# ICON<sup>®</sup> Instrumentation Cables Stock types

**The Quality Connection** 



# **Product range**



- Instrumentationand 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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Issue 20080111 replaces Issue 20060822

# 1. Introduction of standards and product programme



#### The product programme

The product programme "Instrumentation Cable ICON<sup>®</sup>" 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The BS 5308 standard will have to be withdrawn by 31.08.2008 at the latest and is going to be replaced by EN 50288-7 standard.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





#### 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         0.75 mm², 1.30         Insulation.       polyethylene P         Colour code.       black / white, cr         for multipairs         Wrapping.       at least 1 layer         Collective screen.       24 µm aluminiu         drain wire, 0.5         Outer sheath.       polyvinyl chlorie         Cable marking.       LEONI KERPE	o mm <sup>2</sup> E ontinuously numbo of plastic tape im PETP tape ove mm <sup>2</sup> de PVC, black	ered on white co r 7-stranded tinr //ENTATION CA	re (1, 2) ned copper		
Technical data			Α	bbreviations	
Flame propagationTest on single cableIEC 60332-1-2Test on bunched cablesIEC 60332-3-24Sunlight resistanceUL 1581 sectioOil resistance - 1ICEA S-82-552	n 1200	Temperature ra -30 °C up to 70 (during operation -5 °C up to 50 °C (during installar Min. bending ra 7.5 x cable-Ø	) °C 2Y on) Y °C -fi	insulation of PE collective screen outer sheath of PV0 with reduced flame	-
Electrical data at 20 °C					
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	
Mutual capacitance	max.	nF/km	90		15
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)	1	V	1	1500	



## **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

Geometrical data					
No. of elements	RT of insulation	RT of outer sheath	Overall diameter	Cable weight	Part. No.
	nom.	nom.	approx.	approx.	Colour
	mm	mm	mm	kg/km	black
0.50 mm²/7					
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
0.75 mm <sup>2</sup> /7					
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
1.30 mm²/7					
1	0.45	0.9	6.8	66	7279E091



### Multi-Pair,

## PE insulation, individual and collective screen, PVC sheath

RE-2Y(St)Y-fl PiMF





EN 50288-7

70 °C / 300 V

## **ICON**<sup>®</sup>Instrumentation Cable

#### Flame Retardant, Sunlight Resistant

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					4		
Conductor plain annealed 0.75 mm <sup>2</sup>	copper, 7 strande	d, size, 0.50 mm	n²,				
Insulation polyethylene Pl	sulation polyethylene PE						
Colour code black / white, co for multipairs	ontinuously numbe	ered on white co	ore (1, 2)				
Individual screen	im PETP tape ove ,plastic tape unde						
Wrapping at least 1 layer	of plastic tape						
Collective screen 24 µm aluminiu drain wire, 0.5		r 7-stranded tinr	ned copper				
Outer sheath polyvinyl chlorid	de PVC, black						
Cable marking LEONI KERPE			BLE -				
300 V - RP - El	N 50288-7 - CE - L	ength marking					
Technical data				Abbreviatio	ons		
Flame propagation		Temperature r	erature range: RE- Instrumentation Cable				
Test on single cable IEC 60332-1-2		-30 °C up to 70 °C			n of PE		
Test on bunched cables IEC 60332-3-24	4 (Cat. C)	(during operation)					
Sunlight resistance UL 1581 sectio		-5 °C up to 50		outor of	uced flame propagation		
Oil resistance - 1 ICEA S-82-552		(during installation)					
			n. bending radius:				
		7.5 x cable-Ø					
Electrical data at 20 °C							
Conductor	nom.	mm <sup>2</sup>	0	.50	0.75		
Conductor resistance	max.	Ω/km	3	36.7 25			
Insulation resistance	min.	MΩ x km		5	000		
Mutual capacitance	max.	nF/km		1	15		
Operating voltage U <sub>rms</sub>		V		300			
Inductance	max.	mH/km			1		
L/R (ratio)	max.	μH/Ω		25			
	max.	μι 1/ 32		1500			
Test voltage U <sub>rms</sub> (core : core)	max.	V					



### **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

Geometrical data										
No. of elements	RT of insulation	RT of outer sheath	Overall diameter	Cable weight	Part. No.					
	nom.	nom.	approx.	approx.	Colour					
	mm	mm	mm	kg/km	black					
0.50 mm²/7										
2	0.35	0.9	8.7	81	7279E166					
4	0.35	1.0	10.2	123	7279E169					
0.75 mm <sup>2</sup> /7										
2	0.38	1.0	9.7	102	7279E196					
4	0.38	1.0	11.2	149	7279E199					



## Single & Multi-Pair,

### PE insulation, collective screen, PVC sheath reinforced

RE-2Y(St)Yv-fl

LEONI KERPEN 15



#### 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

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 $\mu m$ aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 $\text{mm}^2$	
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				Abb	previations	
Flame propagationTest on single cableIEC 60332-1-2Test on bunched cablesIEC 60332-3-24Sunlight resistanceUL 1581 sectioOil resistance - 1ICEA S-82-552	n 1200	Temperature ra -30 °C up to 70 (during operation -5 °C up to 50 °C (during installar Min. bending ra 7.5 x cable-Ø	on) °C °C tion)	RE- 2Y (St) Yv -fl	Instrumentation Cat insulation of PE collective screen outer sheath of PVC with reduced flame	C, reinforced
Electrical data at 20 °C						
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	



EN 50288-7 70 °C / 300 V

#### Flame Retardant, Sunlight Resistant

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

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

Geometric	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.	nom.	approx.	nom.	approx.	nom.	approx.	approx.	Colour		
	mm	mm	mm	mm	mm	mm	mm	kg/km	black		
0.75 mm <sup>2</sup> /	7										
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		
1.30 mm <sup>2</sup> /	7										
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		



## 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

oonstruction		
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 $\mu$ m 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 $\mu$ m 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 INST <mark>RUMENTATION CABLE</mark> - 300 V - RP - EN 50288-7 - C <mark>E - Length marking</mark>	

Technical data				1	Abbreviations	
Flame propagation Test on single cable Test on bunched cables Sunlight resistance Oil resistance - 1	IEC 60332-1-2 IEC 60332-3-24 UL 1581 section ICEA S-82-552	1200	Temperature r -30 °C up to 70 (during operati -5 °C up to 50 (during installa Min. bending r 7.5 x cable-Ø	on) °C (S on) °C (S rtion) P	St)collective screenvouter sheath of PV	C, reinforced
Electrical data at 20 °C				1		
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			V		300	

Operating voltage U <sub>rms</sub>		V		300	
Mutual capacitance	max.	nF/km		115	
Inductance	max.	mH/km		1	
L/R (ratio)	max.	μΗ/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

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

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

Geometrical data									
No. of elements	RT of insulation	RT of outer sheath	Overall diameter	Cable weight	Part. No.				
	nom.	nom.	approx.	approx.	Colour				
	mm	mm	mm	kg/km	black				
0.50 mm <sup>2</sup> /7									
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				
0.75 mm²/7									
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				
1.30 mm <sup>2</sup> /7									
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				



## Single & Multi-Pair,

### PE insulation, collective screen, PVC sheath, Armour

RE-2Y(St)YSWAY-fl





## **ICON**<sup>®</sup>Instrumentation Cable

#### Flame Retardant, Sunlight Resistant

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

$\begin{array}{ c c c c } \hline Conductor & nom. & nm^2 & 0.75 & 1.30 \\ \hline Conductor resistance & max. & \Omega/km & 25 & 14.2 \\ \hline Insulation resistance & min. & M\Omega x km & 5000 \\ \hline Operating voltage U_{rms} & V & 300 \\ \hline Mutual capacitance & max. & nF/km & 75 & 85 \\ \hline Capacitance unbalance & max. & mH/km & 5000 \\ \hline Inductance & max. & mH/km & 1 \\ \hline L/R (ratio) & max. & \mu H/\Omega & 25 & 40 \\ \hline \end{array}$	Construction					
Colour code       black / white, continuously numbered on white core (1, 2) for multipairs       black / white, continuously numbered on white core (1, 2) for multipairs         Wrapping       at least 1 layer of plastic tape       24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup> Collective screen       24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup> polyvinyl chloride PVC, black         Armour       galvanized round steel wires       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       Instrumentation Cable         Test on single cable       IEC 60332-1-2       Temperature range: -30 °C up to 70 °C (during operation)       Instrumentation Cable         Test on single cable       IEC 60332-3-24 (Cat. C)       UL 1581 section 1200       Nin. bending radius: 10 x cable-Ø       V         IOI resistance       UL 581 section 1200       ICEA S-82-552       Mm <sup>2</sup> 1.30         Conductor       nom.       mm <sup>2</sup> 0.75       1.30         Conductor resistance       max. $\Omega/km$ 25       14.2         Insultation resistance       max. $\rho/km$ 300       V       300         Conductor resistance       max. $\rho/km$ 500       500 </td <td></td> <td></td> <td>ed, size, 0.75 mm</td> <td>1<sup>2</sup>,</td> <td></td> <td></td>			ed, size, 0.75 mm	1 <sup>2</sup> ,		
for multipairsat least 1 layer of plastic tapeCollective screen24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm²Inner sheathpolyvinyl chloride PVC, black galvanized round steel wires Outer sheathCollective screenoplyvinyl chloride PVC, black; blue for intrinsically safe sys- termsCable markingLEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length markingAbbreviationsTechnical dataFerence in the state of PC during operation CE 60332-1-2Test on single cable Sounight resistance Oil resistanceIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 50 °C (during installation) Min. bending radius: 10 x cable- $\partial$ Reference instrumentation Cable Y with reduced flame propagationElectrical data at 20 °CCConductornom.max. $\Omega/kmOuter sheath of PVCInstrumentation CableYwith reduced flame propagationC To 5 C up to 50 °C(during installation)Min. bending radius:10 x cable-\partialOuter sheath of PVCInter sheath of PVC1Inter sheath of PVC1Inter$	Insulation poly	ethylene PE				
Collective screen       24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>3</sup> Inner sheath       polyvinyl chloride PVC, black         Armour       galvanized round steel wires       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       Abbreviations         Technical data       IEC 60332-1-2       Temperature range: -30 °C (to to 70 °C (during operation) of % °C up to 50 °C (during installation)       Re-       Instrumentation Cable         Standard       IEC 60332-3-24 (Cat. C)       U.L 1581 section 1200 (JCEA S-82-552)       Temperature range: -30 °C (to to 70 °C (during installation)       Instrumentation Cable         Oil resistance       IEC 60332-3-24 (Cat. C)       Temperature range: -30 °C (to to 70 °C (during operatios))       * with reduced flame propagation         Conductor       Nom       mm <sup>2</sup> 0.75       1.30         Conductor resistance       max $\Omega/km$ 5000       Outer sheath of PVC         Insulation resistance       max $\Omega/km$ 5000       Outer sheath of PVC       1.30         Conductor resistance       max $nF/km$ 75       85       5000       5000       5000         Mutual capacitance       max $PF/500$ m       5000			ered on white co	ore (1, 2)		AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Wrapping at le	ast 1 layer of plastic tape			3	
Armour	•		er 7-stranded tinr	ned copper		
Outer sheath	Inner sheath poly	vinyl chloride PVC, black			316	
tems         Cable marking       LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking         Technical data       Abbreviations         Flame propagation Test on single cables       IEC 60332-1-2 (EC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552       Certical data at 20 °C         Sunlight resistance Oil resistance       ICEA S-82-552         Electrical data at 20 °C         Conductor       nom.       mm²       0.75       1.30         Conductor       nom.       mm²       0.75       1.30       Conductor         Conductor       nom.       M²       300         V       300         Mm²       0.75       1.	Armour galv	anized round steel wires			31	99//5/
300 V - RP - EN 50288-7 - CE - Length marking         Technical data       Abbreviations         Flame propagation       Fee Co332-1-2       Temperature range: -30 °C up to 70 °C (during operation)       RE- insulation of PE (solicetive screen       Instrumentation Cable         Test on bunched cables       IEC 60332-3-24 (Cat. C)       Temperature range: -30 °C up to 70 °C (during installation)       RE- insulation of PE (solicetive screen       Instrumentation Cable         Sunlight resistance       UL 1581 section 1200 ICEA S-82-552 $5^{\circ}$ C up to 50 °C (during installation)       Nin. bending radius: 10 x cable-Ø       NWA       Subwer sheath of PVC         Image: Stance       nom.       mm² $0.75$ 1.30         Conductor       nom.       mm² $0.75$ 1.4.2         Insulation resistance       max. $\Omega/km$ $25$ 14.2         Insulation resistance       max. $0/km$ $300$ $300$ Operating voltage Urms       V $300$ $5000$ $500$ Inductance       max. $nF/km$ $75$ $85$ $500$ Inductance       max. $\mu H/M$ $1$ $1$ $1$ L/R (ratio)		-	ue for intrinsically	y safe sys-	10	Property of
Flame propagation Test on single cable Test on bunched cables Sunlight resistanceIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 10 x cable-ØRE- insulation of PE collective screen Y with reduced flame propagationElectrical data at 20 °CTemperature range: ICEA S-82-552				BLE -		
Flame propagation Test on single cable Test on bunched cables Sunlight resistanceIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 10 x cable-ØRE- insulation of PE collective screen Y with reduced flame propagationElectrical data at 20 °CTemperature range: ICEA S-82-552NNNElectrical data at 20 °Cmax.Mm² M²0.751.30Conductornom.mm² N0.751.30Conductor resistancemin.MΩ x km5000Operating voltage UrmsV30014.2Mutual capacitancemax.nF/km7585Capacitance unbalancemax.mH/km1L/R (ratio)max.µH/Ω2540Test voltage Urms (core : core)V15001500	Tochnical data				Abbroviatio	ne
Test on single cable Test on single cable Test on bunched cables Sunlight resistanceIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552So °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during operation) -5 °C up to 50 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 70 °C. (during installation) Min. bending radius: 10 x cable-Ø2Y -30 °C up to 75 °C. 1.302Y -30 °C up to 75 °C. 1.30Electrical data at 20 °Cnom.mm² -30 °C. -30 °C. -3000.75 °C. -3001.30 °C. -300Mutual capacitancemax. </td <td></td> <td></td> <td>Temperature</td> <td>ando:</td> <td></td> <td></td>			Temperature	ando:		
Test on bunched cables Sunlight resistanceIEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552(during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 10 x cable-Ø(Si)collective screen inner sheath of PVC steel wire armour outer sheath of PVC -fiElectrical data at 20 °Cnom.mm²0.751.30Conductornom.mm²0.751.30Conductor resistancemax.Ω/km2514.2Insulation resistancemin.MΩ x km5000Operating voltage Urmsw50005000Mutual capacitancemax.nF/km7585Capacitance unbalancemax.nF/km7585L/R (ratio)max.µH/Ω25440Test voltage Urms (core : core)wV1500		60332-1-2		0	inou arrio	
Sunlight resistanceUL 1581 section 1200 ICEA S-82-552-5 °C up to 50 °C (during installation) Min. bending radius: 10 x cable-Ø** winner sheath of PVC SWA with reduced flame propagationElectrical data at 20 °Cmom.mm² (Mr. cable-Ø)0.751.30Conductornom.mm² (Mr. data at 20 °C)0.751.30Conductor resistancemax. $\Omega/km$ 2514.2Insulation resistancemin.MΩ x km5000Operating voltage UrmsV300300Mutual capacitancemax.nF/km7585Capacitancemax.nF/km1L/R (ratio)max.µH/Ω2540Test voltage Urms (core : core)Way (core : core)Way (core : core)V1500					. ,	
Oil resistanceICEA S-82-552(during installation) Min. bending radius: 10 x cable-ØY outer sheath of PVC outer sheath of PVC outer sheath of PVC with reduced flame propagationElectrical data at 20 °CConductornom.mm² max.0.751.30Conductor resistancemax.Ω/km2514.2Insulation resistancemin.MΩ x km5000Operating voltage UrmsV300Mutual capacitancemax.nF/km7585Capacitancemax.mH/km1L/R (ratio)max.μH/Ω2540Test voltage Urms (core : core)VV1500						
Min. bending radius: 10 x cable- $\emptyset$ .1with reduced flame propagationElectrical data at 20 °CConductornom.mm²0.751.30Conductor resistancemax. $\Omega/km$ 2514.2Insulation resistancemin.M $\Omega$ x km5000Operating voltage UrmsV3000Mutual capacitancemax.nF/km7585Capacitance unbalancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 2540Test voltage Urms (core : core)V1500	-		(during installa	tion)		
Electrical data at 20 °CConductornom. $mm^2$ $0.75$ $1.30$ Conductor resistancemax. $\Omega/km$ $25$ $14.2$ Insulation resistancemin. $M\Omega x km$ $5000$ Operating voltage UrmsV $300$ Mutual capacitancemax. $nF/km$ $75$ $85$ Capacitance unbalancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ $25$ $40$ Test voltage Urms (core : core)V $V$ $1500$		10 02 002		adius:		
Conductornom. $mm^2$ $0.75$ $1.30$ Conductor resistancemax. $\Omega/km$ $25$ $14.2$ Insulation resistancemin. $M\Omega x km$ $5000$ Operating voltage UrmsV $300$ Mutual capacitancemax. $nF/km$ $75$ $85$ Capacitance unbalancemax. $mH/km$ $1$ Inductancemax. $mH/km$ $1$ L/R (ratio)max. $\mu H/\Omega$ $25$ $40$ Test voltage Urms (core : core)V $V$ $1500$			10 x cable-Ø			
$\begin{array}{ c c c c } \hline Conductor & nom. & mm^2 & 0.75 & 1.30 \\ \hline Conductor resistance & max. & \Omega/km & 25 & 14.2 \\ \hline Insulation resistance & min. & M\Omega x km & 5000 \\ \hline Operating voltage U_{rms} & V & 300 \\ \hline Mutual capacitance & max. & nF/km & 75 & 85 \\ \hline Capacitance unbalance & max. & mH/km & 5000 \\ \hline Inductance & max. & mH/km & 1 \\ L/R (ratio) & max. & \mu H/\Omega & 25 & 40 \\ \hline Test voltage U_{rms} (core : core) & V & 1500 \\ \hline \end{array}$						
Conductornom. $mm^2$ $0.75$ $1.30$ Conductor resistancemax. $\Omega/km$ $25$ $14.2$ Insulation resistancemin. $M\Omega x km$ $5000$ Operating voltage UrmsV $300$ Mutual capacitancemax. $nF/km$ $75$ $85$ Capacitance unbalancemax. $mH/km$ $1$ Inductancemax. $mH/km$ $1$ L/R (ratio)max. $\mu H/\Omega$ $25$ $40$ Test voltage Urms (core : core)V $V$ $1500$						
Conductornom. $mm^2$ $0.75$ $1.30$ Conductor resistancemax. $\Omega/km$ $25$ $14.2$ Insulation resistancemin. $M\Omega x km$ $5000$ Operating voltage UrmsV $300$ Mutual capacitancemax. $nF/km$ $75$ $85$ Capacitance unbalancemax. $mH/km$ $1$ Inductancemax. $mH/km$ $1$ L/R (ratio)max. $\mu H/\Omega$ $25$ $40$ Test voltage Urms (core : core)V $V$ $1500$						
Conductor resistancemax. $\Omega/km$ 2514.2Insulation resistancemin.M $\Omega \times km$ $5000$ Operating voltage UrmsV $300$ Mutual capacitancemax.nF/km7585Capacitance unbalancemax.nF/km $500$ Inductancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 2540Test voltage Urms (core : core)VV1500	Electrical data at 20 °C					
Insulation resistancemin. $M\Omega x km$ $5000$ Operating voltage $U_{rms}$ V $300$ Mutual capacitancemax.nF/km7585Capacitance unbalancemax.pF/500 m $500$ Inductancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 2540Test voltage $U_{rms}$ (core : core)VV1500	Conductor	nom.	mm <sup>2</sup>	0	.75	1.30
Operating voltage U <sub>rms</sub> V         300           Mutual capacitance         max.         nF/km         75         85           Capacitance unbalance         pF/500 m         500         1           Inductance         max.         mH/km         1           L/R (ratio)         max.         μH/Ω         25         40           Test voltage U <sub>rms</sub> (core : core)         V         1500         1	Conductor resistance	max.	Ω/km		25 14.2	
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         1	Insulation resistance	min.				00
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         1	Operating voltage U <sub>rms</sub>		V			00
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         1	Mutual capacitance	max.	nF/km 75 85		85	
L/R (ratio)max. $\mu H/\Omega$ 2540Test voltage Urms (core : core)V1500	Capacitance unbalance		pF/500 m 500			00
Test voltage U <sub>rms</sub> (core : core)   V   1500	Inductance	max.				1
	L/R (ratio)	max.	μΗ/Ω		25 40	
Test voltage U <sub>rms</sub> (core : screen) V 1500	Test voltage U <sub>rms</sub> (core : core)		· ·			00
	Test voltage U <sub>rms</sub> (core : scree	n)	V		15	00

#### EN 50288-7 70 °C / 300 V



EN 50288-7 70 °C / 300 V

#### Flame Retardant, Sunlight Resistant

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

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

Geometric	al 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.	nom.	approx.	nom.	approx.	nom.	approx.	approx.	Colour
	mm	mm	mm	mm	mm	mm	mm	kg/km	black
0.75 mm <sup>2</sup> /	7								
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
1.30 mm <sup>2</sup> /	7								
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



### Multi-Pair,

## PE insulation, individual and collective screen, PVC sheath, Armour

RE-2Y(St)YSWAY-fl PiMF





EN 50288-7

70 °C / 300 V

## **ICON**<sup>®</sup>Instrumentation Cable

#### Flame Retardant, Sunlight Resistant

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 anneal 1.30 mm <sup>2</sup> Insulation polyethylene						
			<b>TO</b> (1, 0, )			
Colour code black / white for multipairs					ANALASSA	
Individual screen 24 µm alumi wire, 0.6 mm	nium PETP tape ove Ø ,plastic tape unde				0.00	
Wrapping at least 1 lay	er of plastic tape					
Collective screen 24 µm alumi	nium PETP tape ove	r 7-stranded tinr	ned <mark>copper</mark>			
drain wire, 0	5 mm²				0 0	
Inner sheath polyvinyl chl	oride PVC, black					
Armour galvanized r	ound steel wires				Constant of the second	
Outer sheath polyvinyl chl	oride PVC, black					
Cable marking LEONI KER			BLE -			
300 V - RP -	EN 50288-7 - CE - L	ength marking				
Technical data				Abbreviatio		
Flame propagation		Temperature ra	-	RE- Instrume 2Y insulation	ntation Cable	
Test on single cable IEC 60332-1		-30 °C up to 70 °C		(St) collective screen		
Test on bunched cables IEC 60332-3		(during operation -5 °C up to 50 °C	0 °C			
Sunlight resistance UL 1581 sec		(during installat		SWA steel wire		
Oil resistance - 1 ICEA S-82-5	52	Min. bending ra	,		eath of PVC uced flame propagation	
		10 x cable-Ø		PiMF pair in m		
				P		
Electrical data at 20 °C						
Conductor	nom.	mm <sup>2</sup>	C	).75	1.30	
Conductor resistance	max.	Ω/km	/km 25 14.2		14.2	
Insulation resistance	min.	MΩ x km 5000				
Operating voltage U <sub>rms</sub>		V	V 300			
Mutual capacitance	max.	nF/km			15	
Inductance	max.	mH/km	H/km 1		1	
L/R (ratio)	max.	μH/Ω	25 40		40	
Test voltage U <sub>rms</sub> (core : core)	core) V 1500		500			
Test voltage U <sub>rms</sub> (core : screen)		V		15	500	



EN 50288-7 70 °C / 300 V

### Flame Retardant, Sunlight Resistant

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

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

Geometric	al 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.	nom.	approx.	nom.	approx.	nom.	approx.	approx.	Colour
	mm	mm	mm	mm	mm	mm	mm	kg/km	black
0.75 mm²/	7								
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
1.30 mm²/	7								
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



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

RE-2Y(St)Y-fl





#### Flame Retardant, Sunlight Resistant

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.

Conductor.       plain annealed copper, 7 stranded, size, 1.30 mm²         Insulation.       polyethylene PE         Colour code.       black / white / red, continuously numbered on white core (1, 2.) for multitriples         Wrapping.       at least 1 layer of plastic tape         Collective screen.       24 µm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm²         Outer sheath.       polyvinyl chloride PVC, black         Cable marking.       CEONI KERPENICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking         Technical data       Temperature range: -30 °C up to 70 °C (during up to 50 °C) (during ratallation) Min. bending radius: 7.5 x cable-Ø         Sunght resistance       nom.         Oil resistance       nma.         Oil resistance       min.         Mutal capacitance       max.         Orductor resistance       min.         Conductor       nom.         Conductor       max.         Mutal capacitance       min.         Mutal capacitance       max.         V       3000         Insulation resistance       max.         Mutal capacitance       max.         Piertrial data at 20 °C       V	Construction							
Colour code	Conductor plain anne	ealed copper, 7 strande	d, size, 1.30 mm	1 <sup>2</sup>				
2) for multitriples         Wrapping	Insulation polyethyle	polyethylene PE						
Collective screen.       24 μm aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>3</sup> Outer sheath.       polyvinyl chloride PVC, black LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking       Abbreviations         Technical data       Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 70 °C (during operation) -5 °C up to 50 °C (during installation) Nin. bending radius: 7.5 x cable-Ø       Re- view instrumentation Cable insulation of PE (structure screen view in reduced fiame propagation Nin. bending radius: 7.5 x cable-Ø         Electrical data at 20 °C Conductor Conductor resistance       nom.       mm <sup>2</sup> mm <sup>2</sup> 1.30 1.30 1.42         Electrical data at 20 °C Conductor Conductor resistance       mom.       mm <sup>2</sup> max.       1.30 0/km         Mutual capacitance Insulation cesistance       max.       m/km       115 1.50         V       300       Max.       WH/km       1 4.40		white / red, continuously numbered on white core (1,						
drain wire, 0.5 mm² polyvinyl chloride PVC, black Cable markingLEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length markingAbbreviationsTechnical dataAbbreviationsTechnical dataCe 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 70 °C (during operation) -5° C up to 50 °C (during installation) Min. bending radius: 7.5 x cable-ØRE Instrumentation Cable 2" insulation of PE (during installation) Min. bending radius: 7.5 x cable-ØElectrical data at 20 °CConductormax. Conductor resistanceMutual capacitancemax. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. min.Mutual capacitancemax. max. max. min.Mutual capacitancemax. max. max. min.Mutual capacitancemax. max. max. min.Mutual capacitancemax. max. min. Min. Min. Min. Min.Mutual capacitancemax. max. min. Min. Min.Mutual capacitancemax. max. min. Min. Min.Mutual capacitancemax. max. min. Min. Min.Mutual capacitancemax. min. Min. Min.Mutual capacitance </td <td>Wrapping at least 1</td> <td>layer of plastic tape</td> <td></td> <td></td> <td>(1)</td> <th></th>	Wrapping at least 1	layer of plastic tape			(1)			
Cable marking       LEONI KERPEN ICON INSTRUMENTATION CABLE- 300 V - RP - EN 50288-7 - CE - Length marking         Technical data       Abbreviations         Flame propagation rest on single cable fast on bunched cables Sunlight resistance 0il resistance - 1       IEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 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       RF- unstrumentation Cable insulation of PE collective screen outer sheath of PVC with reduced flame propagation         Electrical data at 20 °C       Temperature name (auring installation) Min. bending radius: 7.5 x cable-Ø       Temperature range: -30 °C up to 50 °C (during installation) Min. bending radius: 7.5 x cable-Ø       RF- unstrumentation Cable insulation of PE collective screen outer sheath of PVC with reduced flame propagation         Electrical data at 20 °C       Temperature name (auring installation) Min. bending radius: 7.5 x cable-Ø       NO         Conductor (during operating voltage U <sub>mms</sub> nom.       mm <sup>2</sup> (max.       1.30 (Mutual capacitance) (V       300 (Mutual capacitance) (N         Mutual capacitance       max.       nF/km       11 (Min.       14.2 (Min.       14.2 (Min.         Mutual capacitance       max.       N//km       14.2 (Min.       14.2 (Min.       14.2 (Min.         Conductor       max.       V       300 (Min.       14.2 (Min.       14.2 (Min.       14.2 (Min.       14.2 (Min. <td></td> <td></td> <td>r 7-stranded tinr</td> <td>ned copper</td> <td>18</td> <th></th>			r 7-stranded tinr	ned copper	18			
Source       Source       Source       Abbreviations         Technical data       Technical data       Abbreviations         Flame propagation       Test on single cable       IEC 80332-1-2       Temperature range: -30 °C up to 70 °C       Instrumentation Cable         Test on bunched cables       IEC 60332-3-24 (Cat. C)       UL 1581 section 1200       Source to 50 °C       Instrumentation of PE         Sunlight resistance       UL 1581 section 1200       ICEA S-82-552       Source to 50 °C       Instrumentation of PC         Oil resistance - 1       UCEA S-82-552       V       Source to to 50 °C       Instrumentation of PC         Conductor       nom.       mm²       1.30         Conductor resistance       max.       Ω/km       14.2         Insulation resistance       max.       N/km       115         Operating voltage Ums       V       3000       N         Mutual capacitance       max.       N/km       1         L/R (ratio)       max.       µH/Ω       40         Test voltage Ums       Km       1500	Outer sheath polyvinyl	chloride PVC, black				800		
Flame propagation Test on single cable Test on bunched cablesIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 7.5 x cable-ØRE- 2Y insulation of PE collective screen outer sheath of PVC with reduced flame propagationElectrical data at 20 °CMomentation Conductormm² max.1.30 Ω/km1.30 14.2Conductor Insulation resistancenom. max.mm² N/km1.30 14.2Insulation resistancemin. MQ x kmMQ x km5000 3000Mutual capacitancemax. max.nF/km N115 40Operating voltage Urmsmax. max.mH/km H/Q1 40L/R (ratio)max. max.mu/km V1500				BLE -		8		
Flame propagation Test on single cable Test on bunched cablesIEC 60332-1-2 IEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 7.5 x cable-ØRE- 2Y insulation of PE collective screen outer sheath of PVC with reduced flame propagationElectrical data at 20 °CMomentation Conductormm² max.1.30 Ω/km1.30 14.2Conductor Insulation resistancenom. max.mm² N/km1.30 14.2Insulation resistancemin. MQ x kmMQ x km5000 3000Mutual capacitancemax. max.nF/km N115 40Operating voltage Urmsmax. max.mH/km H/Q1 40L/R (ratio)max. max.mu/km V1500	Technical data				Abbroviations			
Territor propagationTest on single cableIEC 60332-1-2Test on bunched cablesIEC 60332-3-24 (Cat. C)Sunlight resistanceUL 1581 section 1200Oil resistance - 1ICEA S-82-552ICEA S-82-552ICEA S-82-552Electrical data at 20 °CConductornom.Conductornom.max.Ω/kmInsulation resistancemin.Mutual capacitancemax.Mutual capacitancemax. <td></td> <td></td> <td></td> <td></td> <td></td> <th>Cabla</th>						Cabla		
Test on bunched cablesIEC 60332-3-24 (Cat. C) UL 1581 section 1200 ICEA S-82-552(during operation) -5 °C up to 50 °C (during installation) Min. bending radius: 7.5 x cable-Ø(st)collective screen outer sheath of PVC -1Electrical data at 20 °Cmm.mm21.30Conductornom.mm21.30Conductor resistancemax.Ω/km14.2Insulation resistancemin.MΩ x km5000Mutual capacitancemax.nF/km115Operating voltage UrmsV300Inductancemax.µH/Ω40L/R (ratio)max.µH/Ω40Test voltage Urms (core : core)V1500		0.4.0				Capie		
Sunlight resistanceUL 1581 section 1200 ICEA S-82-552Solution is section 1200 (during installation) Min. bending radius: 7.5 x cable-ØYouter sheath of PVC with reduced flame propagationElectrical data at 20 °CMin. bending radius: 7.5 x cable-ØYouter sheath of PVC with reduced flame propagationElectrical data at 20 °Cnom.mm²1.30Conductornom.mm²1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin.MQ x km5000Mutual capacitancemax. $NF/km$ 115Operating voltage UrmsV300Inductancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ 40Test voltage Urms (core : core)V1500					(St) collective screen	I		
Summight resistanceOL 1061 section 1200(during installation) Min. bending radius: 7.5 x cable-Ø"with reduced flame propagationOil resistance - 1ICEA S-82-552Min. bending radius: 7.5 x cable-Ø"with reduced flame propagationElectrical data at 20 °CT.5 x cable-ØT.30Conductornom.mm²1.30Conductor resistancemax.Ω/km14.2Insulation resistancemin.MΩ x km5000Mutual capacitancemax.nF/km115Operating voltage UrmsTest voltage Urms (core : core)max.µH/Ω40Test voltage Urms (core : core)V1500						-		
Min. bending radius: 7.5 x cable-ØElectrical data at 20 °CConductornom.mm²1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin.M $\Omega$ x km5000Mutual capacitancemax.nF/km115Operating voltage UrmsV300Inductancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 40Test voltage Urms (core : core)V1500			(during installa	tion)	- <sup>†I</sup> with reduced flar	ne propagation		
Electrical data at 20 °CConductornom.mm²1.30Conductor resistancemax.Ω/km14.2Insulation resistancemin.MΩ x km5000Mutual capacitancemax.nF/km115Operating voltage UrmsV300Inductancemax.mH/km1L/R (ratio)max.μH/Ω40Test voltage Urms (core : core)V1500	Offresistance - T TCEA 3-0.	2-002	Min. bending ra	adius:				
Conductornom. $mm^2$ 1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin. $M\Omega x km$ 5000Mutual capacitancemax. $nF/km$ 115Operating voltage U <sub>rms</sub> V300Inductancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ 40Test voltage U <sub>rms</sub> (core : core)V1500			7.5 x cable-Ø					
Conductornom. $mm^2$ 1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin. $M\Omega x km$ 5000Mutual capacitancemax. $nF/km$ 115Operating voltage $U_{rms}$ V300Inductancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ 40Test voltage $U_{rms}$ (core : core)V1500								
Conductornom. $mm^2$ 1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin. $M\Omega x km$ 5000Mutual capacitancemax. $nF/km$ 115Operating voltage U <sub>rms</sub> V300Inductancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ 40Test voltage U <sub>rms</sub> (core : core)V1500								
Conductornom. $mm^2$ 1.30Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin. $M\Omega x km$ 5000Mutual capacitancemax. $nF/km$ 115Operating voltage U <sub>rms</sub> V300Inductancemax. $mH/km$ 1L/R (ratio)max. $\mu H/\Omega$ 40Test voltage U <sub>rms</sub> (core : core)V1500								
Conductor resistancemax. $\Omega/km$ 14.2Insulation resistancemin. $M\Omega x km$ 5000Mutual capacitancemax.nF/km115Operating voltage UrmsV300300Inductancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 40Test voltage Urms (core : core)V1500	Electrical data at 20 °C							
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	Conductor	nom.	mm <sup>2</sup>		1.30			
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	Conductor resistance	max.	Ω/km		14.2			
Operating voltage U <sub>rms</sub> Image: Max.         V         300           Inductance         max.         mH/km         1           L/R (ratio)         max.         μH/Ω         40           Test voltage U <sub>rms</sub> (core : core)         V         V         1500	Insulation resistance	min.	MΩ x km		5000			
Inductancemax.mH/km1L/R (ratio)max. $\mu$ H/ $\Omega$ 40Test voltage U <sub>rms</sub> (core : core)V1500	Mutual capacitance	max.	max. nF/km		115			
L/R (ratio)         max.         μH/Ω         40           Test voltage U <sub>rms</sub> (core : core)         V         1500	Operating voltage U <sub>rms</sub>		V		300			
Test voltage U <sub>rms</sub> (core : core) V 1500	Inductance	max.	mH/km		1			
	L/R (ratio)	max.	μH/Ω		40			
Test voltage U <sub>rms</sub> (core : screen) V 1500	Test voltage U <sub>rms</sub> (core : core)		V		1500			
	Test voltage U <sub>rms</sub> (core : screen)		V		1500			

### EN 50288-7 70 °C / 300 V



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



## Single & Multi-triple,

### PE insulation, collective screen, PVC sheath reinforced

RE-2Y(St)Yv-fl

LEONI KERPEN 35



#### Flame Retardant, Sunlight Resistant

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 multitriples	
Wrapping	at least 1 layer of plastic tape	
Collective screen	24 $\mu m$ aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 $\text{mm}^2$	8 8
Outer sheath	polyvinyl chloride PVC, reinforced, black; blue for intrinsically safe systems	8808
Cable marking	LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking	888

Technical data	Abbreviations			
Flame propagationTest on single cableIEC 60332-1-2Test on bunched cablesIEC 60332-3-24Sunlight resistanceUL 1581 sectionOil resistance - 1ICEA S-82-552	n 1200	Temperature range: -30 °C up to 70 °C (during operation) -5 °C up to 50 °CRE- 2Y insulation of PE (St) outer sheath of PVC, re- v		2Y     insulation of PE       (St)     collective screen       Yv     outer sheath of PVC, reinforced
Electrical data at 20 °C		1	/	
Conductor	nom.	mm²		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.	μΗ/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)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. kɑ/km	<b>Part. No.</b> Colour black				
1.30 mm²/7									
1	0.45	1.8	9.0	124	7338E415				

RT = Radial Thickness



## Single & Multi-triple,

## PE insulation, collective screen, PVC sheath, armour

RE-2Y(St)YSWAY-fl





EN 50288-7

70 °C / 300 V

# **ICON**<sup>®</sup>Instrumentation Cable

## Flame Retardant, Sunlight Resistant

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

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 $\mu$ m aluminium PETP tape over 7-stranded tinned copper drain wire, 0.5 mm <sup>2</sup>	r for the second se
Inner sheath	. polyvinyl chloride PVC, black	
Armour	galvanized round steel wires	
Outer sheath	<ul> <li>polyvinyl chloride PVC, black; blue for intrinsically safe systems</li> </ul>	8 8 8
Cable marking	. LEONI KERPEN ICON INSTRUMENTATION CABLE - 300 V - RP - EN 50288-7 - CE - Length marking	A CONTRACTOR

Technical data			Abbreviations
Flame propagationTest on single cableIEC 60332-1-2Test on bunched cablesIEC 60332-3-24Sunlight resistanceUL 1581 sectionOil resistance - 1ICEA S-82-552	n 1200	Temperature ra -30 °C up to 70 (during operatii -5 °C up to 50 (during installa Min. bending ra 10 x cable-Ø	0°C     2Y     insulation of PE       ion)     (St)     collective screen       °C     Y     inner sheath of PVC       steel wire armour     Y     outer sheath of PVC
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.	μΗ/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-fl

Geometric	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.	nom.	approx.	nom.	approx.	nom.	approx.	approx.	Colour		
	mm	mm	mm	mm	mm	mm	mm	kg/km	black		
1.30 mm <sup>2</sup> /	7										
1	0.45	1.0	7.0	1.00	9.0	1.3	11.6	273	7093E415		

RT = Radial Thickness



## Tables, elaboration of terms and concepts

## 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")	=	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	I				
1 US gallon (US gal)	=	3.79	I				
1 UK gallon (UK gal)	=	4.55	I				
Force				Mass			
1 poundal (pdl)	=	0.1 38	Ν	1 ounce (oz)	=	0.0284	kg
1 pound-force (lbf)	=	4.448	Ν	1 pound (lb)	=	0.454	kg
1 Brit.ton-force	=	9964	Ν	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 horsepower (H.P.)	=	0.746	kW	1 Brit.therm.unit (B U) 1 Brit.therm.unit	=	1055 0.000293	J kWh
	=	0.746	kW				
1 horsepower (H.P.) Pressure 1 bf/in <sup>2</sup> (psi)	=		kW bar				
<b>Pressure</b> 1 bf/in <sup>2</sup> (psi)		0.06895		1 Brit.therm.unit			
Pressure 1 bf/in <sup>2</sup> (psi) 1 lbf/ft <sup>2</sup>	=	0.06895 0.000479	bar	1 Brit.therm.unit = 6.895 N/m <sup>2</sup>			
Pressure       1     bf/in² (psi)       1     lbf/ft²       1     lbf/yd²	=	0.06895 0.000479 0.0000532	bar bar	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup>			
Pressure1bf/in² (psi)1lbf/ft²1lbf/yd²1lbf/in² (psi)	= = =	0.06895 0.000479 0.0000532	bar bar bar	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure         1       bf/in² (psi)         1       lbf/ft²         1       lbf/yd²         1       lbf/in² (psi)         Electrical Unit per Loge	= = =	0.06895 0.000479 0.0000532 0.703	bar bar bar	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure 1 bf/in <sup>2</sup> (psi) 1 lbf/ft <sup>2</sup> 1 lbf/yd <sup>2</sup> 1 lbf/in <sup>2</sup> (psi) Electrical Unit per L 1 μf per mile	= = = ength	0.06895 0.000479 0.0000532 0.703 0.62	bar bar bar kp/cm²	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure         1       bf/in² (psi)         1       lbf/ft²         1       lbf/yd²         1       lbf/in² (psi)         Electrical Unit per Lo         1       µf per mile         1       MΩ per mile	= = = ength =	0.06895 0.000479 0.0000532 0.703 0.62 1.61	bar bar bar kp/cm² μF/km MΩ x km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure         1       bf/in² (psi)         1       lbf/ft²         1       lbf/yd²         1       lbf/in² (psi)         Electrical Unit per Lo         1       µf per mile         1       MΩ per mile         1       decibel per mile	= = = ength = =	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62	bar bar bar kp/cm² μF/km MΩ x km dB/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure1 $bf/in^2$ (psi)1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)Electrical Unit per Lettical Unit per Le	= = = ength = = = = =	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28	bar bar bar kp/cm² µF/km MΩ x km dB/km pF/m	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure1 $bf/in^2$ (psi)1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)Electrical Unit per Lo1 $\mu f$ per mile1 $M\Omega$ per mile1decibel per mile1pf per foot1decibel per 1000 ft	= = = ength = = = =	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28	bar bar bar kp/cm² μF/km MΩ x km dB/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure1 $bf/in^2$ (psi)1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)Electrical Unit per L1 $\mu f$ per mile1 $M\Omega$ per mile1decibel per mile1pf per foot1decibel per 1000 ft1 $\Omega$ per 1000 ft	= = = ength = = = = = = = = =	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup>			
Pressure1 $bf/in^2$ (psi)1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)Electrical Unit per Lo1 $\mu f$ per mile1 $M \Omega$ per mile1decibel per mile1decibel per mile1pf per foot1decibel per 1000 ft2per 1000 ftAbbreviations for M	= = = = = = = = = = = = = =	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 3.28	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at		0.000293	
Pressure1 $bf/in^2$ (psi)1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)Electrical Unit per L1 $\mu f$ per mile1 $M\Omega$ per mile1decibel per mile1pf per foot1decibel per 1000 ft2per 1000 ftAbbreviations for MT	= = = = = = = = = = = = = = = = 10 <sup>12</sup>	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 <b>d Submultiple</b>	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at	= 10 <sup>12</sup>	0.000293	
Pressure         1 $bf/in^2$ (psi)         1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)         Electrical Unit per Lo         1 $\mu f$ per mile         1 $M \Omega$ per mile         1       decibel per mile         1       decibel per mile         1       decibel per 1000 ft         4bbreviations for M         Tera       T         Giga       G	= = = ength = = = = = = = ultiples an 10 <sup>12</sup> 10 <sup>9</sup>	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 3.28 <b>d Submultiple</b> billion * milliard *	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at Piko p Nano n	= 10 <sup>12</sup> 10 <sup>9</sup>	0.000293	
Pressure         1 $bf/in^2$ (psi)         1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)         Electrical Unit per Lo         1 $\mu f$ per mile         1 $M \Omega$ per mile         1       decibel per mile         1       decibel per 1000 ft         1 $decibel per 1000$ ft         Tera       T         Giga       G         Mega       M	= = = ength = = = = ultiples an 10 <sup>12</sup> 10 <sup>9</sup>	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 3.28 <b>d Submultiple</b> billion * milliard * milliard *	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at Piko p Nano n Mikro μ	10 <sup>12</sup> 10 <sup>9</sup> 10 <sup>6</sup>	0.000293	
Pressure         1 $bf/in^2$ (psi)         1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)         Electrical Unit per L         1 $µf$ per mile         1 $M\Omega$ per mile         1       decibel per mile         1       decibel per 1000 ft         1 $\Omega$ per 1000 ft         T         Giga         Giga       G         Mega       M         Kilo       k	= = = ength = = = = = ultiples an 10 <sup>12</sup> 10 <sup>9</sup> 10 <sup>6</sup> 10 <sup>3</sup>	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 d Submultiple billion * milliard * million thousand	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at Piko p Nano n Mikro μ Milli m	10 <sup>12</sup> 10 <sup>9</sup> 10 <sup>6</sup> 10 <sup>3</sup>	0.000293	
Pressure         1 $bf/in^2$ (psi)         1 $lbf/ft^2$ 1 $lbf/yd^2$ 1 $lbf/yd^2$ 1 $lbf/in^2$ (psi)         Electrical Unit per Lo         1 $\mu f$ per mile         1 $M \Omega$ per mile         1       decibel per mile         1       decibel per 1000 ft         1 $decibel per 1000$ ft         Tera       T         Giga       G         Mega       M	= = = ength = = = = ultiples an 10 <sup>12</sup> 10 <sup>9</sup>	0.06895 0.000479 0.0000532 0.703 0.62 1.61 0.62 3.28 3.28 3.28 3.28 3.28 <b>d Submultiple</b> billion * milliard * milliard *	bar bar bar kp/cm <sup>2</sup> μF/km MΩ x km dB/km pF/m dB/km Ω/km	1 Brit.therm.unit = 6.895 N/m <sup>2</sup> = 47.9 N/m <sup>2</sup> = 5.32 N/m <sup>2</sup> = 0.0703 at Piko p Nano n Mikro μ	= 10 <sup>12</sup> 10 <sup>9</sup> 10 <sup>6</sup> 10 <sup>3</sup> 10 <sup>2</sup>	0.000293	

## Table 2: Conductor Comparison AWG - Metric

	Conduct	tor Size		Electrical Resistance2)				
				EN 502	288-7 <sup>3)</sup>	UL	13 <sup>4)</sup>	
AWG	Metric <sup>1)</sup>	No. of	Conductor-Ø					
AWG	(mm²)	wires	(mm)	<b>(Ω/km)</b>	(Ω/ <b>1000 ft</b> )	(Ω/ <b>km</b> )	(Ω/ <b>1000 ft</b> )	
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			

				led copper cond			
	Conduc	tor Size			Electrical R	lesistance <sup>2)</sup>	
				EN 50	288-7 <sup>3)</sup>	UL	13 <sup>4)</sup>
AWG	Metric <sup>1)</sup>	No. of	Conductor-Ø				
AWG	( <b>mm</b> <sup>2</sup> )	wires	(mm)	(Ω/km)	(Ω/ <b>1000 ft</b> )	(Ω/ <b>km</b> )	(Ω/ <b>1000 ft</b> )
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

 $^{\scriptscriptstyle 2)}$   $\,$  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

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

Colour code of standardized product programme

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

 $^{\rm 2)}$   $\,$   $\,$  Identification scheme for elements with and without individual screen  $\,$ 

### Other color codes on request

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

	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		Procedures - Category A F/R			
-22	Procedures Category A	-2-2				
-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	-2-1	Procedures - Determination of the amount of halogen acid gas			
	combustion of materials taken from electric cables by measuring pH		Procedures - Determination of degree of acidity of gases for materials			
	and conductivity	-2-2	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			

## Reaction to Fire - IEC and corresponding European Standards

## Resistance to fire (IEC 60 331)

	IEC Standard		CENELEC Standard
No.	Title	No.	Title
IEC 60331			(under consideration)
	Tests for electric cables under fire conditions		
	- Circuit Integrity		
-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

	lumber	Туре	Size		Overall diameter	Cable weight
	ter sheath					
black	blue				approx. mm	approx. kg/km
-		ation, collective scre			5.2	20
7279E001	7279D001	RE-2Y(ST)Y-fl	$1 \times 2 \times 0.5 \text{ mm}^2/7$		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 5.6	94
7279E031 7279E034	7279D031	RE-2Y(ST)Y-fl	$1 \times 2 \times 0.75 \text{ mm}^2/7$			45
	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
• •	-		ve screen, PVC sheath			
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 mm²/7	PIMF	9.7	102
7279E199	7279D199	RE-2Y(ST)Y-fl	4 x 2 x 0,75 mm²/7	PIMF	11.2	149
-	•		en, PVC sheath reinforced			
7338E001	7338D001	RE-2Y(ST)Yv-fl	1 X 2 X 0,5 mm²/7		7.2	71
7338E004	7338D004	RE-2Y(ST)Yv-fl	2 X 2 X 0,5 mm²/7		9.4	107
7338E007	7338D007	RE-2Y(ST)Yv-fl	4 X 2 X 0,5 mm²/7		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 mm²/7		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 mm²/7		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 mm²/7		8.6	102
7338E094	7338D094	RE-2Y(ST)Yv-fl	2 X 2 X 1,3 mm²/7		12.0	171
7338E097	7338D097	RE-2Y(ST)Yv-fl	4 X 2 X 1,3 mm²/7		13.6	238
7338E103	7338D103	RE-2Y(ST)Yv-fl	8 X 2 X 1,3 mm²/7		16.9	390
7338E109	7338D109	RE-2Y(ST)Yv-fl	12 X 2 X 1,3 mm²/7		19.9	540
7338E112	7338D112	RE-2Y(ST)Yv-fl	16 X 2 X 1,3 mm²/7		22.4	688
7338E118	7338D118	RE-2Y(ST)Yv-fl	24 X 2 X 1,3 mm²/7		26.5	968
Multi-pair, PE	insulation, in	dividual and collectiv	ve screen, PVC sheath reint	orced 0.50 mm <sup>2</sup>		
7338E166	7338D166	RE-2Y(ST)Yv-fl	2 X 2 X 0,5 mm²/7	PiMF	10.5	128
7338E169	7338D169	RE-2Y(ST)Yv-fl	4 X 2 X 0,5 mm²/7	PiMF	11.8	169
7338E178	7338D178	RE-2Y(ST)Yv-fl	8 X 2 X 0,5 mm²/7	PiMF	14.5	268
7338E184	7338D184	RE-2Y(ST)Yv-fl	12 X 2 X 0,5 mm²/7	PiMF	16.9	354
7338E187	7338D187	RE-2Y(ST)Yv-fl	16 X 2 X 0,5 mm²/7	PiMF	19.0	442
7338E193	7338D193	RE-2Y(ST)Yv-fl	24 X 2 X 0,5 mm²/7	PiMF	22.3	615

	lumber	Туре	Size		Overall diameter	Cable weight
	iter sheath					
black	blue				approx. mm	approx. kg/km
• *			-	ed 0.75 mm <sup>2</sup> and 1.30 mm <sup>2</sup>		
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 mm²/7	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 mm²/7	PiMF	20.8	541
7338E223	7338D223	RE-2Y(ST)Yv-fl	24 X 2 X 0,75 mm²/7	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 mm²/7	PiMF	14.8	270
7338E268	7338D268	RE-2Y(ST)Yv-fl	8 X 2 X 1,3 mm²/7	PiMF	18.6	454
7338E274	7338D274	RE-2Y(ST)Yv-fl	12 X 2 X 1,3 mm²/7	PiMF	21.9	619
7338E277	7338D277	RE-2Y(ST)Yv-fl	16 X 2 X 1,3 mm²/7	PiMF	24.7	792
7338E283	7338D283	RE-2Y(ST)Yv-fl	24 X 2 X 1,3 mm²/7	PiMF	29.4	1125
-	i-pair, PE insula	ation, collective screen,	PVC sheath, armour			
7093E031	7093D031	RE-2Y(ST)YSWAY-fl	1 X 2 X 0,75 mm²/7		10.0	196
7093E034	7093D034	RE-2Y(ST)YSWAY-fl	2 X 2 X 0,75 mm²/7		13.1	299
7093E037	7093D037	RE-2Y(ST)YSWAY-fl	4 X 2 X 0,75 mm²/7		14.6	372
7093E043	7093D043	RE-2Y(ST)YSWAY-fl	8 X 2 X 0,75 mm²/7		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 0,7 <mark>5 mm<sup>2</sup>/7</mark>		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 mm²/7		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 1,3mm <sup>2</sup> /7		24.6	1093
7093E118	7093D118	RE-2Y(ST)YSWAY-fl	24 X 2 X 1,3mm <sup>2</sup> /7		32.0	1779
Single & Mult	i-pair, PE insula	ation, individual and co	llective screen, PVC sheath	, armour		
7093E196	7093D196	RE-2Y(ST)YSWAY-fl	2 X 2 X 0,75 mm²/7	PiMF	14.3	367
7093E199	7093D199	RE-2Y(ST)YSWAY-fl	4 X 2 X 0,75 mm²/7	PiMF	15.8	481
7093E208	7093D208	RE-2Y(ST)YSWAY-fl	8 X 2 X 0,75 mm²/7	PiMF	19.2	814
7093E214	7093D214	RE-2Y(ST)YSWAY-fl	12 X 2 X 0,75 mm²/7	PiMF	23.1	1179
7093E217	7093D217	RE-2Y(ST)YSWAY-fl	16 X 2 X 0,75 mm²/7	PiMF	25.7	1376
7093E223	7093D223	RE-2Y(ST)YSWAY-fl	24 X 2 X 0,75 mm²/7	PiMF	30.1	1803
7093E256	7093D256	RE-2Y(ST)YSWAY-fl	2 X 2 X 1,3 mm²/7	PiMF	16.0	459
7093E259	7093D259	RE-2Y(ST)YSWAY-fl	4 X 2 X 1,3 mm²/7	PiMF	18.2	665
7093E268	7093D268	RE-2Y(ST)YSWAY-fl	8 X 2 X 1,3 mm²/7	PiMF	23.3	950
7093E274	7093D274	RE-2Y(ST)YSWAY-fl	12 X 2 X 1,3 mm²/7	PiMF	27.0	1400
7093E283	7093D283	RE-2Y(ST)YSWAY-fl	24 X 2 X 1,3 mm²/7	PiMF	36.4	2495
Single & Mult	i-triple, PE insu	llation, collective scree	n			
7279E415	7279D415	RE-2Y(ST)Y-fl	1 x 3 x 1,3 mm²/7		7.20	88
Single & Mult	i-triple, PE insu	llation, collective scree	n, PVC sheath reinforced			
7338E415	7338D415	RE-2Y(ST)Yv-fl	1 X 3 X 1,3 mm²/7		9.0	124
Single & Mult	i-triple, PE insu	llation,collective screer	n, PVC sheath, armour			

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