

Thermocouple and RTD Cables

Common Conductor Gauge / Metric Conversion Table (mm)

Standard Wire Gauge (SWG)	Gauge Number	American Wire Gauge (AWG)
3.25	10	2.488
2.64	12	2.052
2.03	14	1.628
1.63	16	1.290
1.22	18	1.024
1.02	19	0.912
0.914	20	0.813
0.813	21	0.724
0.711	22	0.643
0.559	24	0.511
0.508	25	0.455
0.376	28	0.320
0.315	30	0.254
0.295	31	0.226
0.274	32	0.203
0.254	33	0.180
0.193	36	0.127
0.152	38	0.102
0.102	42	0.063

Loop Resistance for Thermocouple Extension & Compensating Cables

Conductors	Constant (ρ)
KX	0.99
KCB	0.51
TX	0.51
JX	0.61
EX	1.21
NX	1.32
RCA	0.14
SCA	0.14
BX	0.05

Excessive loop resistance (ohms / metre) can have an effect on the system accuracy. To establish the loop resistance simply divide the constant shown above by the cross sectional area (mm²) of your wire you intend to use. Example:

**0.5mm² Type KX wire – Calculation $0.99 / 0.5 = 1.98$
Therefore 1.98 ohms / metre is the loop resistance**

The longer the cable length, the higher the resistance.

Resistance Formula: $R = \rho L/A$

ρ : Resistivity constant of the material, in $\Omega \cdot m$

L: Length of the wire, in metres

A: Cross sectional area of the wire (mm²)

R: Resistance, in ohms (Ω)

IEC Colour Codes

