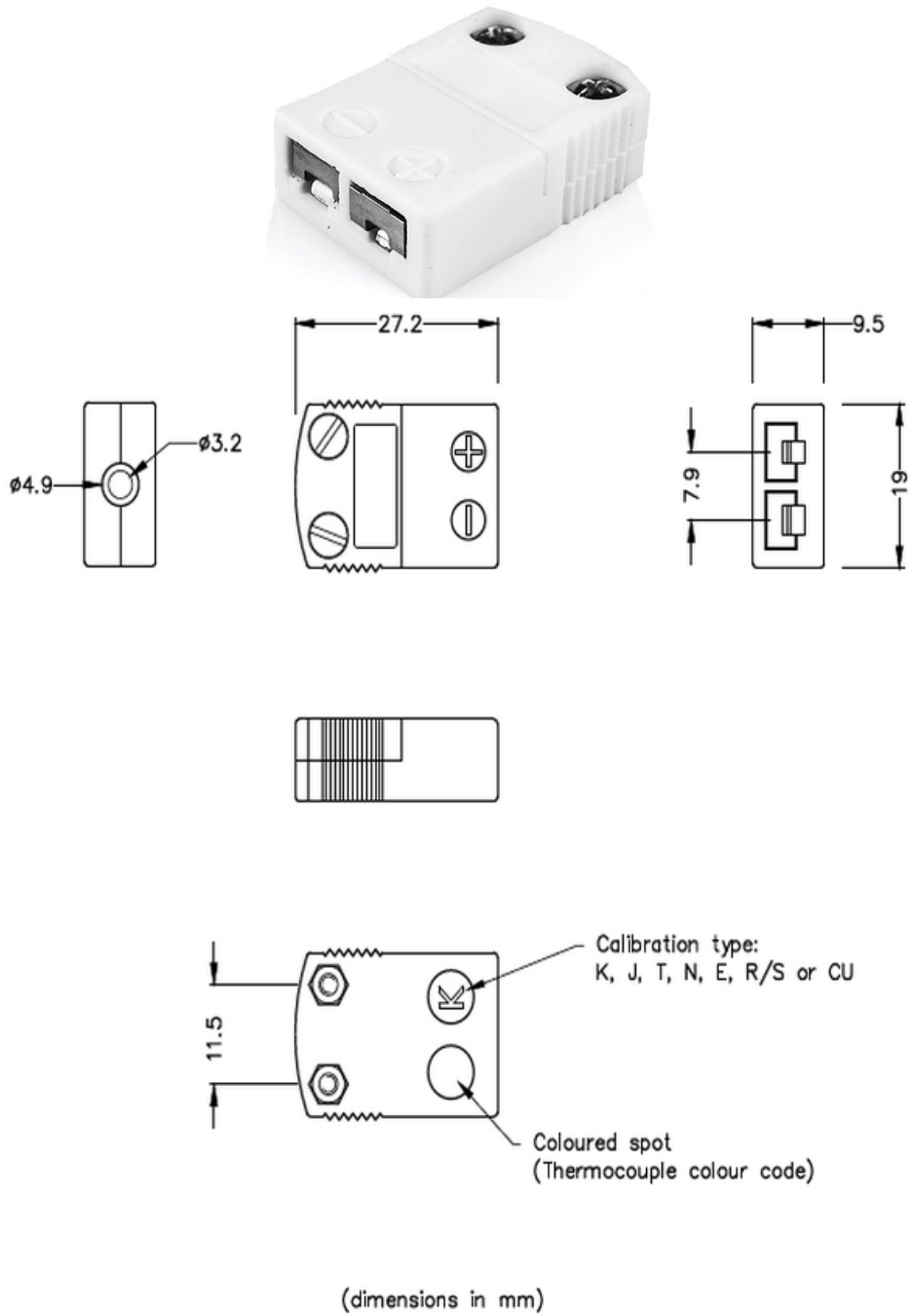
Click here to view High Temperature Standard Thermocouple Connector– Plug



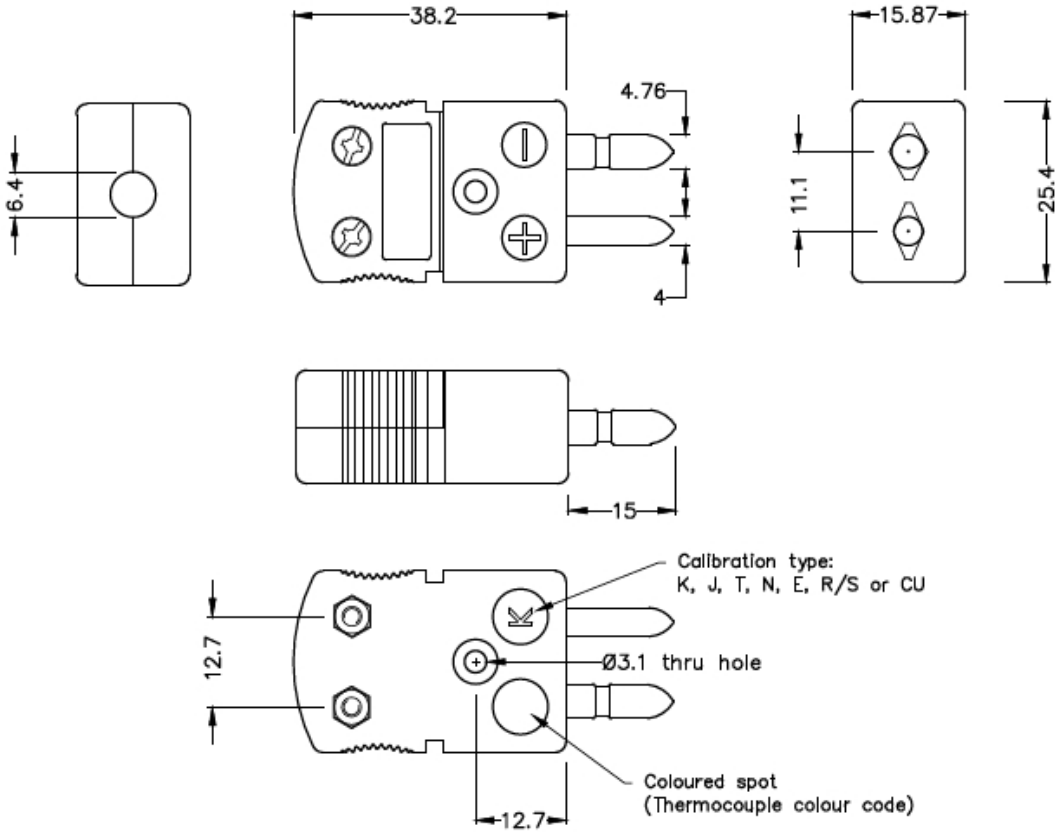
Click here to view High Temperature Standard Thermocouple Connector– Socket



Click here to view High Temperature Ceramic Miniature Thermocouple Connector– Plug

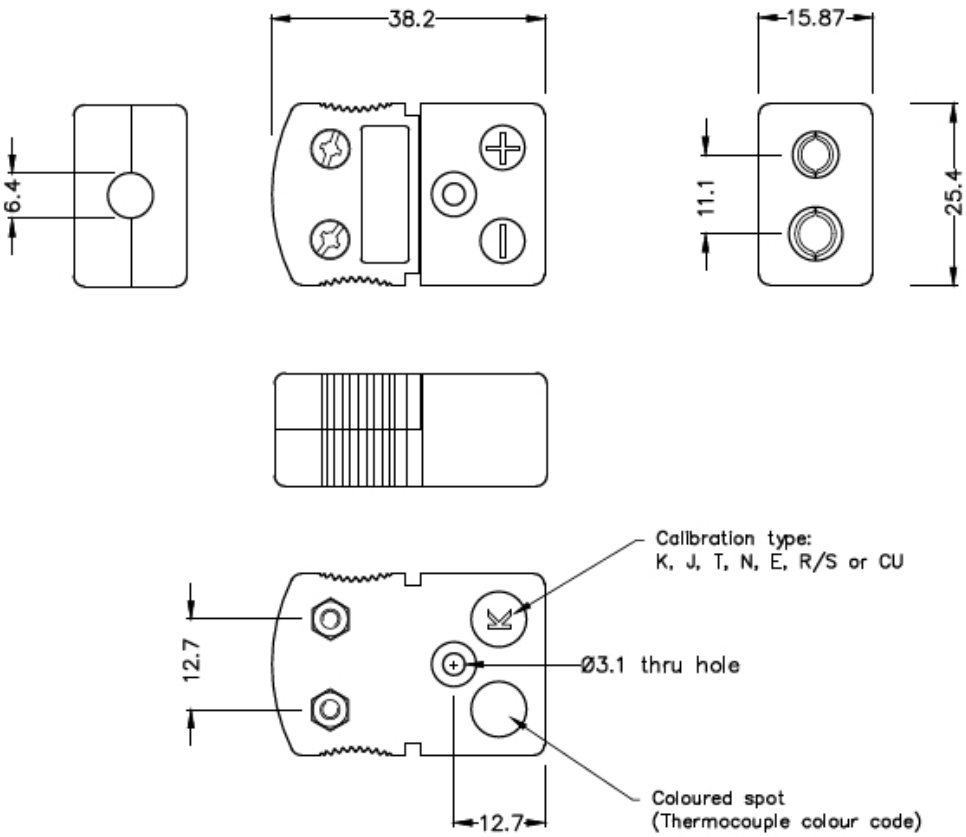


Click here to view High Temperature Ceramic Miniature Thermocouple Connector – Socket



(dimensions in mm)

Click here to view High Temperature Ceramic Standard Thermocouple Connector– Plug



(dimensions in mm)

Click here to view High Temperature Ceramic Standard Thermocouple Connector – Socket

The Temperature Handbook - A comprehensive guide to Temperature Measurement by Labfacility

The Labfacility Temperature Handbook is a comprehensive text for users of thermocouples, PRTs and thermistors and associated instrumentation. Detailed enough for engineers it is also suitable for technicians and students. Written with a practical bias, the handbook contains considerable reference data and basic theory and is therefore of great value as a training aid for those entering the field of temperature measurement and control.

The handy A5 size book contains 140 pages, 40 of them being reference data and uses 65 illustrations. The current revised thermocouple and Pt100 tables based on ITS90 are featured and the new IEC colour codes for thermocouple insulations are included in full colour in addition to the former ANSI, DIN and BS codes.

The broadened scope of the handbook includes detailed temperature sensor selection guidance, sensor theory and practice and comprehensive applications guidance. Practical aspects treated in depth include thermocouple installation and application, alternative thermocouple types and construction, accuracy and response and interconnection configurations; thermistors; sheath materials and thermowells for the different sensors and temperature calibration.

Additional enhanced chapters describe temperature control, transmitters and instrumentation. The 40 page reference section carries comprehensive data on thermocouple and platinum resistance thermometry, thermocouple and PRT tables, general thermometry data and other reference information including °C/°F conversion tables, fixed points and specification standards.

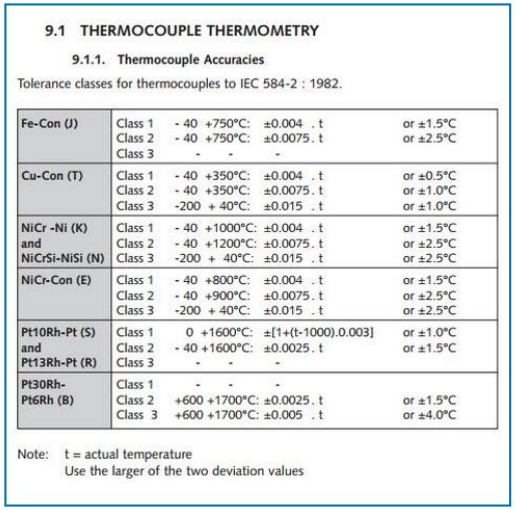
An installation problem solving guide, comprehensive 9 page glossary of terms and "Frequently Asked Questions" add to the practical value of the text for laboratory and industrial users.

Click below to purchase a hard copy

CLICK HERE

Click below to download individual sections

CLICK HERE



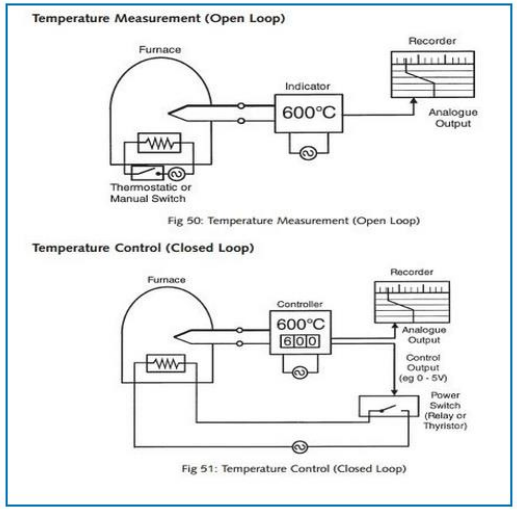
9.1 THERMOCOUPLE THERMOMETRY

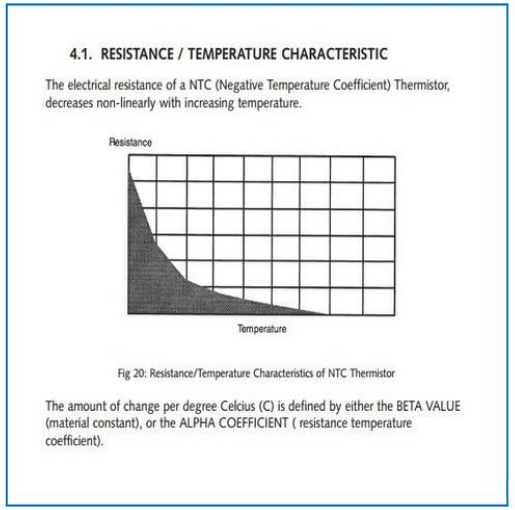
9.1.1. Thermocouple Accuracies

Tolerance classes for thermocouples to IEC 584-2 : 1982.

Fe-Con (J)	Class 1	- 40 +750°C:	±0.004 . t	or ±1.5°C
	Class 2	- 40 +750°C:	±0.0075 . t	or ±2.5°C
	Class 3	- -	-	
Cu-Con (T)	Class 1	- 40 +350°C:	±0.004 . t	or ±0.5°C
	Class 2	- 40 +350°C:	±0.0075 . t	or ±1.0°C
	Class 3	-200 + 40°C:	±0.015 . t	or ±1.0°C
NiCr -Ni (K) and NiCrSi-NiSi (N)	Class 1	- 40 +1000°C:	±0.004 . t	or ±1.5°C
	Class 2	- 40 +1200°C:	±0.0075 . t	or ±2.5°C
	Class 3	-200 + 40°C:	±0.015 . t	or ±2.5°C
NiCr-Con (E)	Class 1	- 40 +800°C:	±0.004 . t	or ±1.5°C
	Class 2	- 40 +900°C:	±0.0075 . t	or ±2.5°C
	Class 3	-200 + 40°C:	±0.015 . t	or ±2.5°C
Pt10Rh-Pt (S) and Pt13Rh-Pt (R)	Class 1	0 +1600°C:	±[1+(t-1000).0.003]	or ±1.0°C
	Class 2	- 40 +1600°C:	±0.0025 . t	or ±1.5°C
	Class 3	- -	-	
Pt30Rh-Pt6Rh (B)	Class 1	- -	-	
	Class 2	+600 +1700°C:	±0.0025 . t	or ±1.5°C
	Class 3	+600 +1700°C:	±0.005 . t	or ±4.0°C

Note: t = actual temperature
Use the larger of the two deviation values



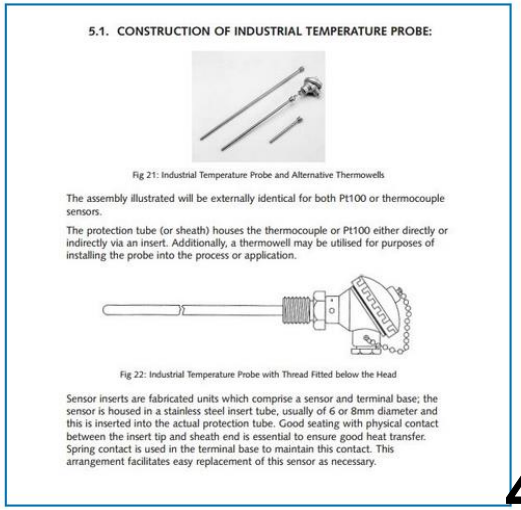


4.1. RESISTANCE / TEMPERATURE CHARACTERISTIC

The electrical resistance of a NTC (Negative Temperature Coefficient) Thermistor, decreases non-linearly with increasing temperature.

Fig 20: Resistance/Temperature Characteristics of NTC Thermistor

The amount of change per degree Celcius (C) is defined by either the BETA VALUE (material constant), or the ALPHA COEFFICIENT (resistance temperature coefficient).



5.1. CONSTRUCTION OF INDUSTRIAL TEMPERATURE PROBE:

Fig 21: Industrial Temperature Probe and Alternative Thermowells

The assembly illustrated will be externally identical for both Pt100 or thermocouple sensors.

The protection tube (or sheath) houses the thermocouple or Pt100 either directly or indirectly via an insert. Additionally, a thermowell may be utilised for purposes of installing the probe into the process or application.

Fig 22: Industrial Temperature Probe with Thread Fitted below the Head

Sensor inserts are fabricated units which comprise a sensor and terminal base; the sensor is housed in a stainless steel insert tube, usually of 6 or 8mm diameter and this is inserted into the actual protection tube. Good seating with physical contact between the insert tip and sheath end is essential to ensure good heat transfer. Spring contact is used in the terminal base to maintain this contact. This arrangement facilitates easy replacement of this sensor as necessary.

Information given here is for general guidance only and is not definitive – it is not intended to be the basis for product installation or decision making.

Q. What is the difference between a Mineral Insulated (MI) and a fabricated sheath?
A. An MI is flexible, a fabricated sheath is rigid.

Q. How accurately can I measure temperature using a standard sensor?
A. To published, internationally specified tolerances as standard, typically ± 2.5°C for popular thermocouples, ±0.5°C for PRT. Higher accuracy sensors can be supplied to order, e.g. ±0.5°C for type T thermocouple, ±0.2°C for PRT. All of these values are temperature dependent. A close tolerance, 4-wire PRT will give best absolute accuracy and stability.

Q. How do I choose between a thermocouple and a PRT?
A. Mainly on the basis of required accuracy, probe dimensions, speed of response and the process temperature.

Q. My thermocouple is sited a long way from my controller, is this a problem?
A. It could be; try to ensure a maximum sensor loop resistance of 100 Ohms for thermocouples and 4-wire PRTs. Exceeding 100 Ohms could result in a measurement error. Note By using a 4-20mA transmitter near the sensor, cable runs can be much longer and need only cheaper copper wire. The instrument must be suitable for a 4-20mA input though.

Q. Should I choose a Type K or Type N thermocouple?
A. Generally, Type N is more stable and usually lasts longer than Type K; N is a better choice for high temperature work depending on the choice of sheath material.

Q. Does it matter what type of steel I specify for the thermocouple sheath?
A. Often no, sometimes yes. In some cases, reliability depends on the ideal choice of material.

Q. Are there other types of temperature sensor apart from thermocouple and PRT Types?
A. Several, but these two groups are the most common. Alternatives include thermistors, infra-red (non-contact), conventional thermometers (stem & dial types) and many others.

Q. Why are so many different types of thermocouple used?
A. They have been developed over many years to suit different applications world-wide.

Q. What is a duplex sensor?
A. One with two separate sensors in a single housing

Q. Why use a thermowell?
A. To protect the sensor from the process medium and to facilitate its replacement if necessary.

Q. I use many thermocouples in testing and experiments, can I make my own thermocouple junctions?
A. Yes, using a benchtop welder and fine thermocouple wires – it is easy and inexpensive to make unsheathed thermocouples.

Q. Why should I use actual thermocouple connectors instead of ordinary electrical connectors?
A. Good quality thermocouple connectors use thermocouple alloys, polarized connections and colour coded bodies to guarantee perfect, error-free interconnections.

Q. I need to measure quickly changing temperature; what type of sensor should I use?
A. A fast-response (low thermal mass) thermocouple.

Q. There are several different types of extension cable construction; is the choice important?
A. Yes; some are waterproof, some mechanically stronger, some suitable for high or low temperature.

Q. Is a sensor with a calibration certificate more accurate than an uncalibrated one?
A. No. However, the errors and uncertainties compared with a reference sensor are published and corrected values can be used to obtain better measurement accuracy.

Q. How long will my sensor last in the process?
A. Not known but predictable in some cases; this will be a function of sensor type, construction, operating conditions and handling.

Q. Which thermocouple type do I need for my application?
A. This depends on several factors including the nature of the process, heated medium and temperature.

Q. What is the longest thermocouple I can have without losing accuracy?
A. Try to ensure a maximum sensor loop resistance of 100 Ohms for thermocouples and 4 wire PRTs. Exceeding 100 Ohms could result in a measurement error. Note By using a 4-20mA transmitter near the sensor, cable runs can be much longer and need only cheaper copper wire. The instrument must be suitable for a 4-20mA input though.

Q. Do I need a power supply when using a transmitter, and what length of extension lead can I run with a transmitter fitted?
A. A 24Vdc, 20mA supply will be needed if this is not incorporated in the measuring instrument. Long runs of copper cable can be used.

Q. What sensor will I need to work in molten metal or a corrosive atmosphere?
A. There is no simple answer but special grades of Stainless Steel, Inconel 600, Nicrobell and Ceramics offer alternatives.

Information given here is for general guidance only and is not definitive – it is not intended to be the basis for product installation or decision making.

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY

Farnell
AN AVNET COMPANY

Product Listing

Automation & Process Control

Signal Conditioning (1)

Cable, Wire & Cable Assemblies

Cable Management (1)
Multicore Cable (43)

Cooling & Thermal Management

Thermal Interface Materials (1)

Fasteners & Mechanical

Fasteners & Fixings (8)
Pipework (77)

Sensors & Transducers

Sensors (761)

Test & Measurement

Environmental & Mechanical Test (2)
Temperature Measurement & Thermal Imaging (3)

Tools & Production Supplies

Welding (2)

Show All Products 899

Labfacility have supplied Farnell for over 30 years, and a large range of our products are available to purchase online, from stock, direct from Farnell.

Our products are also available on Newark, which is for the North American market.

Newark
AN AVNET COMPANY

Product Listing

Cable, Wire & Cable Assemblies

Multiconductor Cable (3)

Fasteners & Mechanical

Fasteners & Fixings (3)
Pipework (66)

Sensors & Transducers

Sensors (239)

Show All Products 311

Click below to view our products on Farnell:

Farnell AN AVNET COMPANY CLICK HERE

Click below to view our products on Newark:

Newark AN AVNET COMPANY CLICK HERE