

# ICON® Instrumentation Cables

Stock types



**The Quality Connection**

**LEONI**  
KERPEN

## Product range



- **Instrumentation- and control cables**
- **Thermocouple extension and compensating cables**
- **Power cables (low and medium voltage)**
- **Data- and Bus cables (copper and fiber optic)**
- **Telecommunication cables**
- **Mining cables**
- **Cables for special applications**

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EDISON

# 1. Introduction of standards and product programme



## The product programme

The product programme „Instrumentation Cable ICON®“ covers products which are based on the European standard EN 50288-7 and the US-American standards UL 13, UL 2250 and UL 1277.

This product programme gives extensive coverage to the requirements of the different Installation and Safety Regulations which are applied for measurement, control and monitoring systems in industrial plants. As a result the user has a product programme at his disposal for applications world wide.

## The standard EN 50288-7

The BS 5308 standard will have to be withdrawn by 31.08.2008 at the latest and is going to be replaced by EN 50288-7 standard.

### What was the situation until now?

The world-wide market for instrumentation cables is largely characterised by an immense number of different products – with a further rising tendency. This problem, and it's really a problem for all involved people, was mainly caused by a normative gap: a missing recognised standards for design, materials and tests.

Today the scene is dominated by a multitude of specifications with different rules and regulations and often uncoordinated references to standards to be applied.



In this way the 'instrumentation cables' are invented again and again with all corresponding consequences of loss of economic viability, clearness, rapidity, in summary of loss of efficiency in handling. The few existing national standards for instrumentation cables (eg, UK, France) are not suited as specification basis for the international scene. Tailor-made to its national market demands, they cover only a small fraction of the constructional and performance requirements of the international market.

The new European Standard EN 50288-7 for instrumentation cables, erected by the European Standardisation Organisation CENELEC and published in September 2005, is suited to solve this problem.

It describes: "Single and multi-element cables with copper conductors ... They may be individually and/or overall screened and optionally may incorporate armouring and/or moisture or environmental protection layers."

The constructional design options cover more or less the complete range of products worldwide completed by well-coordinated material and test standards.

The structure of this standard does not contain finished products, but it specifies the single cable elements with its permitted constructional variants as well as the respective characteristics demands.

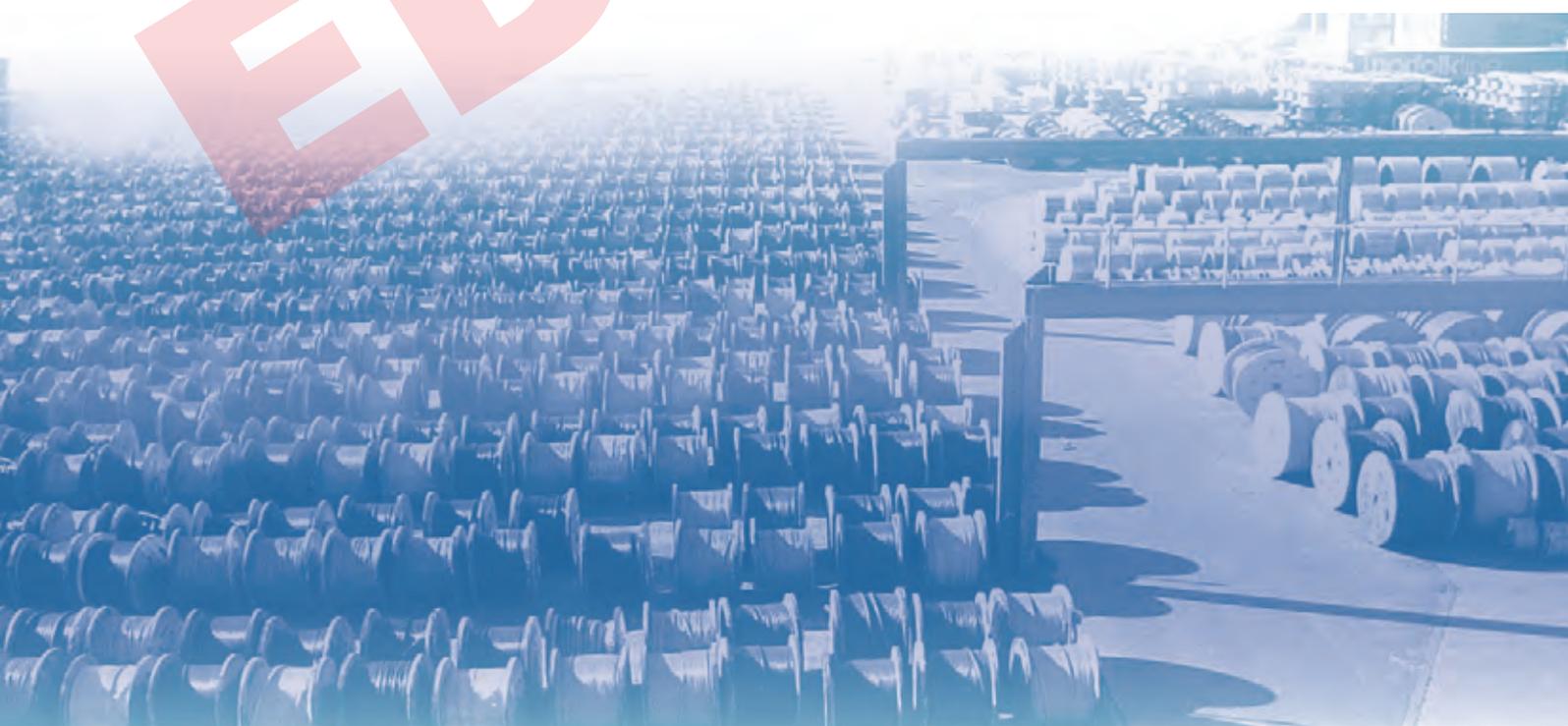
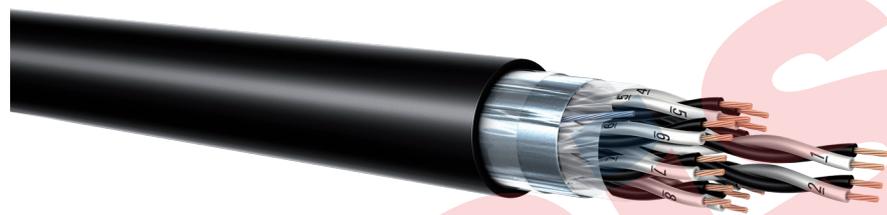
The application of this standard offers many chances to users, engineers and consultants such as manufacturers. Key improvements are:

- cost reduction
- clarity
- conclusiveness
- comparability
- rapidity

Thus, a conclusive, quality assured standardised work, closed unit is now available.

**Single & Multi-Pair, PE insulation, collective screen, PVC sheath**

RE-2Y(St)Y-fl



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi pair, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.  
Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; not for direct burial.

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.50 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, black
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
Min. bending radius:  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	outer sheath of PVC
-fl	with reduced flame propagation

**Electrical data at 20 °C**

		mm <sup>2</sup>	0.50	0.75	1.30
Conductor	nom.				
Conductor resistance	max.	Ω/km	36.7	25	14.2
Insulation resistance	min.	MΩ x km		5000	
Mutual capacitance	max.	nF/km	90		115
Operating voltage U <sub>rms</sub>		V		300	
Capacitance unbalance		pF/500 m		500	
Inductance	max.	mH/km		1	
L/R (ratio)	max.	µH/Ω	25	25	40
Test voltage U <sub>rms</sub> (core : core)		V		1500	
Test voltage U <sub>rms</sub> (core : screen)		V		1500	

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**
**EN 50288-7**  
**70 °C / 300 V**

Single &amp; Multi pair, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl**
**Geometrical data**

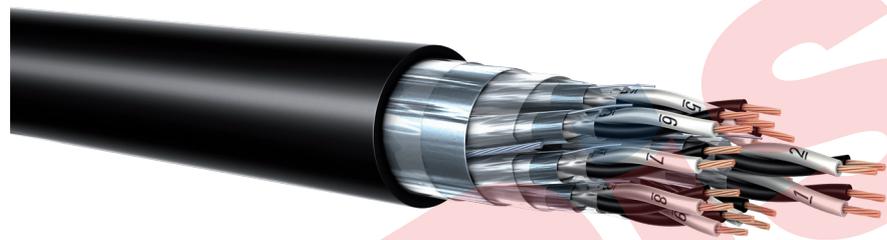
No. of elements	RT of insulation nom. mm	RT of outer sheath nom. mm	Overall diameter approx. mm	Cable weight approx. kg/km	Part. No. Colour black
<b>0.50 mm<sup>2</sup>/7</b>					
1	0.35	0.8	5.2	38	7279E001
2	0.35	0.9	7.6	67	7279E004
4	0.35	0.9	8.8	94	7279E007
<b>0.75 mm<sup>2</sup>/7</b>					
1	0.38	0.8	5.6	45	7279E031
2	0.38	0.9	8.5	83	7279E034
4	0.38	1.0	10.0	124	7279E037
<b>1.30 mm<sup>2</sup>/7</b>					
1	0.45	0.9	6.8	66	7279E091

RT = Radial Thickness

EDISON

**Multi-Pair,  
PE insulation, individual and collective screen, PVC sheath**

**RE-2Y(St)Y-fl PiMF**



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual & Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl PiMF**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.  
Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; not for direct burial.

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.50 mm <sup>2</sup> , 0.75 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Individual screen.....	24 µm aluminium PETP tape over solid tinned copper drain wire, 0.6 mm Ø, plastic tape under and above screen
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, black
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

**Temperature range:**  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
**Min. bending radius:**  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	outer sheath of PVC
-fl	with reduced flame propagation
PiMF	pair in metal foil

**Electrical data at 20 °C**

	nom.	mm <sup>2</sup>	0.50	0.75
Conductor	nom.	mm <sup>2</sup>	0.50	0.75
Conductor resistance	max.	Ω/km	36.7	25
Insulation resistance	min.	MΩ x km	5000	
Mutual capacitance	max.	nF/km	115	
Operating voltage U <sub>rms</sub>		V	300	
Inductance	max.	mH/km	1	
L/R (ratio)	max.	µH/Ω	25	
Test voltage U <sub>rms</sub> (core : core)		V	1500	
Test voltage U <sub>rms</sub> (core : screen)		V	1500	

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual & Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl PiMF**

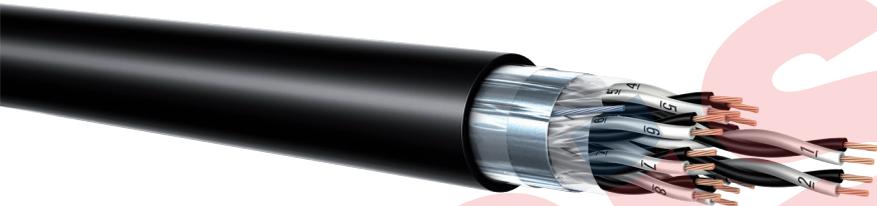
<b>Geometrical data</b>					
<b>No. of elements</b>	<b>RT of insulation nom. mm</b>	<b>RT of outer sheath nom. mm</b>	<b>Overall diameter approx. mm</b>	<b>Cable weight approx. kg/km</b>	<b>Part. No. Colour black</b>
<b>0.50 mm<sup>2</sup>/7</b>					
2	0.35	0.9	8.7	81	7279E166
4	0.35	1.0	10.2	123	7279E169
<b>0.75 mm<sup>2</sup>/7</b>					
2	0.38	1.0	9.7	102	7279E196
4	0.38	1.0	11.2	149	7279E199

RT = Radial Thickness

EDISON

**Single & Multi-Pair,  
PE insulation, collective screen, PVC sheath reinforced**

RE-2Y(St)Yv-fl



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi pair, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Yv-fl**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial. 1)

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.50 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, reinforced, black; blue for intrinsically safe systems
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
Min. bending radius:  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Yv	outer sheath of PVC, reinforced
-fl	with reduced flame propagation

**Electrical data at 20 °C**

			0.50	0.75	1.30
Conductor	nom.	mm <sup>2</sup>	0.50	0.75	1.30
Conductor resistance	max.	Ω/km	36.7	25	14.2
Insulation resistance	min.	MΩ x km	5000		
Operating voltage U <sub>rms</sub>		V	300		
Mutual capacitance	max.	nF/km	115	90	85
Capacitance unbalance		pF/500 m	500		
Inductance	max.	mH/km	1		
L/R (ratio)	max.	µH/Ω	25	25	40
Test voltage U <sub>rms</sub> (core : core)		V	1500		
Test voltage U <sub>rms</sub> (core : screen)		V	1500		

<sup>1)</sup> For direct burial: please note local and national regulations

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi pair, PE-Insulation, Collective Screen, Armour, PVC Sheath

**RE-2Y(St)YSWAY-fl**

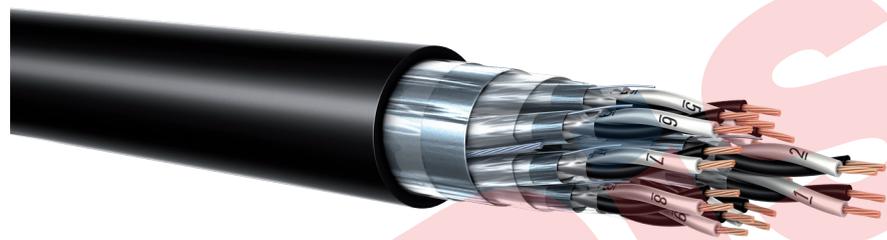
Geometrical data									
No. of elements	RT of insulation	RT of inner sheath	Ø over inner sheath	Ø of armour wire	Ø over armour	RT of outer sheath	Overall diameter	Cable weight	Part. No.
	nom. mm	nom. mm	approx. mm	nom. mm	approx. mm	nom. mm	approx. mm	approx. kg/km	Colour black
<b>0.75 mm<sup>2</sup>/7</b>									
1	0.38	1.0	6.0	1.00	7.0	1.3	10.0	196	7093E031
2	0.38	1.0	8.0	1.00	10.0	1.4	13.1	299	7093E034
4	0.38	1.0	10.0	1.00	12.0	1.4	14.6	372	7093E037
8	0.38	1.0	13.0	1.00	15.0	1.5	17.6	535	7093E043
12	0.38	1.0	15.0	1.00	17.0	1.5	19.9	673	7093E049
16	0.38	1.0	17.0	1.00	19.0	1.6	22.3	826	7093E052
24	0.38	1.0	21.0	1.00	23.0	1.7	26.7	1230	7093E058
<b>1.30 mm<sup>2</sup>/7</b>									
1	0.45	1.0	7.0	1.00	9.0	1.3	11.2	242	7093E091
2	0.45	1.0	10.0	1.00	12.0	1.4	15.0	384	7093E094
4	0.45	1.0	12.0	1.00	14.0	1.4	16.6	479	7093E097
8	0.45	1.0	16.0	1.00	18.0	1.5	20.5	721	7093E103
12	0.45	1.0	19.0	1.00	21.0	1.6	24.6	1093	7093E109
24	0.45	2.0	26.0	1.00	28.0	1.8	32.0	1779	7093E118

RT = Radial Thickness

EDISON

**Multi-Pair,  
PE insulation, individual and collective screen, PVC sheath reinforced**

**RE-2Y(St)Yv-fl PiMF**



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual & Collective Screen, PVC Sheath

**RE-2Y(St)Yv-fl PiMF**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial. 1)

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.50 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Individual screen.....	24 µm aluminium PETP tape over solid tinned copper drain wire, 0.6 mm Ø, plastic tape under and above screen
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, reinforced, black; blue for intrinsically safe systems
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
Min. bending radius:  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Yv	outer sheath of PVC, reinforced
-fl	with reduced flame propagation
PiMF	pair in metal foil

**Electrical data at 20 °C**

			0.50	0.75	1.30
Conductor	nom.	mm <sup>2</sup>	0.50	0.75	1.30
Conductor resistance	max.	Ω/km	36.7	25	14.2
Insulation resistance	min.	MΩ x km		5000	
Operating voltage U <sub>rms</sub>		V		300	
Mutual capacitance	max.	nF/km		115	
Inductance	max.	mH/km		1	
L/R (ratio)	max.	µH/Ω	25	25	40
Test voltage U <sub>rms</sub> (core : core)		V		1500	
Test voltage U <sub>rms</sub> (core : screen)		V		1500	

<sup>1)</sup> For direct burial: please note local and national regulations

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual & Collective Screen, PVC Sheath

**RE-2Y(St)Yv-fl PiMF**

**Geometrical data**

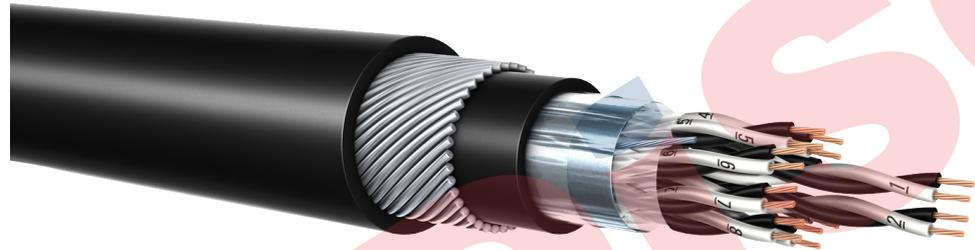
No. of elements	RT of insulation nom. mm	RT of outer sheath nom. mm	Overall diameter approx. mm	Cable weight approx. kg/km	Part. No. Colour black
<b>0.50 mm<sup>2</sup>/7</b>					
2	0.35	1.8	10.5	128	7338E166
4	0.35	1.8	11.8	169	7338E169
8	0.35	1.8	14.5	268	7338E178
12	0.35	1.8	16.9	354	7338E184
16	0.35	1.8	19.0	442	7338E187
24	0.35	1.8	22.3	615	7338E193
<b>0.75 mm<sup>2</sup>/7</b>					
2	0.38	1.8	11.3	146	7338E196
4	0.38	1.8	12.8	199	7338E199
8	0.38	1.8	15.8	322	7338E208
12	0.38	1.8	18.6	430	7338E214
16	0.38	1.8	20.8	541	7338E217
24	0.38	1.8	24.6	762	7338E223
<b>1.30 mm<sup>2</sup>/7</b>					
2	0.45	1.8	13.0	191	7338E256
4	0.45	1.8	14.8	270	7338E259
8	0.45	1.8	18.6	454	7338E268
12	0.45	1.8	21.9	619	7338E274
16	0.45	1.8	24.7	792	7338E277
24	0.45	1.8	29.4	1125	7338E283

RT = Radial Thickness

EDISON

**Single & Multi-Pair,  
PE insulation, collective screen, PVC sheath, Armour**

RE-2Y(St)YSWAY-fl



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi pair, PE-Insulation, Collective Screen, Armour, PVC Sheath

**RE-2Y(St)YSWAY-fl**

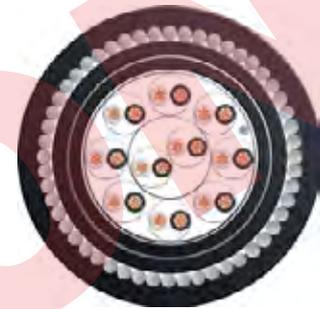
**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial.

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.75 mm <sup>2</sup> , 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Inner sheath.....	polyvinyl chloride PVC, black
Armour.....	galvanized round steel wires
Outer sheath.....	polyvinyl chloride PVC, black; blue for intrinsically safe systems
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
Min. bending radius:  
10 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	inner sheath of PVC
SWA	steel wire armour
Y	outer sheath of PVC
-fl	with reduced flame propagation

**Electrical data at 20 °C**

			0.75	1.30
Conductor	nom.	mm <sup>2</sup>		
Conductor resistance	max.	Ω/km	25	14.2
Insulation resistance	min.	MΩ x km	5000	
Operating voltage U <sub>rms</sub>		V	300	
Mutual capacitance	max.	nF/km	75	85
Capacitance unbalance		pF/500 m	500	
Inductance	max.	mH/km	1	
L/R (ratio)	max.	µH/Ω	25	40
Test voltage U <sub>rms</sub> (core : core)		V	1500	
Test voltage U <sub>rms</sub> (core : screen)		V	1500	

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**
**EN 50288-7**  
**70 °C / 300 V**

Single &amp; Multi pair, PE-Insulation, Collective Screen, Armour, PVC Sheath

**RE-2Y(St)YSWAY-fl**
**Geometrical data**

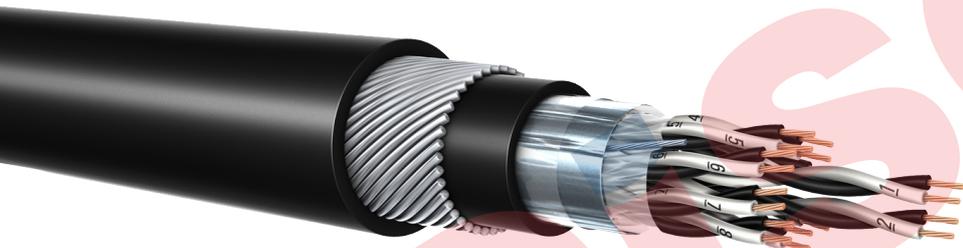
No. of elements	RT of insulation	RT of inner sheath	Ø over inner sheath	Ø of armour wire	Ø over armour	RT of outer sheath	Overall diameter	Cable weight	Part. No.
	nom. mm	nom. mm	approx. mm	nom. mm	approx. mm	nom. mm	approx. mm	approx. kg/km	Colour black
<b>0.75 mm<sup>2</sup>/7</b>									
1	0.38	1.0	6.0	1.00	7.0	1.3	10.0	196	7093E031
2	0.38	1.0	8.0	1.00	10.0	1.4	13.1	299	7093E034
4	0.38	1.0	10.0	1.00	12.0	1.4	14.6	372	7093E037
8	0.38	1.0	13.0	1.00	15.0	1.5	17.6	535	7093E043
12	0.38	1.0	15.0	1.00	17.0	1.5	19.9	673	7093E049
16	0.38	1.0	17.0	1.00	19.0	1.6	22.3	826	7093E052
24	0.38	1.0	21.0	1.00	23.0	1.7	26.7	1230	7093E058
<b>1.30 mm<sup>2</sup>/7</b>									
1	0.45	1.0	7.0	1.00	9.0	1.3	11.2	242	7093E091
2	0.45	1.0	10.0	1.00	12.0	1.4	15.0	384	7093E094
4	0.45	1.0	12.0	1.00	14.0	1.4	16.6	479	7093E097
8	0.45	1.0	16.0	1.00	18.0	1.5	20.5	721	7093E103
12	0.45	1.0	19.0	1.00	21.0	1.6	24.6	1093	7093E109
24	0.45	2.0	26.0	1.00	28.0	1.8	32.0	1779	7093E118

RT = Radial Thickness

EDISON

**Multi-Pair,  
PE insulation, individual and collective screen, PVC sheath, Armour**

RE-2Y(St)YSWAY-fl PiMF



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual & Collective Screen, Armour, PVC Sheath

**RE-2Y(St)YSWAY-fl PiMF**

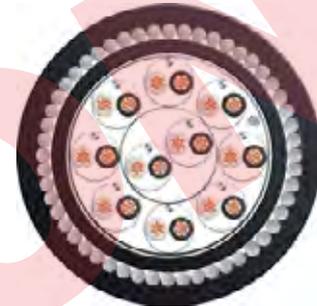
**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial.

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 0.75 mm <sup>2</sup> , 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white, continuously numbered on white core (1, 2..) for multipairs
Individual screen.....	24 µm aluminium PETP tape over solid tinned copper drain wire, 0.6 mm Ø, plastic tape under and above screen
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Inner sheath.....	polyvinyl chloride PVC, black
Armour.....	galvanized round steel wires
Outer sheath.....	polyvinyl chloride PVC, black
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

**Temperature range:**  
-30 °C up to 70 °C (during operation)  
-5 °C up to 50 °C (during installation)  
**Min. bending radius:**  
10 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	inner sheath of PVC
SWA	steel wire armour
Y	outer sheath of PVC
-fl	with reduced flame propagation
PiMF	pair in metal foil

**Electrical data at 20 °C**

			0.75	1.30
Conductor	nom.	mm <sup>2</sup>		
Conductor resistance	max.	Ω/km	25	14.2
Insulation resistance	min.	MΩ x km	5000	
Operating voltage U <sub>rms</sub>		V	300	
Mutual capacitance	max.	nF/km	115	
Inductance	max.	mH/km	1	
L/R (ratio)	max.	µH/Ω	25	40
Test voltage U <sub>rms</sub> (core : core)		V	1500	
Test voltage U <sub>rms</sub> (core : screen)		V	1500	

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**
**EN 50288-7**  
**70 °C / 300 V**

Multi-Pair, PE-Insulation, Individual &amp; Collective Screen, Armour, PVC Sheath

**RE-2Y(St)YSWAY-fi PiMF**
**Geometrical data**

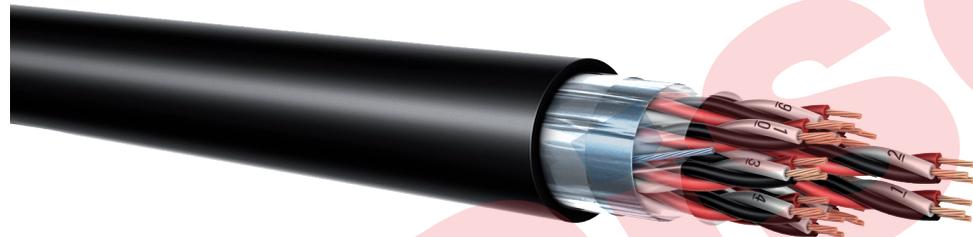
No. of elements	RT of insulation	RT of inner sheath	Ø over inner sheath	Ø of armour wire	Ø over armour	RT of outer sheath	Overall diameter	Cable weight	Part. No.
	nom. mm	nom. mm	approx. mm	nom. mm	approx. mm	nom. mm	approx. mm	approx. kg/km	Colour black
<b>0.75 mm<sup>2</sup>/7</b>									
2	0.38	1.0	10.0	1.00	12.0	1.4	14.3	344	7093E196
4	0.38	1.0	11.0	1.00	13.0	1.4	15.8	428	7093E199
8	0.38	1.0	14.0	1.00	16.0	1.5	19.2	621	7093E208
12	0.38	1.0	17.0	1.00	20.0	1.6	23.1	930	7093E214
16	0.38	1.0	20.0	1.00	22.0	1.7	25.7	1129	7093E217
24	0.38	2.0	24.0	1.00	26.0	1.8	30.1	1496	7093E223
<b>1.30 mm<sup>2</sup>/7</b>									
2	0.45	1.0	11.0	1.00	13.0	1.4	16.0	436	7093E256
4	0.45	1.0	13.0	1.00	15.0	1.5	18.2	552	7093E259
8	0.45	1.0	18.0	1.00	20.0	1.6	23.3	973	7093E268
12	0.45	1.0	21.0	1.00	24.0	1.7	27.0	1251	7093E274
24	0.45	2.0	29.0	2.00	32.0	2.0	36.4	2264	7093E283

RT = Radial Thickness

EDISON

**Single & Multi-triple, PE insulation, collective screen**

RE-2Y(St)Y-fl



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi-Triple, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; not for direct burial.

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white / red, continuously numbered on white core (1, 2..) for multitruples
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, black
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C  
(during operation)  
-5 °C up to 50 °C  
(during installation)  
Min. bending radius:  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	outer sheath of PVC
-fl	with reduced flame propagation

**Electrical data at 20 °C**

Conductor	nom.	mm <sup>2</sup>	1.30
Conductor resistance	max.	Ω/km	14.2
Insulation resistance	min.	MΩ x km	5000
Mutual capacitance	max.	nF/km	115
Operating voltage U <sub>rms</sub>		V	300
Inductance	max.	mH/km	1
L/R (ratio)	max.	µH/Ω	40
Test voltage U <sub>rms</sub> (core : core)		V	1500
Test voltage U <sub>rms</sub> (core : screen)		V	1500

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi-Triple, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Y-fl**

**Geometrical data**

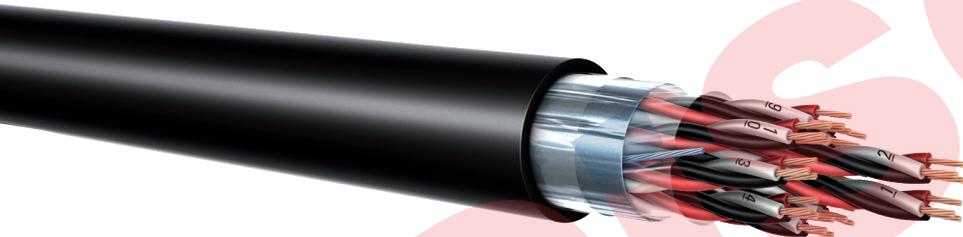
No. of elements	RT of insulation nom. mm	RT of outer sheath nom. mm	Overall diameter approx. mm	Cable weight approx. kg/km	Part. No. Colour black
<b>1.30 mm<sup>2</sup>/7</b>					
1	0.45	0.9	7.2	88	7279E415

RT = Radial Thickness

EDISON

**Single & Multi-triple,  
PE insulation, collective screen, PVC sheath reinforced**

RE-2Y(St)Yv-fl



**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi-Triple, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Yv-fl**

**Application**

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial. 1)

**Construction**

Conductor.....	plain annealed copper, 7 stranded, size, 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white / red, continuously numbered on white core (1, 2..) for multitruples
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Outer sheath.....	polyvinyl chloride PVC, reinforced, black; blue for intrinsically safe systems
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



**Technical data**

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C  
(during operation)  
-5 °C up to 50 °C  
(during installation)  
Min. bending radius:  
7.5 x cable-Ø

**Abbreviations**

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Yv	outer sheath of PVC, reinforced
-fl	with reduced flame propagation

**Electrical data at 20 °C**

Conductor	nom.	mm <sup>2</sup>	1.30
Conductor resistance	max.	Ω/km	14.2
Insulation resistance	min.	MΩ x km	5000
Mutual capacitance	max.	nF/km	115
Operating voltage U <sub>rms</sub>		V	300
Inductance	max.	mH/km	1
L/R (ratio)	max.	µH/Ω	40
Test voltage U <sub>rms</sub> (core : core)		V	1500
Test voltage U <sub>rms</sub> (core : screen)		V	1500

<sup>1)</sup> For direct burial: please note local and national regulations

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single & Multi-Triple, PE-Insulation, Collective Screen, PVC Sheath

**RE-2Y(St)Yv-fl**

**Geometrical data**

No. of elements	RT of insulation nom. mm	RT of outer sheath nom. mm	Overall diameter approx. mm	Cable weight approx. kg/km	Part. No. Colour black
<b>1.30 mm<sup>2</sup>/7</b>					
1	0.45	1.8	9.0	124	7338E415

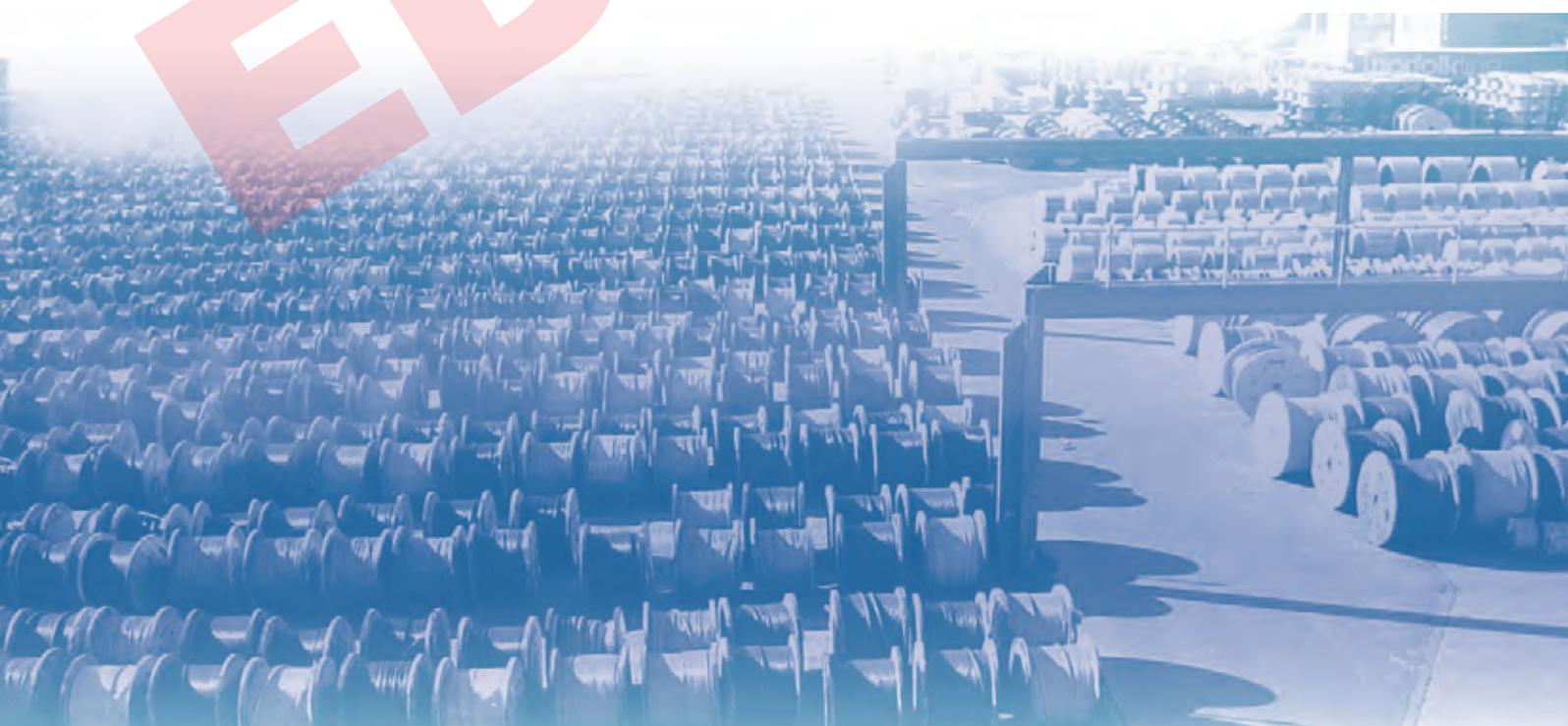
RT = Radial Thickness

EDISON

EDISON

**Single & Multi-triple,  
PE insulation, collective screen, PVC sheath, armour**

**RE-2Y(St)YSWAY-fl**



## ICON<sup>®</sup> Instrumentation Cable Flame Retardant, Sunlight Resistant

**EN 50288-7**  
**70 °C / 300 V**

Single-Triple, PE-Insulation, Collective Screen, Armour, PVC Sheath

### RE-2Y(St)YSWAY-fl

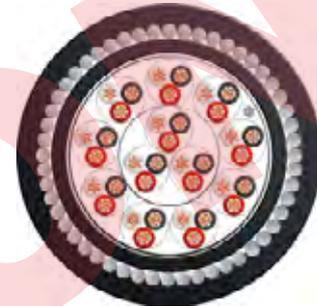
#### Application

For transmission of analogue and digital signals in instrument and control systems; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e.g. the public mains electricity supply.

Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial.

#### Construction

Conductor.....	plain annealed copper, 7 stranded, size, 1.30 mm <sup>2</sup>
Insulation.....	polyethylene PE
Colour code.....	black / white / red
Wrapping.....	at least 1 layer of plastic tape
Collective screen.....	24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>
Inner sheath.....	polyvinyl chloride PVC, black
Armour.....	galvanized round steel wires
Outer sheath.....	polyvinyl chloride PVC, black; blue for intrinsically safe systems
Cable marking.....	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking



#### Technical data

Flame propagation	
Test on single cable	IEC 60332-1-2
Test on bunched cables	IEC 60332-3-24 (Cat. C)
Sunlight resistance	UL 1581 section 1200
Oil resistance - 1	ICEA S-82-552

Temperature range:  
-30 °C up to 70 °C  
(during operation)  
-5 °C up to 50 °C  
(during installation)  
Min. bending radius:  
10 x cable-Ø

#### Abbreviations

RE-	Instrumentation Cable
2Y	insulation of PE
(St)	collective screen
Y	inner sheath of PVC
SWA	steel wire armour
Y	outer sheath of PVC
-fl	with reduced flame propagation

#### Electrical data at 20 °C

Conductor	nom.	mm <sup>2</sup>	1.30
Conductor resistance	max.	Ω/km	14.2
Insulation resistance	min.	MΩ x km	5000
Mutual capacitance	max.	nF/km	115
Operating voltage U <sub>rms</sub>		V	300
Inductance	max.	mH/km	1
L/R (ratio)	max.	µH/Ω	40
Test voltage U <sub>rms</sub> (core : core)		V	1500
Test voltage U <sub>rms</sub> (core : screen)		V	1500

**ICON<sup>®</sup> Instrumentation Cable**  
**Flame Retardant, Sunlight Resistant**

**EN 50288-7**  
**70 °C / 300 V**

Single-Triple, PE-Insulation, Collective Screen, Armour, PVC Sheath

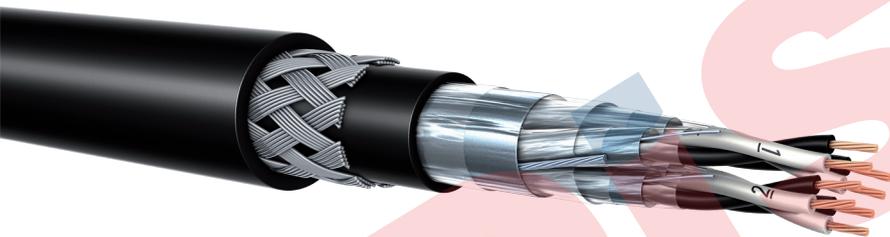
**RE-2Y(St)YSWAY-fi**

Geometrical data									
No. of elements	RT of insulation	RT of inner sheath	Ø over inner sheath	Ø of armour wire	Ø over armour	RT of outer sheath	Overall diameter	Cable weight	Part. No.
	nom. mm	nom. mm	approx. mm	nom. mm	approx. mm	nom. mm	approx. mm	approx. kg/km	Colour black
<b>1.30 mm<sup>2</sup>/7</b>									
1	0.45	1.0	7.0	1.00	9.0	1.3	11.6	273	7093E415

RT = Radial Thickness

EDISON

**Tables, elaboration of terms and concepts**



EDISON



EDISON

**Table 1: Conversion of General Units**

Length				Area			
1 mil	=	0.0254	mm	1 circ.mil (CM)	=	0.0005067	mm <sup>2</sup>
1 inch (in <sup>4</sup> )	=	25.4	mm	1 MCM	=	0.5067	mm <sup>2</sup>
1 foot (ft')	=	0.305	m	1 square inch (in <sup>2</sup> )	=	645.16	mm <sup>2</sup>
1 yard (yd)	=	0.914	m	1 square foot (ft <sup>2</sup> )	=	0.0929	m <sup>2</sup>
1 mile (mi.)	=	1.61	km	1 square yard (yd <sup>2</sup> )	=	0.836	m <sup>2</sup>
1 statute mile (mi.)	=	1.61	km	1 square mile (sq.mi.)	=	2.59	km <sup>2</sup>
1 intern naut. mile (sm)	=	1.852	km				
Volume							
1 cubic inch (m <sup>3</sup> )	=	16.39	cm <sup>3</sup>				
1 cubic foot (ft <sup>3</sup> )	=	0.0283	m <sup>3</sup>				
1 cubic yard (yd <sup>3</sup> )	=	0.765	m <sup>3</sup>				
1 barrel	=	159	l				
1 US gallon (US gal)	=	3.79	l				
1 UK gallon (UK gal)	=	4.55	l				
Force				Mass			
1 poundal (pdl)	=	0.138	N	1 ounce (oz)	=	0.0284	kg
1 pound-force (lbf)	=	4.448	N	1 pound (lb)	=	0.454	kg
1 Brit.ton-force	=	9964	N	1 Brit.ton (long ton)	=	1016	kg
				1 US ton (short ton)	=	907	kg
Power				Energy			
1 horsepower (H.P.)	=	0.746	kW	1 Brit.therm.unit (B U)	=	1055	J
				1 Brit.therm.unit	=	0.000293	kWh
Pressure							
1 bf/in <sup>2</sup> (psi)	=	0.06895	bar	=	6.895	N/m <sup>2</sup>	
1 lbf/ft <sup>2</sup>	=	0.000479	bar	=	47.9	N/m <sup>2</sup>	
1 lbf/yd <sup>2</sup>	=	0.0000532	bar	=	5.32	N/m <sup>2</sup>	
1 lbf/in <sup>2</sup> (psi)	=	0.703	kp/cm <sup>2</sup>	=	0.0703	at	
Electrical Unit per Length							
1 µf per mile	=	0.62	µF/km				
1 MΩ per mile	=	1.61	MΩ x km				
1 decibel per mile	=	0.62	dB/km				
1 pf per foot	=	3.28	pF/m				
1 decibel per 1000 ft	=	3.28	dB/km				
1 Ω per 1000 ft	=	3.28	Ω/km				
Abbreviations for Multiples and Submultiples							
Tera	T	10 <sup>12</sup>	billion *	Piko	p	10 <sup>12</sup>	billionth *
Giga	G	10 <sup>9</sup>	milliard *	Nano	n	10 <sup>9</sup>	millionth *
Mega	M	10 <sup>6</sup>	million	Mikro	µ	10 <sup>6</sup>	millionth
Kilo	k	10 <sup>3</sup>	thousand	Milli	m	10 <sup>3</sup>	thousanth
Hekto	h	10 <sup>2</sup>	hundred	Zenti	c	10 <sup>2</sup>	hundredth
Deka	da	10 <sup>1</sup>	ten	Dezi	d	10 <sup>1</sup>	tenth
*In the United States 10 <sup>9</sup> means a billion and 10 <sup>12</sup> means a trillion							

## Table 2: Conductor Comparison AWG - Metric

Solid plain annealed copper conductors							
Conductor Size				Electrical Resistance <sup>2)</sup>			
AWG	Metric <sup>1)</sup> (mm <sup>2</sup> )	No. of wires	Conductor-Ø (mm)	EN 50288-7 <sup>3)</sup>		UL 13 <sup>4)</sup>	
				(Ω/km)	(Ω/1000 ft)	(Ω/km)	(Ω/1000 ft)
30	0.051	1	0.254	---	---	361	110
28	0.081	1	0.320	---	---	228	69.3
26	0.128	1	0.404	---	---	154	46.9
24	0.205	1	0.511	---	---	97.6	29.7
22	0.324	1	0.643	---	---	56.3	17.2
---	0.5	1	0.8	36.8	11.2	---	---
20	0.517	1	0.813	---	---	35.2	10.7
---	0.75	1	1.0	25.0	7.6	---	---
18	0.82	1	1.02	---	---	22.3	6.8
---	1	1	1.13	18.5	5.6	---	---
16	1.3	1	1.29	---	---	14.0	4.3
---	1.5	1	1.37	12.3	3.76	---	---
14	2.1	1	1.63	---	---	8.79	2.67
---	2.5	1	1.76	7.56	2.31	---	---
12	3.3	1	2.05	---	---	5.52	1.68
---	4	1	2.26	4.70	1.43	---	---

Stranded plain annealed copper conductors							
Conductor Size				Electrical Resistance <sup>2)</sup>			
AWG	Metric <sup>1)</sup> (mm <sup>2</sup> )	No. of wires	Conductor-Ø (mm)	EN 50288-7 <sup>3)</sup>		UL 13 <sup>4)</sup>	
				(Ω/km)	(Ω/1000 ft)	(Ω/km)	(Ω/1000 ft)
24	0.205	7	0.579	---	---	91.1	27.8
22	0.327	7	0.729	---	---	57.6	17.6
---	0.5	7	0.9	36.8	11.2	---	---
20	0.517	7	0.919	---	---	35.8	11.0
---	0.75	7	1.11	25.0	7.6	---	---
18	0.82	7	1.16	---	---	22.8	6.9
---	1	7	1.29	18.5	5.6	---	---
16	1.3	7	1.46	---	---	14.2	4.36
---	1.5	7	1.59	12.3	3.76	---	---
14	2.1	7	1.85	---	---	8.94	2.72
---	2.5	7	2.01	7.56	2.31	---	---
12	3.3	7	2.32	---	---	5.63	1.72
---	4	7	2.58	4.70	1.43	---	---

<sup>1)</sup> Sizes acc. to EN 50288-7 printed in blue

<sup>2)</sup> The value for the electrical resistance is given for 20 °C (68.0 °F)

<sup>3)</sup> The value for the electrical resistance acc. to EN 50288-7 is for the finished cables with multipairs/triples

<sup>4)</sup> The value for the electrical resistance acc. to UL 13 is calculated for "one pair/triple and an assembly of pairs/triples"

**Table 3:****Color Code of Instrumentation and Control Cables acc. to EN 50288-7****Colour code of standardized product programme**

Cabling element Rated voltage	Core <sup>1)</sup>	Pair <sup>2)</sup>	Triple <sup>2)</sup>
300 V	--	black/white  continuously numbered on white core 1, 2, 3.. for multi-element cables, starting with 1 in the centre	black/white/red
500 V	black  continuously numbered 1, 2, 3 ..for multi-core cables, starting with 1 in the centre	black/blue  continuously numbered on blue core 1, 2, 3.. for multi-element cables, starting with 1 in the centre	black/blue/red

<sup>1)</sup> If specified green-yellow core principally applied as last element in the outer layer

<sup>2)</sup> Identification scheme for elements with and without individual screen

**Other color codes on request**

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## Table 4: Common test methods for cables under fire conditions

### Reaction to Fire - IEC and corresponding European Standards

IEC Standard		CENELEC Standard	
No.	Title	No.	Title
IEC 60332	Test on electric and optical cables under fire conditions	EN 60332-	Test on electrical and optical cables under fire conditions Test for vertical flame propagation for a single insulated wire or cable
-1-1	Test on a single vertical insulated wire or cable - Apparatus	1-1	- Apparatus
-1-2	- Procedure	1-2	- Procedure for 1 kV pre-mixed flame
-1-3	- Procedure for determination of flaming droplets / particles	1-3	- Procedure for determination of flaming droplets / particles
IEC 60332	Tests on electric cables under fire conditions	EN 60332-	Test for vertical flame propagation for a single small insulated wire or cable
-2-1	Test on a single vertical insulated wire or cable - Apparatus	2-1	- Apparatus
-2-2	Test on a single vertical insulated wire or cable - Procedure	2-2	- Procedure for diffusion flame
IEC 60332-3	Tests on bunched wires or cables	EN 50266	Test for vertical flame spread of vertically mounted bunched wires o. cables
-10	Apparatus	-1	Apparatus
-21	Procedures Category A F/R	-2-1	Procedures - Category A F/R
-22	Procedures Category A	-2-2	Procedures - Category A
-23	Procedures Category B	-2-3	Procedures - Category B
-24	Procedures Category C	-2-4	Procedures - Category C
-25	Procedures - small cables -	-2-5	Procedures - small cables -
IEC 60754	Tests on gases evolved during combustion of materials from cables	EN 50267	Tests on gases evolved during combustion of materials from cables
-1	Determination of amount of halogen acid gas	-1	Apparatus
-2	Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity	-2-1	Procedures - Determination of the amount of halogen acid gas
		-2-2	Procedures - Determination of degree of acidity of gases for materials by measuring pH and conductivity
		-2-3	Procedures - Determination of degree of acidity of gases for cables by determination of the weighted average of pH and conductivity
IEC 61034	Measurement of smoke density of cables burning under defined conditions	EN 61034	Measurement of smoke density of cables burning under defined conditions
-1	Test apparatus	-1	Apparatus
-2	Test procedure and requirements	-2	Test procedure and requirements

### Resistance to fire (IEC 60 331)

IEC Standard		CENELEC Standard	
No.	Title	No.	Title
IEC 60331	<b>Tests for electric cables under fire conditions – Circuit Integrity</b>		(under consideration)
-11	Apparatus – Fire alone at temperature of at least 750 °C		
-21	Procedures and requirements – Cables of rated voltage up to and including 0,6/1 kV		
-22	Procedures and requirements – Cables of rated voltage greater than 1 kV (under consideration)		
-23	Procedures and requirements – Electric data cables		
-25	Procedures and requirements – Optical fibres cables		

# Identification of Instrumentation and Thermocouple Cables

## Type Designations of LEONI Kerpen's Instrumentation- and Thermocouple Cable read as follows:

- Type abbreviation code
- No. of cabling elements
- Type of cabling element
- Conductor size in mm<sup>2</sup> (stranded conductors) or conductor diameter in mm (solid conductors)

followed by (where and when applicable):

- Type of conductor material (for Thermocouple cable only, see Table 1)
- Abbreviation sign for cables with Circuit Integrity Properties
- Individual screening of pairs and triples resp.
- Rated Voltage
- Standard

## Abbreviation Codes

### ■ Cable Type

- RE- Instrumentation and Instrumentation Control Cable resp.
- RT- Thermocouple Extension or Compensating Cable

### ■ Metal cladding of conductor

- v Copper conductor, tinned

### ■ Insulation and/or sheath materials

- Y Insulation, inner or outer sheath of Polyvinylchloride (PVC)
- Yw Insulation, inner or outer sheath of heat resistant Polyvinylchloride (PVCw)
- Yv Outer sheath of Polyvinylchloride of increased thickness
- 2Y Insulation, inner or outer sheath of Polyethylene (PE)
- 2X Insulation of crosslinked Polyethylene (XLPE)
- H Inner or outer sheath of halogen-free, flame retardant compound (LSZH)
- 2G Insulation of silicone rubber (SiR)
- 4Y Covering of Polyamide (Nylon)

### ■ Screening

- (ST) Static screen of Aluminium laminated plastic tape
- (L) Longitudinally applied Aluminium foil, one or both sides plastic coated
- C Braid of tinned or untinned copper wires over cable core
- K Wrapping of copper foils
- PiMF Pair in Metal Foil
- TiMF Triple in Metal Foil
- (C) Braid of tinned or untinned copper wires over single cabling element

### ■ Metal sheath

- M Sheath of lead
- Mz Sheath of lead alloy

### ■ Armour

- SWA Galvanized round steel wires
- RG Galvanized round steel wires with counter helix of galvanized steel tape
- FG Galvanized flat steel wires with counter helix of galvanized steel tape
- B Double layer of galvanized steel tapes
- Q Braid of galvanized round steel wires

- **Other properties**

- CI Circuit Integrity (Fire resistant)
- fl Increased flame retardancy; requirements for IEC 60332-3-24 (cat.C) fulfilled <sup>1)</sup>
- F Cable core petrojelly filled

### Type of Cabling Elements

The type of cabling elements are indicated by figures resp. by figures with an additional information for individual screened cabling elements

- Core no figure
- Pair 2
- Triple 3
- Individual screened pair PiMF
- Individual screened triple TiMF

### Indication Examples:

- Instrumentation cable RE, 24 triples 3, conductor size 1.3 mm<sup>2</sup>, insulation of PE 2Y, individual TiMF and overall screen (St), inner sheath of PVC Y, lead sheath M, inner sheath of PVC Y, steel wire armour SWA, outer sheath of PVC Y-fl, rated voltage 300 V, standard EN 50288-7

RE-2Y(St)YMYSWAY-fl 24 x 3 x 1.3 mm<sup>2</sup> TiMF 300 V EN 50288-7

- Thermocouple extension RT-, 8 pairs 2, conductor diameter 0,8 mm, conductor material KX, insulation of heat resistant PVC Yw, overall screen (St), inner sheath of heat resistant PVC Yw, steel wire armour SWA, outer sheath of heat resistant PVC Yw, rated voltage 300 V, standard EN 50288-7

RT-Yw(St)YwSWAYw-fl 8 x 2 x 0.8 mm KX 300 V EN 50288-7

- Instrumentation control cable RE-, halogen-free with Circuit Integrity CI, 8 cores, conductor size 2.5 mm<sup>2</sup>, insulation of XLPE 2X, overall screen (St), outer sheath of halogen-free, flame retardant compound H, rated voltage 500 V, standard EN 50288-7

RE-2X(St)H 8 x 2.5 mm<sup>2</sup> CI 500 V EN 50288-7

- Instrumentation cable RE, 12 pairs 2, conductor size 1.5 mm<sup>2</sup>, insulation of XLPE 2X, individual screen PiMF, Multi layer sheath (L)2Y4Y, steel wire armour SWA, outer sheath of PE 2Y, rated voltage 300 V, standard EN 50288-7

RE-2X(L)2Y4YSWA2Y 12 x 2 x 1.5 mm<sup>2</sup> PiMF 300 V EN 50288-7

- Instrumentation cable RE, 24 triples 3, conductor size AWG 20/7, insulation of heat resistant PVC Yw, individual screen TiMF and overall shield (ST), outer sheath of heat resistant PVCw Yw, rated voltage 300 V standard UL 13

RE-Yw(ST)Yw-fl 24 x 3 x AWG 20/7 TiMF 300 V UL 13

<sup>1)</sup> This property will be indicated on the outer sheath of PVC-sheathed cables with the marking RP

## Table 5: Stock types - part numbers

Part Number		Type	Size		Overall diameter	Cable weight
Colour outer sheath					approx. mm	approx. kg/km
black	blue					
<b>Single &amp; Multi-pair, PE insulation, collective screen, PVC sheath</b>						
7279E001	7279D001	RE-2Y(ST)Y-fl	1 x 2 x 0,5 mm <sup>2</sup> /7		5.2	38
7279E004	7279D004	RE-2Y(ST)Y-fl	2 x 2 x 0,5 mm <sup>2</sup> /7		7.6	67
7279E007	7279D007	RE-2Y(ST)Y-fl	4 x 2 x 0,5 mm <sup>2</sup> /7		8.8	94
7279E031	7279D031	RE-2Y(ST)Y-fl	1 x 2 x 0,75 mm <sup>2</sup> /7		5.6	45
7279E034	7279D034	RE-2Y(ST)Y-fl	2 x 2 x 0,75 mm <sup>2</sup> /7		8.5	83
7279E037	7279D037	RE-2Y(ST)Y-fl	4 x 2 x 0,75 mm <sup>2</sup> /7		10.0	124
7279E091	7279D091	RE-2Y(ST)Y-fl	1 x 2 x 1,3 mm <sup>2</sup> /7		6.8	66
<b>Multi-pair, PE insulation, individual and collective screen, PVC sheath</b>						
7279E166	7279D166	RE-2Y(ST)Y-fl	2 x 2 x 0,5 mm <sup>2</sup> /7	PIMF	8.7	81
7279E169	7279D169	RE-2Y(ST)Y-fl	4 x 2 x 0,5 mm <sup>2</sup> /7	PIMF	10.2	123
7279E196	7279D196	RE-2Y(ST)Y-fl	2 x 2 x 0,75 mm <sup>2</sup> /7	PIMF	9.7	102
7279E199	7279D199	RE-2Y(ST)Y-fl	4 x 2 x 0,75 mm <sup>2</sup> /7	PIMF	11.2	149
<b>Single &amp; Multi-pair, PE insulation, collective screen, PVC sheath reinforced</b>						
7338E001	7338D001	RE-2Y(ST)Yv-fl	1 X 2 X 0,5 mm <sup>2</sup> /7		7.2	71
7338E004	7338D004	RE-2Y(ST)Yv-fl	2 X 2 X 0,5 mm <sup>2</sup> /7		9.4	107
7338E007	7338D007	RE-2Y(ST)Yv-fl	4 X 2 X 0,5 mm <sup>2</sup> /7		10.6	140
7338E013	7338D013	RE-2Y(ST)Yv-fl	8 X 2 X 0,5 mm <sup>2</sup> /7		12.9	212
7338E019	7338D019	RE-2Y(ST)Yv-fl	12 X 2 X 0,5 mm <sup>2</sup> /7		14.9	283
7338E022	7338D022	RE-2Y(ST)Yv-fl	16 X 2 X 0,5 mm <sup>2</sup> /7		16.6	352
7338E028	7338D028	RE-2Y(ST)Yv-fl	24 X 2 X 0,5 mm <sup>2</sup> /7		19.5	484
7338E031	7338D031	RE-2Y(ST)Yv-fl	1 X 2 X 0,75 mm <sup>2</sup> /7		7.6	81
7338E034	7338D034	RE-2Y(ST)Yv-fl	2 X 2 X 0,75 mm <sup>2</sup> /7		10.3	128
7338E037	7338D037	RE-2Y(ST)Yv-fl	4 X 2 X 0,75 mm <sup>2</sup> /7		11.6	169
7338E043	7338D043	RE-2Y(ST)Yv-fl	8 X 2 X 0,75 mm <sup>2</sup> /7		14.2	264
7338E049	7338D049	RE-2Y(ST)Yv-fl	12 X 2 X 0,75 mm <sup>2</sup> /7		16.5	359
7338E052	7338D052	RE-2Y(ST)Yv-fl	16 X 2 X 0,75 mm <sup>2</sup> /7		18.5	448
7338E058	7338D058	RE-2Y(ST)Yv-fl	24 X 2 X 0,75 mm <sup>2</sup> /7		21.8	619
7338E091	7338D091	RE-2Y(ST)Yv-fl	1 X 2 X 1,3 mm <sup>2</sup> /7		8.6	102
7338E094	7338D094	RE-2Y(ST)Yv-fl	2 X 2 X 1,3 mm <sup>2</sup> /7		12.0	171
7338E097	7338D097	RE-2Y(ST)Yv-fl	4 X 2 X 1,3 mm <sup>2</sup> /7		13.6	238
7338E103	7338D103	RE-2Y(ST)Yv-fl	8 X 2 X 1,3 mm <sup>2</sup> /7		16.9	390
7338E109	7338D109	RE-2Y(ST)Yv-fl	12 X 2 X 1,3 mm <sup>2</sup> /7		19.9	540
7338E112	7338D112	RE-2Y(ST)Yv-fl	16 X 2 X 1,3 mm <sup>2</sup> /7		22.4	688
7338E118	7338D118	RE-2Y(ST)Yv-fl	24 X 2 X 1,3 mm <sup>2</sup> /7		26.5	968
<b>Multi-pair, PE insulation, individual and collective screen, PVC sheath reinforced 0.50 mm<sup>2</sup></b>						
7338E166	7338D166	RE-2Y(ST)Yv-fl	2 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	10.5	128
7338E169	7338D169	RE-2Y(ST)Yv-fl	4 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	11.8	169
7338E178	7338D178	RE-2Y(ST)Yv-fl	8 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	14.5	268
7338E184	7338D184	RE-2Y(ST)Yv-fl	12 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	16.9	354
7338E187	7338D187	RE-2Y(ST)Yv-fl	16 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	19.0	442
7338E193	7338D193	RE-2Y(ST)Yv-fl	24 X 2 X 0,5 mm <sup>2</sup> /7	PiMF	22.3	615

Part Number		Type	Size		Overall diameter	Cable weight
Colour outer sheath					approx. mm	approx. kg/km
black	blue					
<b>Multi-pair, PE insulation, individual and collective screen, PVC sheath reinforced 0.75 mm<sup>2</sup> and 1.30 mm<sup>2</sup></b>						
7338E196	7338D196	RE-2Y(ST)Yv-fl	2 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	11.3	146
7338E199	7338D199	RE-2Y(ST)Yv-fl	4 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	12.8	199
7338E208	7338D208	RE-2Y(ST)Yv-fl	8 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	15.8	322
7338E214	7338D214	RE-2Y(ST)Yv-fl	12 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	18.6	430
7338E217	7338D217	RE-2Y(ST)Yv-fl	16 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	20.8	541
7338E223	7338D223	RE-2Y(ST)Yv-fl	24 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	24.6	762
7338E256	7338D256	RE-2Y(ST)Yv-fl	2 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	13.0	191
7338E259	7338D259	RE-2Y(ST)Yv-fl	4 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	14.8	270
7338E268	7338D268	RE-2Y(ST)Yv-fl	8 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	18.6	454
7338E274	7338D274	RE-2Y(ST)Yv-fl	12 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	21.9	619
7338E277	7338D277	RE-2Y(ST)Yv-fl	16 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	24.7	792
7338E283	7338D283	RE-2Y(ST)Yv-fl	24 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	29.4	1125
<b>Single &amp; Multi-pair, PE insulation, collective screen, PVC sheath, armour</b>						
7093E031	7093D031	RE-2Y(ST)YSWAY-fl	1 X 2 X 0,75 mm <sup>2</sup> /7		10.0	196
7093E034	7093D034	RE-2Y(ST)YSWAY-fl	2 X 2 X 0,75 mm <sup>2</sup> /7		13.1	299
7093E037	7093D037	RE-2Y(ST)YSWAY-fl	4 X 2 X 0,75 mm <sup>2</sup> /7		14.6	372
7093E043	7093D043	RE-2Y(ST)YSWAY-fl	8 X 2 X 0,75 mm <sup>2</sup> /7		17.6	535
7093E049	7093D049	RE-2Y(ST)YSWAY-fl	12 X 2 X 0,75 mm <sup>2</sup> /7		19.9	673
7093E052	7093D052	RE-2Y(ST)YSWAY-fl	16 X 2 X 0,75 mm <sup>2</sup> /7		22.3	826
7093E058	7093D058	RE-2Y(ST)YSWAY-fl	24 X 2 X 0,75 mm <sup>2</sup> /7		26.7	1230
7093E091	7093D091	RE-2Y(ST)YSWAY-fl	1 X 2 X 1,3 mm <sup>2</sup> /7		11.2	242
7093E094	7093D094	RE-2Y(ST)YSWAY-fl	2 X 2 X 1,3 mm <sup>2</sup> /7		15.0	384
7093E097	7093D097	RE-2Y(ST)YSWAY-fl	4 X 2 X 1,3 mm <sup>2</sup> /7		16.6	479
7093E103	7093D103	RE-2Y(ST)YSWAY-fl	8 X 2 X 1,3 mm <sup>2</sup> /7		20.5	721
7093E109	7093D109	RE-2Y(ST)YSWAY-fl	12 X 2 X 1,3 mm <sup>2</sup> /7		24.6	1093
7093E118	7093D118	RE-2Y(ST)YSWAY-fl	24 X 2 X 1,3 mm <sup>2</sup> /7		32.0	1779
<b>Single &amp; Multi-pair, PE insulation, individual and collective screen, PVC sheath, armour</b>						
7093E196	7093D196	RE-2Y(ST)YSWAY-fl	2 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	14.3	367
7093E199	7093D199	RE-2Y(ST)YSWAY-fl	4 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	15.8	481
7093E208	7093D208	RE-2Y(ST)YSWAY-fl	8 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	19.2	814
7093E214	7093D214	RE-2Y(ST)YSWAY-fl	12 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	23.1	1179
7093E217	7093D217	RE-2Y(ST)YSWAY-fl	16 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	25.7	1376
7093E223	7093D223	RE-2Y(ST)YSWAY-fl	24 X 2 X 0,75 mm <sup>2</sup> /7	PiMF	30.1	1803
7093E256	7093D256	RE-2Y(ST)YSWAY-fl	2 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	16.0	459
7093E259	7093D259	RE-2Y(ST)YSWAY-fl	4 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	18.2	665
7093E268	7093D268	RE-2Y(ST)YSWAY-fl	8 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	23.3	950
7093E274	7093D274	RE-2Y(ST)YSWAY-fl	12 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	27.0	1400
7093E283	7093D283	RE-2Y(ST)YSWAY-fl	24 X 2 X 1,3 mm <sup>2</sup> /7	PiMF	36.4	2495
<b>Single &amp; Multi-triple, PE insulation, collective screen</b>						
7279E415	7279D415	RE-2Y(ST)Y-fl	1 x 3 x 1,3 mm <sup>2</sup> /7		7.20	88
<b>Single &amp; Multi-triple, PE insulation, collective screen, PVC sheath reinforced</b>						
7338E415	7338D415	RE-2Y(ST)Yv-fl	1 X 3 X 1,3 mm <sup>2</sup> /7		9.0	124
<b>Single &amp; Multi-triple, PE insulation, collective screen, PVC sheath, armour</b>						
7093E415	7093D415	RE-2Y(ST)YSWAY-fl	1 X 3 X 1,3 mm <sup>2</sup> /7		11.6	273

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