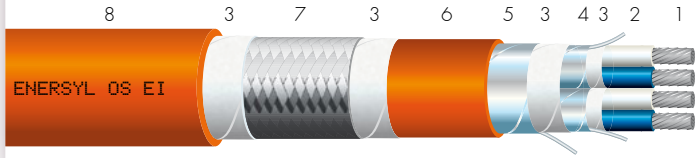
ENERSYL® OS 331 SHF1 INSTRUM

Instrumentation cables



1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
2 • Insulation: silicone rubber, type S 95 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • (optional) General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type SHF1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EI EG BG 331 SHF1 INSTRUM 2P1,5 mm²
OS: for offshore applications
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
331 : fire resistant cable
SHF1: nature of sheath material
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P, T, Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-376.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx 331 SHF1 INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +95 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **Electrical screen using copper/PET tape**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> ENERSYL® OS EI BE 331 EX SHF1 INSTRUM:
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> ENERSYL® OS EI EG 331 EX SHF1 INSTRUM:
with individual and general electrical screen (aluminium/PET tape).
> ENERSYL® OS BE 331 EX SHF1 INSTRUM:
with general electrical screen (tin-plated copper braid).
> ENERSYL® OS EG 331 EX SHF1 INSTRUM:
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.7	0.6	2.1	6.6		6.9		7.5		9.6		9.9		10.5	
2 **	0.5	7 / 0.30	36.7	0.6	2.1	7.5	10.2	10.5	11.4	13.0	13.1	10.5	13.3	13.6	14.6	16.4	16.5
3	0.5	7 / 0.30	36.7	0.6	2.1	10.0	10.8	11.3	12.1	14.0	14.1	13.1	13.9	14.5	15.3	17.4	17.5
4	0.5	7 / 0.30	36.7	0.6	2.1	10.9	11.9	12.4	13.2	15.4	15.5	14.0	15.1	15.6	16.6	19.0	19.1
5	0.5	7 / 0.30	36.7	0.6	2.1	12.1	13.0	13.5	14.6	17.0	17.1	15.3	16.4	16.9	18.0	20.7	20.8
6	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
7	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
8	0.5	7 / 0.30	36.7	0.6	2.1	14.9	16.1	16.9	18.1			18.3	19.7	20.6	21.9		
9	0.5	7 / 0.30	36.7	0.6	2.1	16.2	17.6	18.3	19.6			19.7	21.4	22.1	23.4		
12	0.5	7 / 0.30	36.7	0.6	2.1	17.6	19.0	19.9	21.3			21.4	22.7	23.7	25.2		
19	0.5	7 / 0.30	36.7	0.6	2.1	20.7	22.3	23.4	25.1			24.5	26.3	27.4	29.1		
24	0.5	7 / 0.30	36.7	0.6	2.1	24.4	26.4					28.3	30.6				
37	0.5	7 / 0.30	36.7	0.6	2.1	28.2	30.4					32.4	34.6				
1	0.75	7 / 0.37	24.8	0.6	2.4	7.2		7.6		8.3		10.2		10.6		11.3	
2 **	0.75	7 / 0.37	24.8	0.6	2.4	8.3	11.2	11.8	12.6	14.4	14.5	11.3	14.3	14.9	15.8	17.8	17.9
3	0.75	7 / 0.37	24.8	0.6	2.4	11.1	12.1	12.5	13.4	15.6	15.7	14.2	15.3	15.7	16.7	19.2	19.3
4	0.75	7 / 0.37	24.8	0.6	2.4	12.3	13.2	13.7	14.9	17.2	17.3	15.5	16.4	17.0	18.3	20.7	20.8
5	0.75	7 / 0.37	24.8	0.6	2.4	13.4	14.4	15.2	16.4	19.0	19.1	16.7	17.8	18.7	19.9	22.7	22.8
6	0.75	7 / 0.37	24.8	0.6	2.4	14.8	16.0	16.6	18.0	20.9	21.0	18.2	19.6	20.2	21.7	24.7	24.8
7	0.75	7 / 0.37	24.8	0.6	2.4	14.8	16.0	16.6	18.0	20.9	21.0	18.2	19.6	20.2	21.7	24.7	24.8
8	0.75	7 / 0.37	24.8	0.6	2.4	16.7	18.1	18.9	20.2			20.2	21.8	22.6	24.0		
9	0.75	7 / 0.37	24.8	0.6	2.4	18.3	19.6	20.4	22.1			21.9	23.4	24.2	25.9		
12	0.75	7 / 0.37	24.8	0.6	2.4	19.7	21.4	22.3	24.1			23.4	25.1	26.1	28.0		
19	0.75	7 / 0.37	24.8	0.6	2.4	23.2	25.2	26.3	28.4			27.0	29.1	30.2	32.5		
24	0.75	7 / 0.37	24.8	0.6	2.4	27.5	29.8					31.6	34.0				
37	0.75	7 / 0.37	24.8	0.6	2.4	31.7	34.3					35.9	38.7				
1	1	7 / 0.43	18.2	0.6	2.5	7.4		7.8		8.8		10.4		10.8		11.8	
2 **	1	7 / 0.43	18.2	0.6	2.5	8.6	11.8	12.2	13.1	15.1	15.3	11.6	15.0	15.4	16.4	18.7	18.9
3	1	7 / 0.43	18.2	0.6	2.5	11.7	12.5	12.9	13.9	16.2	16.3	14.9	15.7	16.2	17.3	19.7	19.8
4	1	7 / 0.43	18.2	0.6	2.5	12.7	13.7	14.4	15.5	17.9	18.0	15.9	17.1	17.8	19.0	21.7	21.8
5	1	7 / 0.43	18.2	0.6	2.5	13.9	15.1	15.8	16.9	19.6	19.7	17.3	18.7	19.3	20.5	23.4	23.5
6	1	7 / 0.43	18.2	0.6	2.5	15.4	16.6	17.4	18.6	21.7	21.8	19.0	20.1	21.1	22.4	25.4	25.5
7	1	7 / 0.43	18.2	0.6	2.5	15.4	16.6	17.4	18.6	21.7	21.8	19.0	20.1	21.1	22.4	25.4	25.5
8	1	7 / 0.43	18.2	0.6	2.5	17.4	18.8	19.5	21.1			21.1	22.5	23.3	24.9		
9	1	7 / 0.43	18.2	0.6	2.5	18.9	20.5	21.4	22.9			22.6	24.3	25.1	26.8		
12	1	7 / 0.43	18.2	0.6	2.5	20.6	22.1	23.2	24.9			24.3	26.0	27.2	28.9		
19	1	7 / 0.43	18.2	0.6	2.5	24.2	26.3	27.4	29.6			28.2	30.3	31.6	33.7		
24	1	7 / 0.43	18.2	0.6	2.5	28.5	30.9					32.7	35.2				
37	1	7 / 0.43	18.2	0.6	2.5	33.0	35.8					37.4	40.2				
1	1.5	7 / 0.52	12.2	0.7	3.0	8.5		9.0		10.0		11.5		12.0		13.1	
2 **	1.5	7 / 0.52	12.2	0.7	3.0	10.0	13.6	14.3	15.4	17.8	17.9	13.0	17.0	17.7	18.9	21.5	21.7
3	1.5	7 / 0.52	12.2	0.7	3.0	13.4	14.6	15.2	16.4	19.0	19.1	16.7	18.0	18.7	19.9	22.7	22.8
4	1.5	7 / 0.52	12.2	0.7	3.0	14.9	16.1	16.7	18.1	21.1	21.2	18.3	19.7	20.3	21.9	24.8	24.9
5	1.5	7 / 0.52	12.2	0.7	3.0	16.4	17.8	18.5	19.8	23.3	23.4	19.9	21.5	22.3	23.6	27.3	27.4
6	1.5	7 / 0.52	12.2	0.7	3.0	18.1	19.4	20.4	21.9	25.5	25.6	21.8	23.2	24.2	25.7	29.4	29.5
7	1.5	7 / 0.52	12.2	0.7	3.0	18.1	19.4	20.4	21.9	25.5	25.6	21.8	23.2	24.2	25.7	29.4	29.5
8	1.5	7 / 0.52	12.2	0.7	3.0	20.5	22.0	23.1	24.8			24.2	25.9	27.1	28.8		
9	1.5	7 / 0.52	12.2	0.7	3.0	22.2	24.1	25.1	27.1			26.1	28.1	29.1	31.2		
12	1.5	7 / 0.52	12.2	0.7	3.0	24.2	26.2	27.4	29.5			28.1	30.3	31.5	33.7		
19	1.5	7 / 0.52	12.2	0.7	3.0	28.7	30.9	32.5	35.1			32.9	35.2	36.7	39.5		
24	1.5	7 / 0.52	12.2	0.7	3.0	33.8	36.6					38.3	41.1				
37	1.5	7 / 0.52	12.2	0.7	3.0	39.1	42.4					43.8	47.0				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.