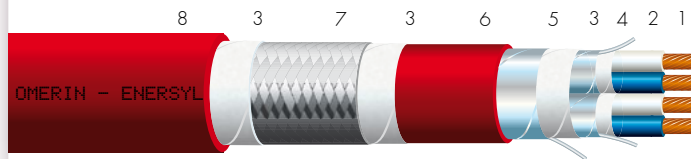


# ENERSYL® HT INSTRUM

## Instrumentation cables



- 1 • Stranded bare copper core, class 2 as per IEC 60228.
- 2 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
- 3 • Optional separating tape.
- 4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
- 5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
- 6 • (optional) Internal sheath: silicone rubber.
- 7 • (optional) Armour: galvanized steel braid (BG).
- 8 • Outer sheath: silicone rubber.

### Reference

- (example) ENERSYL® HT EI BG INSTRUM 2P1,5 mm<sup>2</sup>  
HT: high temperature  
EI, EG, BE, BR: type of electrical screen  
BG: type of armour  
INSTRUM: instrumentation cable  
2 : number of pairs, triples or quads  
P,T,Q: pairs, triples or quads  
1.5 mm<sup>2</sup>: cross-section in mm<sup>2</sup>

### Approvals - standards

- IEC 60228 / NF C 32-090.
- IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
- IEC 60331-21 / NF EN 50200.
- IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

### Markings

- OMERIN – ENERSYL < HT xx xx INSTRUM >  
< cross-section > – 300/500V – < batch > – < year >

### Standard products

- Sheath: brick red.
- 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: -60 °C to +200 °C.

#### Electrical

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

#### Smoke - fire

- Flame retardant – cable alone:  
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
- Flame retardant – bunched cable:  
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
- Fire retardant: NF C 32-070 test C1.
- Fire resistant: IEC 60331-21 / NF EN 50200.
- Low smoke density: IEC 61034-2 / NF EN 61034-2.
- Halogen-free: IEC 60754-1 / NF EN 60754-1.
- Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

#### Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

- Good resistance to acid.
- Fairly good resistance to base.
- Good resistance to IRM 902 mineral oil.
- 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

- FLEX: flexible tin-plated copper core, class 5 as per IEC 60228.  
(0.9 mm<sup>2</sup> cross-section replaced by 1 mm<sup>2</sup>).
- Other colours: 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® HT EI BE EX INSTRUM:  
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).  
> ENERSYL® HT EI EX INSTRUM:  
with individual and general electrical screen (aluminium/PET tape).  
> ENERSYL® HT BE EX INSTRUM:  
with general electrical screen (tin-plated copper braid).  
> ENERSYL® HT EG EX INSTRUM:  
with general electrical screen (aluminium/PET tape).

For this product, please contact:

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The information provided in this technical data sheet is indicative and may be modified without prior notice, laying, wiring and electrical conditions and the environment of the cable can not be fully considered in our studies. In no way the company OMERIN shall be held responsible for any incidents in the case of inappropriate uses, particularly in the case of wiring conditions that do not respect the good practice and the standards in force.  
For an optimum use of the cables produced by our company, we recommend testing in real conditions. Our sales department is available for a possible provision of samples, and/or for the conditions of a complete study in our laboratories.  
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Number of pairs, triples or quads	Nominal cross-section (mm <sup>2</sup> )	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	36.0	0.6	2.1	6.0		6.4		7.5		9.4		9.8		11.5	
2**	0.5	7 / 0.30	36.0	0.6	2.1	7.3	10.0	11.5	12.3	12.8	13.8	11.2	14.1	15.6	16.5	17.0	18.0
3	0.5	7 / 0.30	36.0	0.6	2.1	10.0	11.1	12.1	12.8	13.8	14.9	14.1	15.2	16.2	17.0	18.2	19.4
4	0.5	7 / 0.30	36.0	0.6	2.1	11.4	12.0	13.2	13.9	15.0	16.2	15.5	16.1	17.3	18.1	19.5	20.8
5	0.5	7 / 0.30	36.0	0.6	2.1	12.4	13.0	14.6	15.4	16.4	17.7	16.5	17.1	19.0	20.0	21.4	22.8
6	0.5	7 / 0.30	36.0	0.6	2.1	13.4	14.3	15.8	16.7	18.0	19.6	17.5	18.7	20.3	21.3	23.1	24.6
7	0.5	7 / 0.30	36.0	0.6	2.1	13.4	14.3	15.8	16.7	18.0	19.6	17.5	18.7	20.3	21.3	23.1	24.6
8	0.5	7 / 0.30	36.0	0.6	2.1	15.2	16.0	17.6	19.0			19.7	20.5	22.6	24.0		
9	0.5	7 / 0.30	36.0	0.6	2.1	16.4	17.2	19.4	20.5			20.9	22.2	24.3	26.0		
12	0.5	7 / 0.30	36.0	0.6	2.1	17.6	18.9	20.8	22.5			22.6	23.8	26.2	28.3		
19	0.5	7 / 0.30	36.0	0.6	2.1	20.8	22.3	24.7	26.6			26.2	28.1	30.8	32.8		
24	0.5	7 / 0.30	36.0	0.6	2.1	24.7	26.4					30.8	32.5				
37	0.5	7 / 0.30	36.0	0.6	2.1	28.9	30.8					35.5	37.4				
1	0.9	7 / 0.40	20.6	0.6	2.4	7.0		7.5		8.2		10.9		11.4		12.2	
2**	0.9	7 / 0.40	20.6	0.6	2.4	8.0	11.5	12.7	13.9	14.2	15.5	11.9	15.6	16.8	18.1	18.5	20.1
3	0.9	7 / 0.40	20.6	0.6	2.4	11.6	12.1	13.4	14.3	15.1	16.4	15.7	16.2	17.5	18.8	19.5	21.1
4	0.9	7 / 0.40	20.6	0.6	2.4	12.6	13.2	14.8	15.5	16.6	17.9	16.7	17.3	19.2	20.2	21.3	23.0
5	0.9	7 / 0.40	20.6	0.6	2.4	13.7	14.6	16.1	16.9	18.3	20.0	17.8	19.0	20.7	22.0	23.0	25.4
6	0.9	7 / 0.40	20.6	0.6	2.4	15.1	15.8	17.5	18.7	19.9	22.2	19.7	20.4	22.5	23.8	25.0	27.6
7	0.9	7 / 0.40	20.6	0.6	2.4	15.1	15.8	17.5	18.7	19.9	22.2	19.7	20.4	22.5	23.8	25.0	27.6
8	0.9	7 / 0.40	20.6	0.6	2.4	16.9	17.7	19.9	21.0			21.8	22.6	25.3	26.4		
9	0.9	7 / 0.40	20.6	0.6	2.4	18.6	19.4	22.0	23.1			23.5	24.4	27.3	29.0		
12	0.9	7 / 0.40	20.6	0.6	2.4	20.0	20.9	23.7	25.3			25.3	26.3	29.4	31.6		
19	0.9	7 / 0.40	20.6	0.6	2.4	23.7	24.8	28.4	30.3			29.4	30.9	34.6	37.0		
24	0.9	7 / 0.40	20.6	0.6	2.4	28.4	30.1					34.6	36.7				
37	0.9	7 / 0.40	20.6	0.6	2.4	32.8	34.7					39.3	41.6				
1	1.5	7 / 0.52	12.1	0.6	2.8	7.8		8.3		9.1		11.7		12.2		13.1	
2**	1.5	7 / 0.52	12.1	0.6	2.8	9.4	12.8	14.4	15.9	16.2	17.4	13.3	16.9	18.8	20.6	20.9	22.5
3	1.5	7 / 0.52	12.1	0.6	2.8	13.0	13.6	15.3	15.9	17.2	18.8	17.1	17.7	19.9	20.6	21.9	23.9
4	1.5	7 / 0.52	12.1	0.6	2.8	14.4	14.9	16.7	17.4	18.9	20.5	18.8	19.3	21.2	22.4	23.6	26.0
5	1.5	7 / 0.52	12.1	0.6	2.8	15.7	16.3	18.5	19.4	21.0	23.0	20.3	20.9	23.5	24.4	26.0	28.8
6	1.5	7 / 0.52	12.1	0.6	2.8	17.1	18.0	20.2	21.1	22.9	25.4	22.0	22.9	25.5	26.5	28.3	31.7
7	1.5	7 / 0.52	12.1	0.6	2.8	17.1	18.0	20.2	21.1	22.9	25.4	22.0	22.9	25.5	26.5	28.3	31.7
8	1.5	7 / 0.52	12.1	0.6	2.8	19.4	20.2	23.0	24.1			24.4	25.6	28.8	30.3		
9	1.5	7 / 0.52	12.1	0.6	2.8	21.0	22.3	25.3	26.5			26.4	28.1	31.5	32.7		
12	1.5	7 / 0.52	12.1	0.6	2.8	23.1	24.0	27.3	29.0			28.9	30.2	33.5	35.0		
19	1.5	7 / 0.52	12.1	0.6	2.8	27.4	28.9	32.7	34.2			33.5	35.4	39.3	41.3		
24	1.5	7 / 0.52	12.1	0.6	2.8	32.8	34.1					39.3	41.0				
37	1.5	7 / 0.52	12.1	0.6	2.8	37.7	39.2					44.7	46.6				

\* 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.

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For an optimum use of the cables produced by our company, we recommend testing in real conditions. Our sales department is available for a possible provision of samples, and/or for the conditions of a complete study in our laboratories.

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