

# INSTRUMENTATION CABLE



## APPLICATION

Used in data processing and process control. Suitable for fixed installations in damp locations and open spaces. The electrostatic screen protects against outer interference fields.

## DESIGN

LSZH (Low Smoke Zero Halogen) Instrumentation cable consisting of bare copper conductors, black & white twisted pairs or black, white & red twisted triples with continuous number sequence.

Cables are manufactured strictly in accordance of UL as well as relevant Australian Standards.

## VOLTAGE RATING

Rated Voltage Max. 300V a.c

Nominal Voltage A.C/D.C 110/150V

Test Voltage In process spark test - 4500V and AC withstand voltage test - 1500V

## TECHNICAL DATA

	0.5mm	1.5mm
Maximum Capacitance		
Conductor to Conductor	145pF/m	200pF/m
Conductor to Screen	240pF/m	300pF/m
Maximum Conductor Resistance @ 20 C	38.4Ω/km	13.8Ω/km
Insulation Resistance @ 20 C	40MΩ/km	140MΩ/km
Cross Talk Attenuation Between Pairs @ 1kHz	300Ω	150Ω
Inductance @ 1kHz	1.00mH/km	0.95mH/km
L/R Ratio @ 1kHz	13.7μH/Ω	36.5μH/Ω

## OPERATING TEMPERATURE

Minimum continuous operating temperature	-25°C
Maximum continuous operating temperature	75°C
Maximum conductor operating temperature	90°C
Minimum short circuit temperature	160°C (for 5 sec)

## BENDING RADII

The following minimum bending radius should be observed to ensure operating reliability

**Unarmoured:** 9 x cable outer diameter (during installation)

6 x cable outer diameter (after installation)

**Armoured:** 18 x cable outer diameter (during installation)

12 x cable outer diameter (after installation)

## TENSILE STRENGTH

Cable maximum pulling tension (approximate) is limited to 65-70 N/mm<sup>2</sup> of the total cross-sectional area of conductor.

Example:

3pairs 1.5 total cross sectional area 3x 2x1.5=9mm<sup>2</sup> 9mm<sup>2</sup> x 70Nmm<sup>2</sup> =630N (0.63kn)

For pulling by armour, the pulling tension should be limited to 130 N/mm<sup>2</sup> of the total cross-sectional of steel wire.

# INSTRUMENTATION CABLE

## Overall Screened Pairs LSZH



### CONSTRUCTION CONSISTING OF:

Bare copper conductors to AS1125

Flame retardant HX90 Insulation to UL style 1569

Overall screen of Al/polyester tape with tinned copper 7/0.20 stranded drain wire

Black outer sheath with flame retardant HX90 LSZH UL style 2462 (Blue Intrinsically Safe option avail)

#### 0.5mm<sup>2</sup>

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Nom. Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
0.5MM1PR	1	7/0.30	0.4	5	38.4	28
0.5MM2PR	2	7/0.30	0.4	7.3	38.4	51
0.5MM3PR	3	7/0.30	0.4	8.1	38.4	71
0.5MM4PR	4	7/0.30	0.4	8.7	38.4	86
0.5MM6PR	6	7/0.30	0.4	10.5	38.4	124
0.5MM8PR	8	7/0.30	0.4	11.7	38.4	166
0.5MM10PR	10	7/0.30	0.4	13.9	38.4	210
0.5MM12PR	12	7/0.30	0.4	14.3	38.4	239
0.5MM16PR	16	7/0.30	0.4	16.3	38.4	317
0.5MM20PR	20	7/0.30	0.4	17.9	38.4	396
0.5MM24PR	24	7/0.30	0.4	20.5	38.4	477
0.5MM36PR	36	7/0.30	0.4	23.5	38.4	675

Intrinsically Safe version – add BLUE to part number

#### 1.5mm<sup>2</sup>

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
1.5MM1PR	1	7/0.50	0.4	6.1	13.8	53
1.5MM2PR	2	7/0.50	0.4	11	13.8	103
1.5MM3PR	3	7/0.50	0.4	12.2	13.8	145
1.5MM4PR	4	7/0.50	0.4	13	13.8	183
1.5MM6PR	6	7/0.50	0.4	14	13.8	266
1.5MM8PR	8	7/0.50	0.4	15.2	13.8	349
1.5MM10PR	10	7/0.50	0.4	18.2	13.8	430
1.5MM12PR	12	7/0.50	0.4	19	13.8	506
1.5MM16PR	16	7/0.50	0.4	21.3	13.8	658
1.5MM20PR	20	7/0.50	0.4	23.4	13.8	809
1.5MM24PR	24	7/0.50	0.4	27	13.8	974
1.5MM36PR	36	7/0.50	0.4	29.7	13.8	1403

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# INSTRUMENTATION CABLE

## Individual & Overall Screened Pairs LSZH



### CONSTRUCTION CONSISTING OF:

Bare copper conductors to AS1125

Flame retardant HX90 Insulation to UL style 1569

Individual screen of Al/polyester tape with tinned copper 7/0.20 stranded drain wire

Overall screen of Al/polyester tape with tinned copper 7/0.20 stranded drain wire

Black outer sheath with flame retardant HX90 LSZH UL style 2462 (Blue Intrinsically Safe option avail)

#### 0.5mm<sup>2</sup>

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Nom. Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
0.5MM2PRES	2	7/0.30	0.4	8.8	38.4	58
0.5MM4PRES	4	7/0.30	0.4	9.3	38.4	100
0.5MM6PRES	6	7/0.30	0.4	11.3	38.4	145
0.5MM8PRES	8	7/0.30	0.4	12.6	38.4	193
0.5MM10PRES	10	7/0.30	0.4	14.9	38.4	244
0.5MM12PRES	12	7/0.30	0.4	15.4	38.4	279
0.5MM16PRES	16	7/0.30	0.4	17.5	38.4	370
0.5MM20PRES	20	7/0.30	0.4	19.3	38.4	462
0.5MM24PRES	24	7/0.30	0.4	22.1	38.4	558
0.5MM36PRES	36	7/0.30	0.4	25.3	38.4	792

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#### 1.5mm<sup>2</sup>

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Nom. Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
1.5MM2PRES	2	7/0.50	0.4	11.1	13.8	113
1.5MM4PRES	4	7/0.50	0.4	12.1	13.8	199
1.5MM6PRES	6	7/0.50	0.4	14.6	13.8	290
1.5MM8PRES	8	7/0.50	0.4	16.2	13.8	381
1.5MM10PRES	10	7/0.50	0.4	19	13.8	470
1.5MM12PRES	12	7/0.50	0.4	21.1	13.8	570
1.5MM16PRES	16	7/0.50	0.4	22.2	13.8	717
1.5MM20PRES	20	7/0.50	0.4	24.2	13.8	884
1.5MM24PRES	24	7/0.50	0.4	27.8	13.8	1064
1.5MM36PRES	36	7/0.50	0.4	31.9	13.8	1535

Intrinsically Safe version – add BLUE to part number

# INSTRUMENTATION CABLE

## Overall Screened SWA Pairs LSZH



### CONSTRUCTION CONSISTING OF:

Bare copper conductors to AS1125

Flame retardant HX90 Insulation to UL style 1569

Overall screen of Al/polyester tape with tinned copper 7/0.20 stranded drain wire

Black flame retardant HX90 inner sheath to UL style 2464

Steel wire armour

Black outer sheath with flame retardant HX90 LSZH UL style 2462 (Blue Intrinsically Safe option avail)

0.5mm²

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Overall diameter over bedding (mm)	Steel wire Armour diameter (mm)	Overall diameter over armour (mm)	Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
0.5MM1PRSWA	1	7/0.30	0.4	5.6	0.9	7.4	10.4	38.4	225
0.5MM2PRSWA	2	7/0.30	0.4	8.6	0.9	10.4	12.5	38.4	298
0.5MM4PRSWA	4	7/0.30	0.4	9.8	0.9	11.6	14.5	38.4	358
0.5MM6PRSWA	6	7/0.30	0.4	10.6	0.9	12.4	15.5	38.4	440
0.5MM8PRSWA	8	7/0.30	0.4	11.4	0.9	13.2	16.7	38.4	507
0.5MM10PRSWA	10	7/0.30	0.4	13.3	0.9	15.1	18.7	38.4	592
0.5MM12PRSWA	12	7/0.30	0.4	13.7	0.9	15.5	19.1	38.4	632
0.5MM16PRSWA	16	7/0.30	0.4	15.4	0.9	17.2	21.3	38.4	763
0.5MM20PRSWA	20	7/0.30	0.4	16.6	1.25	19.1	23.2	38.4	1006
0.5MM24PRSWA	24	7/0.30	0.4	18.9	1.25	21.4	25.6	38.4	1150
0.5MM36PRSWA	36	7/0.30	0.4	21.8	1.25	24.3	28.8	38.4	1449

Intrinsically Safe version – add BLUE to part number

1.5mm²

Part No	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Overall diameter over bedding (mm)	Steel wire Armour diameter (mm)	Overall diameter over armour (mm)	Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
1.5MM1PRSWA	1	7/0.50	0.4	6.7	0.9	8.5	11.5	13.8	278
1.5MM2PRSWA	2	7/0.50	0.4	10.4	0.9	12.2	15.3	13.8	390
1.5MM4PRSWA	4	7/0.50	0.4	11.9	0.9	13.7	17.8	13.8	498
1.5MM6PRSWA	6	7/0.50	0.4	13.2	0.9	15	18.3	13.8	651
1.5MM8PRSWA	8	7/0.50	0.4	14.2	0.9	16	19.2	13.8	749
1.5MM10PRSWA	10	7/0.50	0.4	16.7	1.25	19.2	22.5	13.8	1043
1.5MM12PRSWA	12	7/0.50	0.4	17.3	1.25	19.8	23.8	13.8	1150
1.5MM16PRSWA	16	7/0.50	0.4	19.4	1.25	21.9	26	13.8	1370
1.5MM20PRSWA	20	7/0.50	0.4	21.3	1.25	23.8	28.1	13.8	1591
1.5MM24PRSWA	24	7/0.50	0.4	24.3	1.6	26.8	32.1	13.8	1856
1.5MM36PRSWA	36	7/0.50	0.4	27.9	1.6	31.1	35	13.8	2645

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Steel wire armour

Black outer sheath with flame retardant HX90 LSZH UL style 2462 (Blue Intrinsically Safe option avail)

0.5mm<sup>2</sup>

Part No.	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Overall diameter over bedding (mm)	Steel wire Armour diameter (mm)	Overall diameter over armour (mm)	Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
0.5MM2PRSWAES	2	7/0.30	0.4	9.2	0.9	11	14	38.4	318
0.5MM4PRSWAES	4	7/0.30	0.4	9.9	0.9	11.7	14.8	38.4	387
0.5MM6PRSWAES	6	7/0.30	0.4	11.3	0.9	13.1	16.3	38.4	480
0.5MM8PRSWAES	8	7/0.30	0.4	12.2	0.9	14	17.6	38.4	555
0.5MM10PRSWAES	10	7/0.30	0.4	14.3	0.9	16.1	19.7	38.4	651
0.5MM12PRSWAES	12	7/0.30	0.4	14.8	0.9	16.6	20.2	38.4	699
0.5MM16PRSWAES	16	7/0.30	0.4	16.6	0.9	19.1	22.8	38.4	995
0.5MM20PRSWAES	20	7/0.30	0.4	17.9	1.25	20.4	24.6	38.4	1113
0.5MM24PRSWAES	24	7/0.30	0.4	20.5	1.25	23	27.2	38.4	1277
0.5MM36PRSWAES	36	7/0.30	0.4	23.6	1.25	26.1	30.6	38.4	1622

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1.5mm<sup>2</sup>

Part No.	Pairs	Conductor No/Dia (mm)	Insulation thickness (mm)	Overall diameter over bedding (mm)	Steel wire Armour diameter (mm)	Overall diameter over armour (mm)	Overall Diameter (mm)	Conductor Resistance @ 20c Ohm/km	Approximate weight (kg/km)
1.5MM2PRSWAES	2	7/0.50	0.4	11	0.9	12.8	15.9	13.8	413
1.5MM4PRSWAES	4	7/0.50	0.4	12.1	0.9	13.9	17	13.8	532
1.5MM6PRSWAES	6	7/0.50	0.4	14.1	0.9	15.9	18.6	13.8	699
1.5MM8PRSWAES	8	7/0.50	0.4	15.2	0.9	17	20.2	13.8	805
1.5MM10PRSWAES	10	7/0.50	0.4	18.2	1.25	20.7	24	13.8	1136
1.5MM12PRSWAES	12	7/0.50	0.4	18.8	1.25	21.3	25.1	13.8	1252
1.5MM16PRSWAES	16	7/0.50	0.4	20.9	1.25	23.4	27.5	13.8	1477
1.5MM20PRSWAES	20	7/0.50	0.4	22.9	1.25	25.4	29.7	13.8	1718
1.5MM24PRSWAES	24	7/0.50	0.4	26.2	1.6	29.4	34	13.8	2236
1.5MM36PRSWAES	36	7/0.50	0.4	30.1	1.6	33.3	38.1	13.8	2864

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