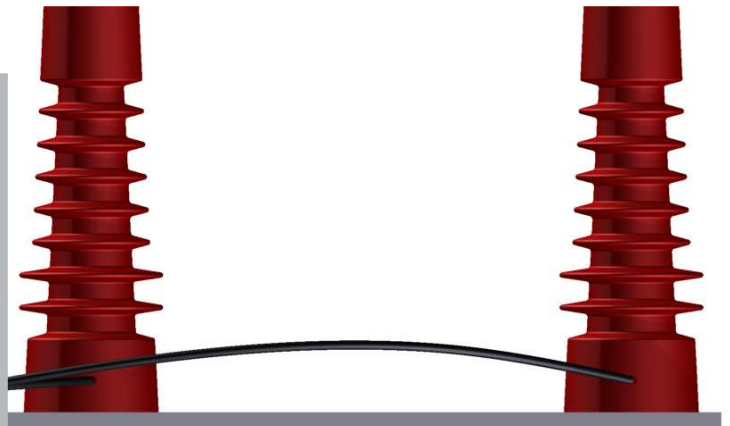


ELECTRONSYSTEM MD TECHNICAL SHEET

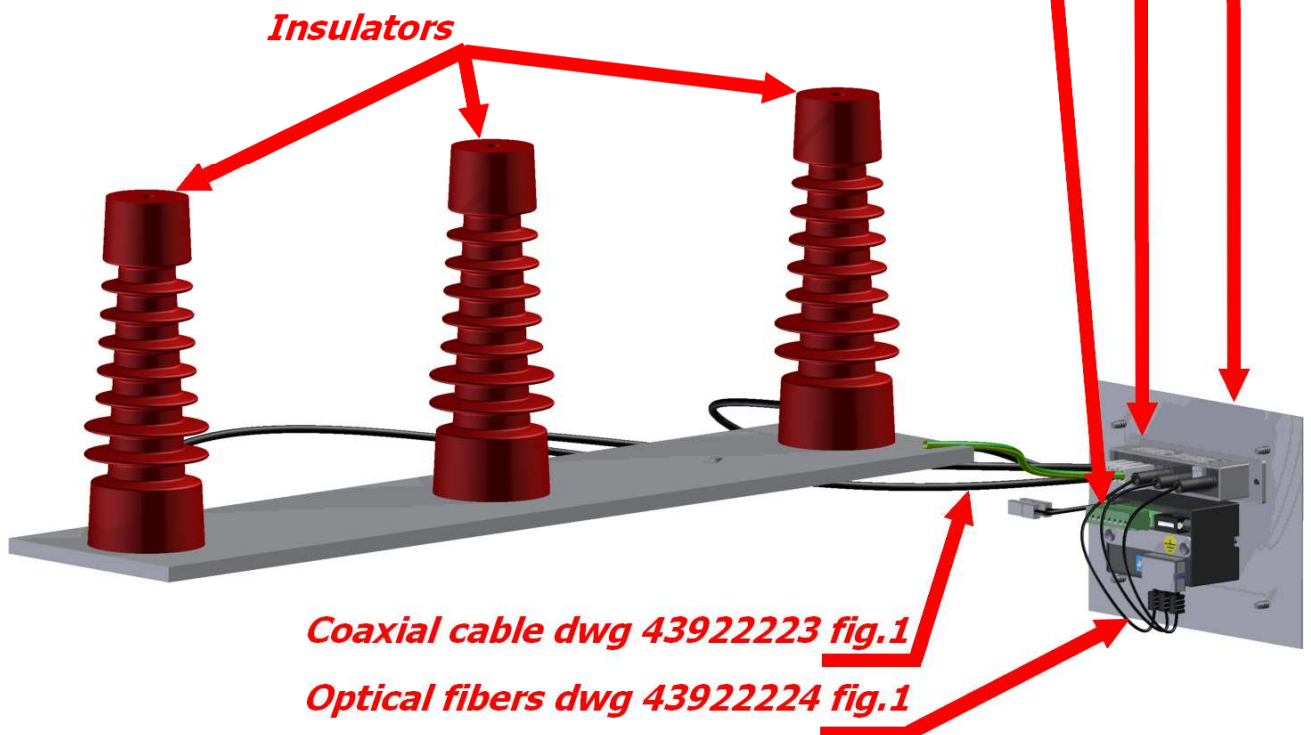
Revision 0 of 11 October 2024



Fixing plate dwg 43931320

VDIS/LRM/R DWG 43931286

Relay RHV dwg 43931167



Insulators

Coaxial cable dwg 43922223 fig.1

Optical fibers dwg 43922224 fig.1

All specs are subject to change without notice

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DESCRIPTION

This innovative and safe solution is designed to get easily and cost effectively a remote indication of presence/absence of voltage on a bus bar.

The system is composed basically by two devices:

1. voltage detecting system
2. relay for remote indication
3. optical cable fiber link between voltage detecting system and relay

Voltage detecting system, in accordance with IEC62271, continuously detects and indicates by blinking lamps on front the actual live phases and on rear transmits optical signals to relay.

Optical cable fiber assures a complete galvanic insulation between potential medium voltage section and low voltage section.

Voltage detecting system not only displays the live voltage, but also is suitable for optical phase comparison as the signals emitted by blinking lamps are synchronous and coherent with medium voltage.

Relay for remote indication, with double changeover contacts, is able to inform locally about the voltage presence or absence for a quick view and also allow remotely to know the status of voltage on busbar in order to implement logic protection.

Remote indication of medium voltage presence are available depending on AND / OR logic of considering the three phases voltage.

The great advantage of this solution is the complete insulation guaranteed by optical cable that ensures, even in case of failure of capacitive divider, no damage or discharge to low voltage compartment.

Typical application of such a system are: automatic switching from standard power line to emergency one or electrical safe supervision to avoid earth closing with live voltage.

Dimension

Drawing:
43931351

Material/Materiale		N/A	General tolerance for machining / Tolleranze generali per lavorazioni meccaniche:		ISO 2768 - mK
Finishing / Finitura			Thread quality tolerance "Tolleranza filetti" qualità "9g-6S" UNI 5541-85	Tolerance for linear and angular dimensions Tolleranza per dimensioni lineari ed angolari "g6-gS" UNI 5541-85	
Prep. C. FORLANI		Reso. Dep. Uff. Resp.	Technical Dept.		Title ASSEMBLY VDIS RHV
App. P. GUIZZETTI					
First issue		09.05.2024	Apparatus Apparecchio		Scale Scala
ELECTRONSYSTEM MD S.r.l.			Doc. No. 43931351		1:1
			N° Doc.		1/1

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VDIS/LRM/R

APPLICATIONS

- Medium Voltage Switchboards

MAIN CHARACTERISTICS

- VDIS/LRM is an integrated voltage detecting indicating system conform to IEC62271-213/2021
- The device supplies continuously an electrical signal for phase comparison and optical blinking led for voltage indication
- Very wide and bright leds allow simple and safe visibility for personnel encharged in verification
- Suitable for indoor applications / outdoor with waterproof socket
- Fully encapsulated electronics for harsh environment
- LED life time guaranteed - min. 30 years
- Suitable for panel mounting



This capacitive voltage module is used in medium voltage switchgears. The voltage detector indicator and the coupling system is tested and manufactured according to the requirements of IEC 62271-213

The indication of the voltage is displayed with one flashing LED for each phase with a separable indicator. The test sockets for phase comparing are nickel plated. The capacitive module has to be simply adapted to the capacitive bushing or the insulator , in which the module is used.

Electrical characteristics VDIS/LRM

Coupling capacity range	pF	From 10 to 200 (other values on request)
Medium Voltage range	kV	From 3.6 to 36
Power supply		No auxiliary power requested
Indication		Red led on the indicator
Led Consumption	mW	< 1
Led Intensity	Mcd	3000@20mA
Interface		Ø4 mm measuring
Temperature range	°C	-25 to +65
IP degree protection	IP	>2X coupling system, 65 the indicator
Connection input		4x faston 4.8x0.5mm or 6.3x0.8mm
Box		Polyamide PA66

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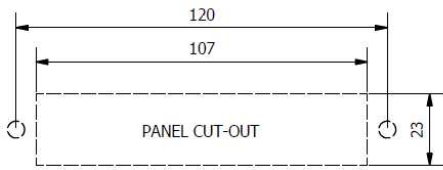
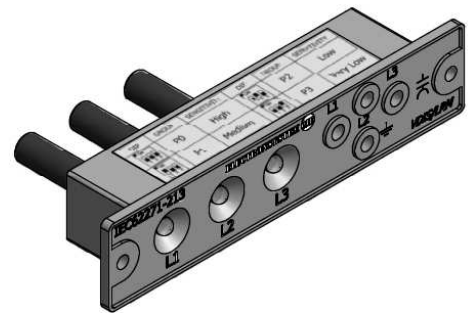
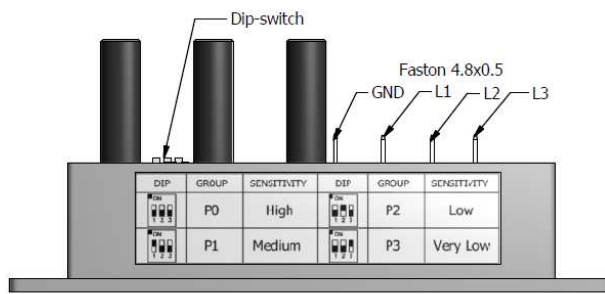
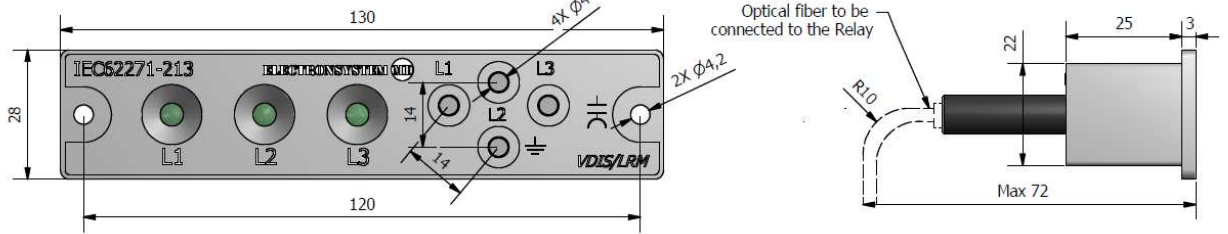
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Dimension VDIS/LRM/R

Drawing:
43931286

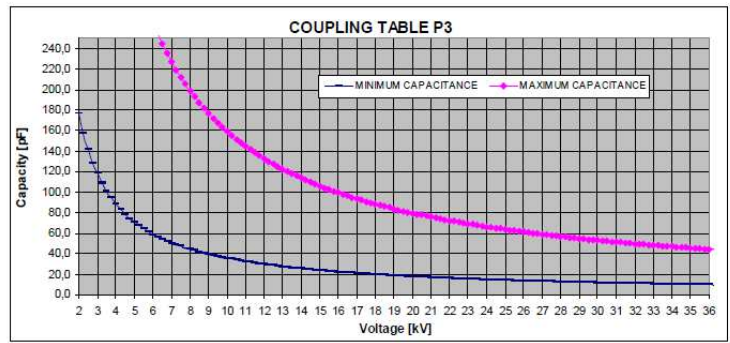
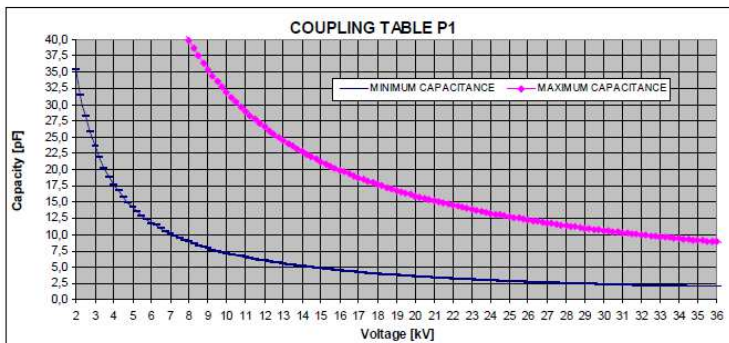
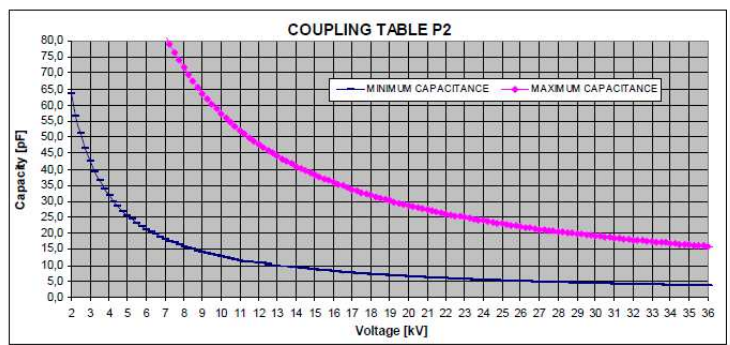
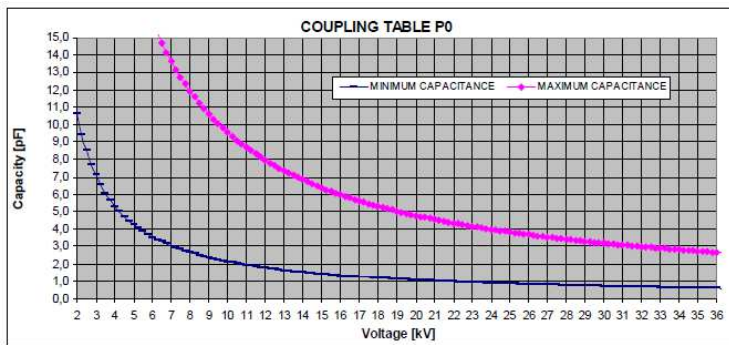
VDIS/LRM/R



Material/Materiale	N/A	General tolerance for machining / Tolleranze generali per lavorazioni meccaniche:	
Finishing / Finiture		Thread quality tolerance Tolleranza filetti qualità "Bg-65" UNI 5541-65	Tolerance for linear and angular dimensions Tolleranze per dimensioni lineari ed angolari Geometrical tolerances for features Tolleranze geometriche
Prep. Dis.	C. FORLANI	Resp. Dep. Uff. Resp.	Technical Dept.
App. P.	P. GUIZZETTI	Title	VDIS/LRM
First issue	01/12/2021	Apparatus	43931286
ELECTRONSYSTEM MD s.r.l.		Doc. No.	
		N° Doc.	
		Scale	1:1
		Sp. No.	
		Bcg.	

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Coupling tables VDIS/LRM/R



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With this device you can achieve the better protection because of the galvanic insulation guaranteed by optical link.

This relay receives optical signal of the phase from the HVD3/RM and supplies :

- Two changeover contacts for the remote signalling of "NO VOLTAGE"
- a local signal of "MEDIUM VOLTAGE PRESENCE"
- a local signal of "MEDIUM VOLTAGE ABSENCE"
- a local signal of "AUXILIARY VOLTAGE"

RHV

Technical features

Nominal voltage DC :24÷220 ±10%
Nominal voltage AC :24÷230 ±10% 50-60Hz
Input :optical synchronous signal
Temperature range :-30°C ÷ 70°C

Conform to ENEL: GLI, R EMC 01 and R CLI 01

Dielectric strength :275KV
Surge strength :650KV
IP degree protection :IP64(*)

Relè features

Contacts Material :Ag. CdO
Nominal Value :5A 250VAC (cosφ=1.0)
:3A 250VAC (cosφ=0.4)
:5A 30VDC

Max changeover current :5 A
Max changeover voltage :250 VCA, 100VDC
Electric live :5A/250 VCA cosφ1 1 x 10⁵ cycles
Mechanical live :5 x 10⁶ cycles
Dielectric strength (open contacts) :1000VAC 1min
(coil-contacts)5000VAC 1min
Surge strength :min 10000V/1.2X50us

(*) output connector IP30

Material

Box : Polyurethan resin (2-component)

Connection input :optical fiber
output :Connector with screw removable

ELECTRONSYSTEM MD TECHNICAL SHEET

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Dimension & Features RHV

Drawing:
43931167

Technical drawing showing the front and side views of the RHV Voltage Relay. The front view includes dimensions: 78mm total width, 66mm between LED1 and LED2, 64mm between PRESENCE and ABSENCE LEDs, and 80mm between PRESENCE and POWER LEDs. The side view shows a height of 51.5mm and a depth of 68.5mm. A 3D perspective view shows the black relay with a green terminal block and labels for PRESENCE, ABSENCE, and POWER LEDs. A drilling template is also shown.

Prep. Dis. C. FORLANI	ELECTRONSYSTEM MD S.r.l.		Scale 1:1
App. P. GUZZETTI	Resp. Dep. Technical Dept.	Title RHV	
First issue: 05.09.2019	Livr. Resp.	Apparatus: Apparecchio	Doc. No. 43931167
NOTE:			Scale 1:1

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Technical drawing showing the electrical connection details of the RHV Voltage Relay. It includes a terminal block with 8 terminals numbered 1 to 8. Terminal 1 is for 24-220Vdc, 24-230Vac, 50/60Hz. Terminals 2-8 are for RL2 and RL1. A 500mA 5X20 Fuse is connected to terminal 8. A ground cable with an eyelet of 05mm is connected to the bottom. A dip-switch is used for function selection. The drawing also shows the internal components and a 3D perspective view of the terminal block.

A - ELECTRICAL CONNECTION

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App. P. GUZZETTI	Resp. Dep. Technical Dept.	Title RHV	
First issue: 05.09.2019	Livr. Resp.	Apparatus: Apparecchio	Doc. No. 43931167
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Dimension & Features RHV

Drawing:
43931167

<p>Descrizione:</p> <ul style="list-style-type: none"> -Led 1 (Rosso) : Presenza tensione primaria -Led 2 (Verde): Assenza tensione primaria -Led 3 (Blu): Presenza tensione ausiliaria -R : Ricevitore ottico (collegare tramite fibra ottica a HVD3/RM, HVD3/RC.....) -Uscita contatti con connettore a vite estraibile come segue : 	<p>Descrizione:</p> <ul style="list-style-type: none"> -Led 1 (Red) : High Voltage presence -Led 2 (Green): High Voltage absence -Led 3 (Blue): Auxiliary Voltage presence -R : Optical receiver (linked by optical fiber to HVD3/RM, HVD3/RC..... device) -Output contacts with removable plug as following: 																																																										
<p>1 : Positivo di alimentazione (+) 24±220Vdc, 24±230Vac 50-60Hz</p> <p>2 : Negativo di alimentazione (-)</p>	<p>1 : Power (+) 24±220Vdc, 24±230Vac 50-60Hz</p> <p>2 : GND (-)</p>																																																										
<p>3 : Contatto normalmente chiuso (nc)</p> <p>4 : Comune (c)</p> <p>5 : Contatto normalmente aperto (na)</p>	<p>3 : Normally closed contact (nc)</p> <p>4 : Common (c)</p> <p>5 : Normally opened contact (na)</p>																																																										
<p>6 : Contatto normalmente chiuso (nc)</p> <p>7 : Comune (c)</p> <p>8 : Contatto normalmente aperto (na)</p>	<p>6 : Normally closed contact (nc)</p> <p>7 : Common (c)</p> <p>8 : Normally opened contact (na)</p>																																																										
<p>STATO RELE SENZA ALIMENTAZIONE</p>	<p>RELAY STATUS WITHOUT AUX VOLTAGE</p>																																																										
<table border="1"> <thead> <tr> <th>DIP-SWITCH SETUP</th> <th>VOLTAGE STATUS</th> <th>R1</th> <th>R2</th> </tr> </thead> <tbody> <tr> <td rowspan="3"></td> <td>ABSENCE</td> <td></td> <td></td> </tr> <tr> <td>PRESENCE</td> <td></td> <td></td> </tr> <tr> <td>MIXED</td> <td></td> <td></td> </tr> <tr> <td rowspan="3"></td> <td>ABSENCE</td> <td></td> <td></td> </tr> <tr> <td>PRESENCE</td> <td></td> <td></td> </tr> <tr> <td>MIXED</td> <td></td> <td></td> </tr> <tr> <td rowspan="3"></td> <td>ABSENCE</td> <td></td> <td></td> </tr> <tr> <td>PRESENCE</td> <td></td> <td></td> </tr> <tr> <td>MIXED</td> <td></td> <td></td> </tr> </tbody> </table>	DIP-SWITCH SETUP	VOLTAGE STATUS	R1	R2		ABSENCE			PRESENCE			MIXED				ABSENCE			PRESENCE			MIXED				ABSENCE			PRESENCE			MIXED			<table border="1"> <thead> <tr> <th>VOLTAGE STATUS</th> <th>L1</th> <th>L2</th> <th>L3</th> <th>LED1</th> <th>LED2</th> </tr> </thead> <tbody> <tr> <td>ABSENCE</td> <td>-</td> <td>-</td> <td>-</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>PRESENCE</td> <td>X</td> <td>X</td> <td>X</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>MIXED</td> <td>X</td> <td>X</td> <td>X</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> <p>- = OFF X= ON</p>	VOLTAGE STATUS	L1	L2	L3	LED1	LED2	ABSENCE	-	-	-	OFF	ON	PRESENCE	X	X	X	ON	OFF	MIXED	X	X	X	OFF	OFF
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<p>NOTE:</p> <p>Prep. Dis. C. FORLANI</p> <p>App. P. GUIZZETTI</p> <p>First Issue: 05.09.2019</p> <p>Resp. Dep. Uff. Resp. Technical Dept.</p> <p>Title Titolo Apparecchio Apparecchio</p> <p>Doc. No. N° Doc. 43931167</p> <p>Scale Scala 1:1</p>																																																											

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<p>DIP-SWITCH SETUP</p> <p>VOLTAGE STATUS</p> <p>R1</p> <p>R2</p> <p>R3*</p> <p>OLD TYPE CROSS REFERENCE</p>	<p>ACCESSORY AVAILABLE ON REQUEST</p>
<p>VOLTAGE ABSENCE</p> <p>VOLTAGE PRESENCE</p> <p>MIXED VOLTAGE</p>	<p>RHV/A/S</p> <p>RHV/A/3/805/S*</p>
<p>VOLTAGE ABSENCE</p> <p>VOLTAGE PRESENCE</p> <p>MIXED VOLTAGE</p>	<p>RHV/R</p>
<p>VOLTAGE ABSENCE</p> <p>VOLTAGE PRESENCE</p> <p>MIXED VOLTAGE</p>	<p>RHV/B</p>
<p>ANNEX 1</p> <p>ORDERING CODE</p> <p>RHV / [] / [3]</p> <p>[3] = third contact (R3)</p> <p>DIN = Din rail support included</p>	<p>DIN RAIL TS 35, ACCESSORY AVAILABLE ON REQUEST</p>
<p>NOTE:</p> <p>Prep. Dis. C. FORLANI</p> <p>App. P. GUIZZETTI</p> <p>First Issue: 05.09.2019</p> <p>Resp. Dep. Uff. Resp. Technical Dept.</p> <p>Title Titolo Apparecchio Apparecchio</p> <p>Doc. No. N° Doc. 43931167</p> <p>Scale Scala 1:1</p>	

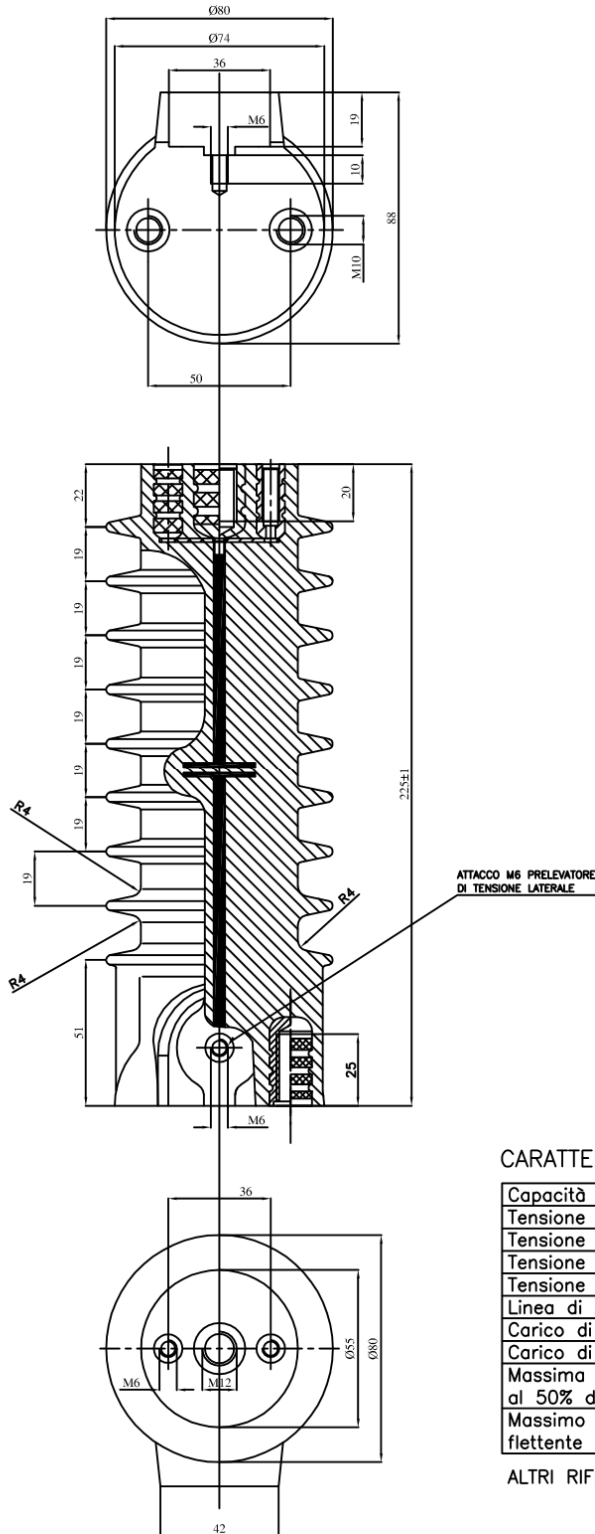
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Accessories: Insulator CD24/L

Drawing:
43922212



CARATTERISTICHE

Capacità	pF	>7
Tensione nominale	kV	24
Tensione di tenuta a frequenza industriale	kV	50
Tensione di tenuta ad impulso atmosferico	kV	125
Tensione di perforazione elettrica	kV eff.	163
Linea di fuga minima	mm	350
Carico di rottura a flessione P ₀	N	3000
Carico di rottura a flessione P ₅₀	N	2500
Massima differenza tra le frecce al 20% e al 50% del carico di rottura a flessione P ₀	mm	3.2
Massimo valore della freccia residua a carico flettente rimosso	mm	0.42

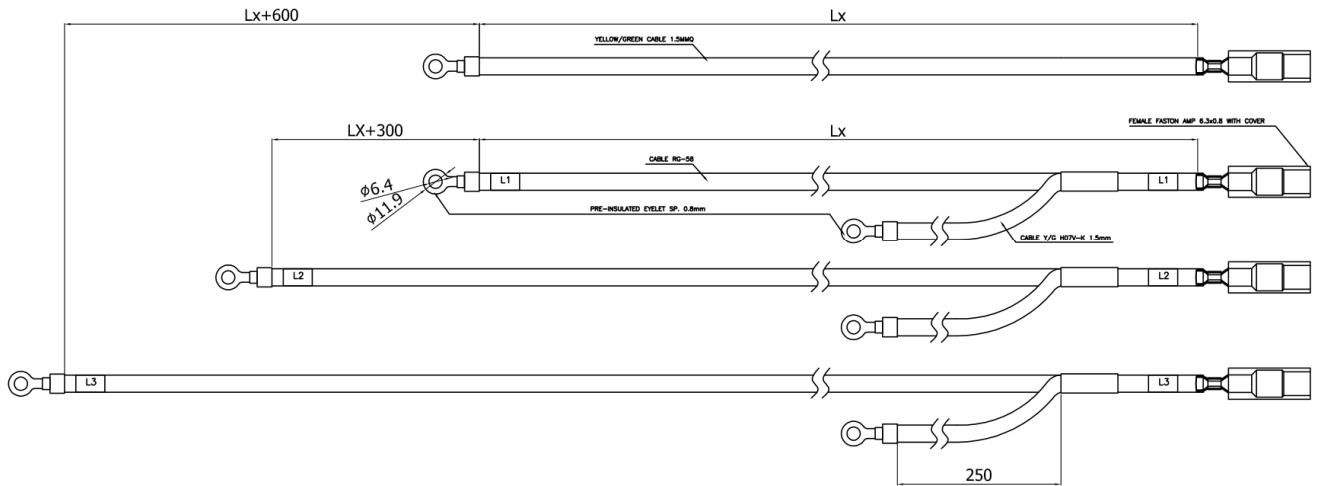
ALTRI RIFERIMENTI COME DA UNIFICAZIONE ENEL DJ 1054 Ed. 1

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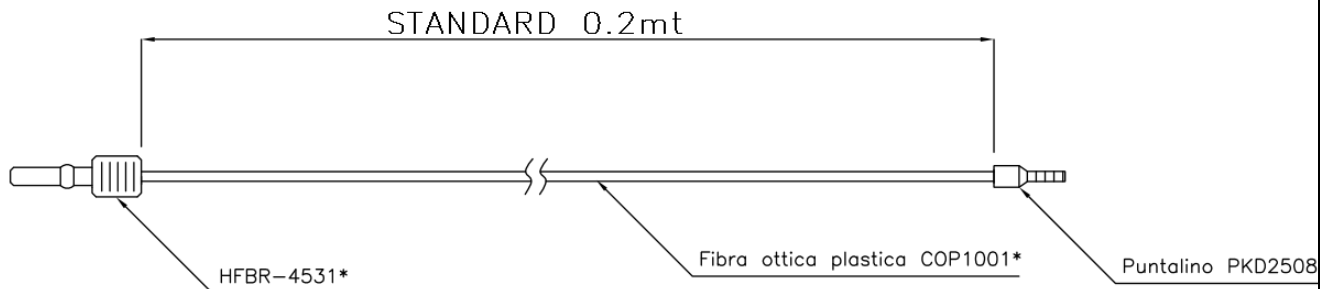
Accessories: Coaxial cable

Drawing:
43922223
Fig.1



Accessories: Optical fiber

Drawing:
43922224
Fig.1



Accessories: Fixing plate

Drawing:
43931320

SEE PAGE 2/8

Electronsystem MD work in partnership with its customers in designing customized executions in order to meet specific requirements, please contact us.