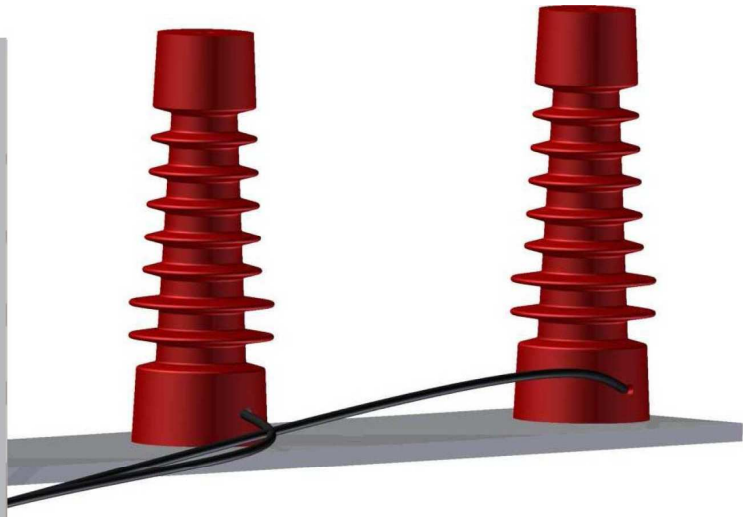
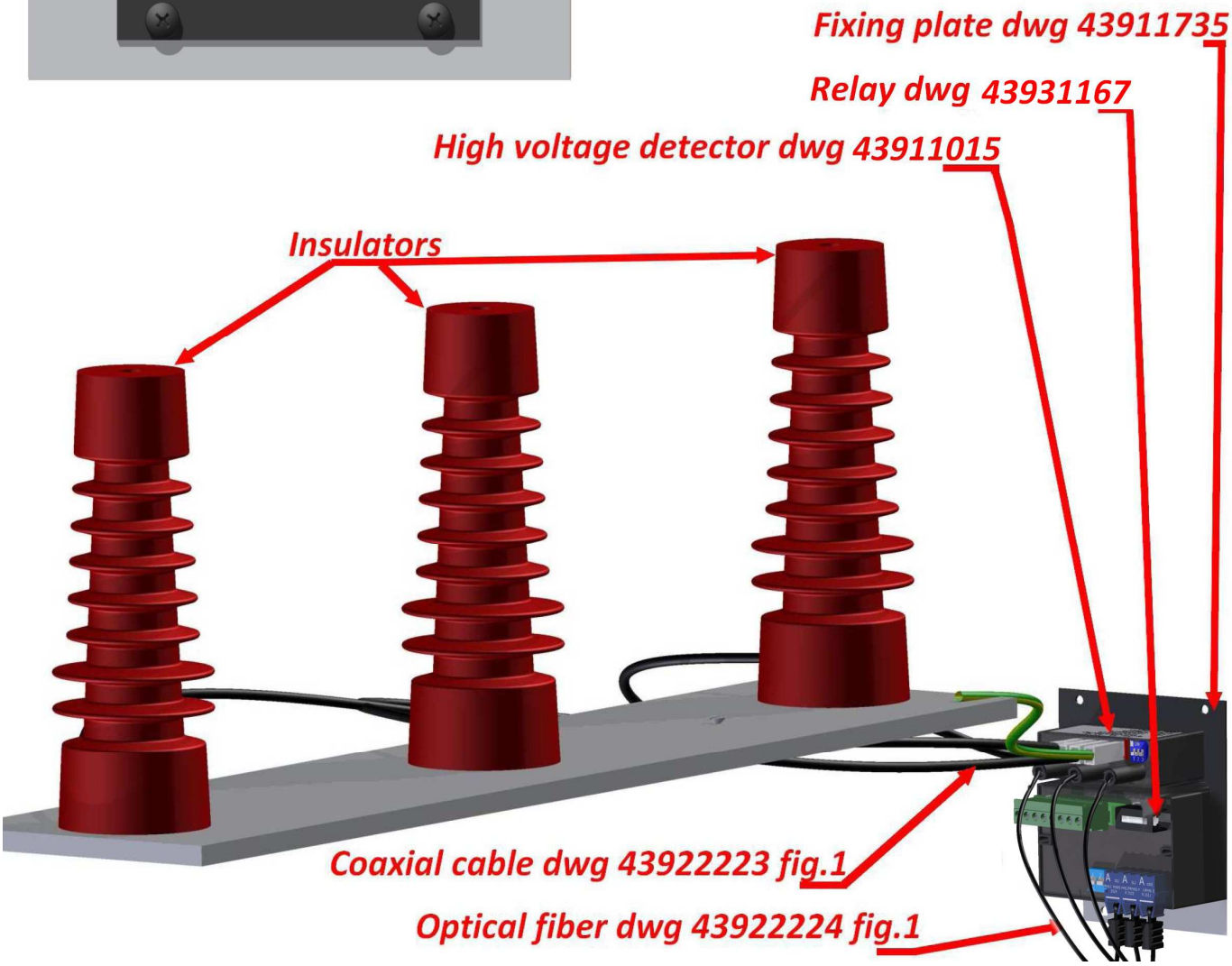
ELECTRONSYSTEM MD TECHNICAL SHEET

Revision C of 30 January 2020





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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 IEC61243-5, 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.

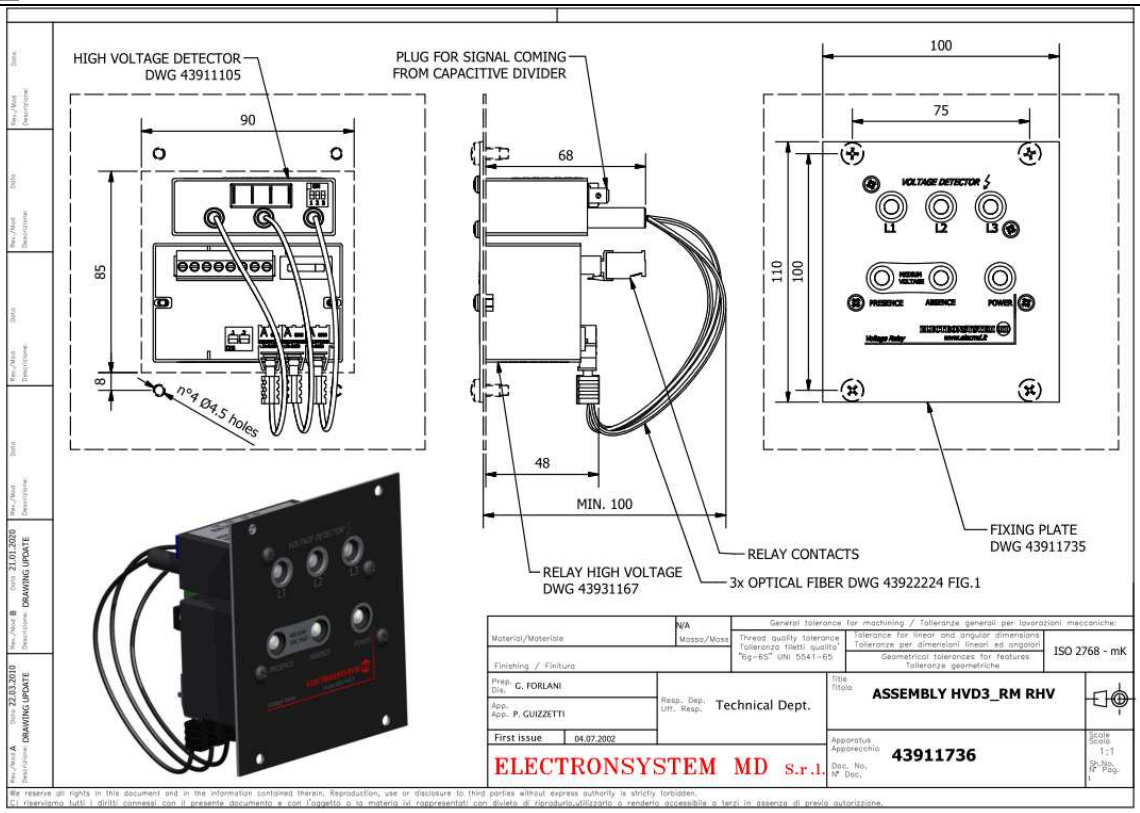
Remote indication of medium voltage presence are available depending on AND / OR logic of considering the three phases voltage.

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: 43911736



HVD3/RM/DIP/F

This VDS is based on the sharing of voltage between capacitor C1 (high voltage) and capacitor C2 (low voltage) ; the signal at C2 terminals is transformed in an optical signal, which separately points out voltage and phase of the line involved.
Thanks to this new system the signals of voltage get to the operator through a galvanic (optical) insulation, which never transfers voltage, even in case of failure of capacitor C1.
The IEC Standard 61243-5 1997-06 is applicable to our Voltage indicator. At page 11 point 1.2, the standard concerns VDS "based on fundamentally different principles (for examples optical systems, " ...) ; they "should meet the requirements of this standard where applicable."
The very small size allows to reduce space in your panel and in the meanwhile maximizes the ratio quality/cost.

- Optical Integrated VDS - Voltage detecting system in accordance with IEC 61243-5 where applicable
- The device supplies continuously :
- A synchronous optical signal which can be used either for local voltage indication or as phase signal to be analysed by phase comparator (PD)
- another synchronous optical signal on the back for remote voltage indication to connect with special relay (RHV or RHV/M).
- LED life time guaranteed - min. 30 years
- Surge arresters does not applied because only optical signals are available on the front of panel
- Selectable sensitivity by dip-switch settings

Technical features

High voltage :..... 3 – 36* KV
Primary Capacitance* :.....3 - 300 pF
Power supply :.....no auxiliary power requested
Power consumption :.....< 1mW
Led :.....3000mcd/20mA
Dielectric strength :.....275KV Surge
Strength :.....650KV
EMC/IEC tested.....ENG96/026630
IP degree protection :.....IP64
*Versions with customized features can be provided.

Material

Box :..... plastic housing filled by Polyurethan resin (2-component)
Connection input :.....AMP waterproof connectors(*)
or.....faston 6.3X0.8 (IP30)
Connection output : .....optical fiber

Cable : .....Reiter Lappkabel 0015703 approved
VDE(NYSLYCYö-J)
SEV(CH-NO5VC4V5-F)
UL(AWM Style 2587)
CSA(AWM I A/B II A/B) (*)
(*) on request

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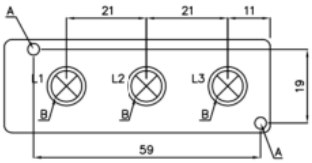
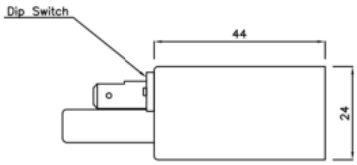
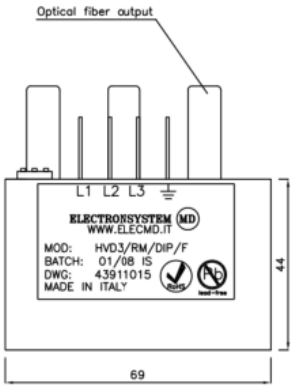
Dimension HVD3/RM/DIP/F

Drawing: 43911015







NOTE :

–Plugs for signal coming from capacitor divider by faston 6.3x0.8 mm or other connection as described in order code.

–During order define capacity of divider and rated voltage (not requested in case of use of Electronsystem MD divider).

–Suitable for connection with relè type RHV/M, RHV/R (Electronsystem MD) by dedicated snap–in optical rear connector.

–A : Fixing holes by M3.5X19

–B : Optical signal

–Correct capacitive coupling can be chosen by Dip–Switches in order to satisfy IEC requirements with any divider insulator.

–Completely fullfills IEC 61243–5 standard

ORDERING CODE:

Description : High voltage detector

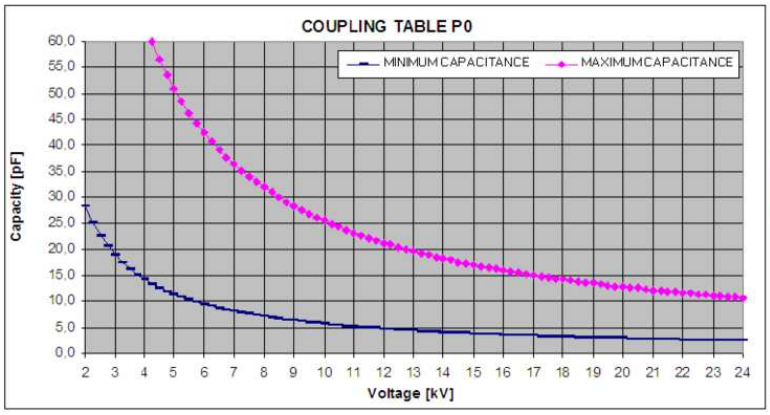
Code : HVD3/RM/DIP/ □

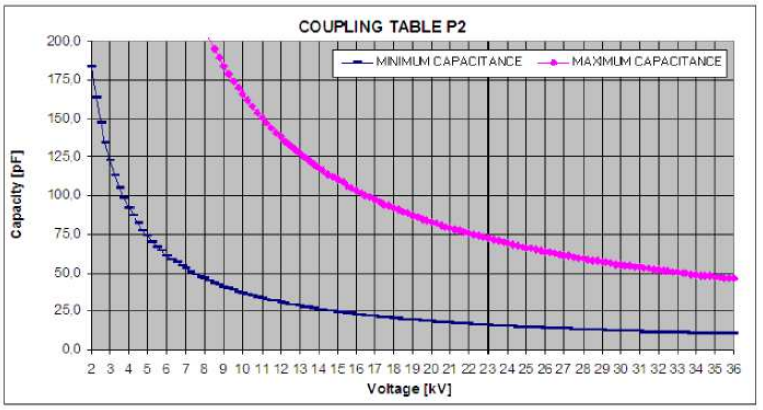
F : Plugs for capacitive signal by faston
_ : other type of plugs available on request

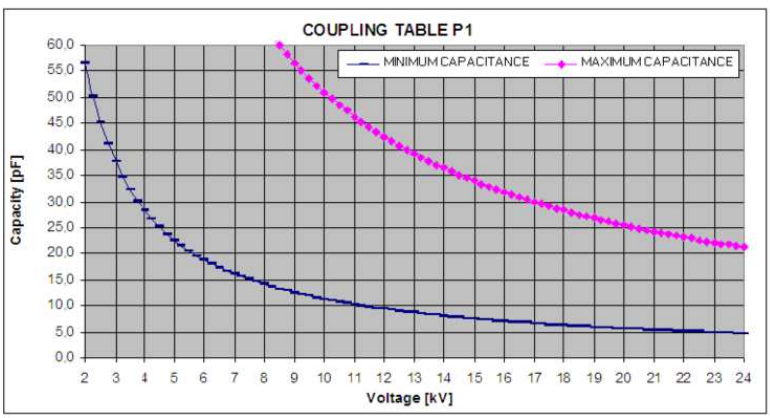
DIP–SWITCH CONFIGURATION

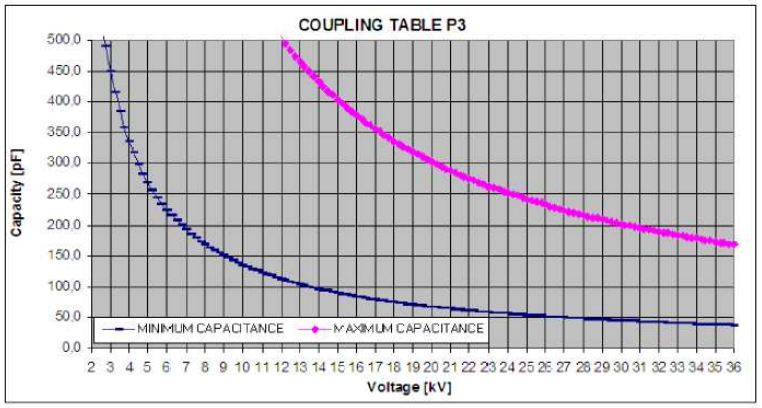
Setting	SW1	SW2	SW3
P0	0	0	0
P1	1	0	0
P2	0	1	0
P3	0	0	1

Coupling tables HVD3/RM/DIP/F









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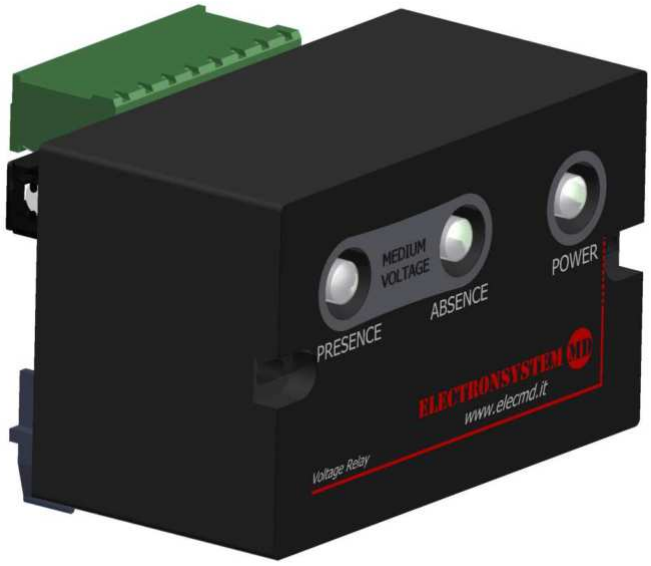
RHV



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”

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 10^5 cycles
Mechanical live :.....5 x 10^6 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

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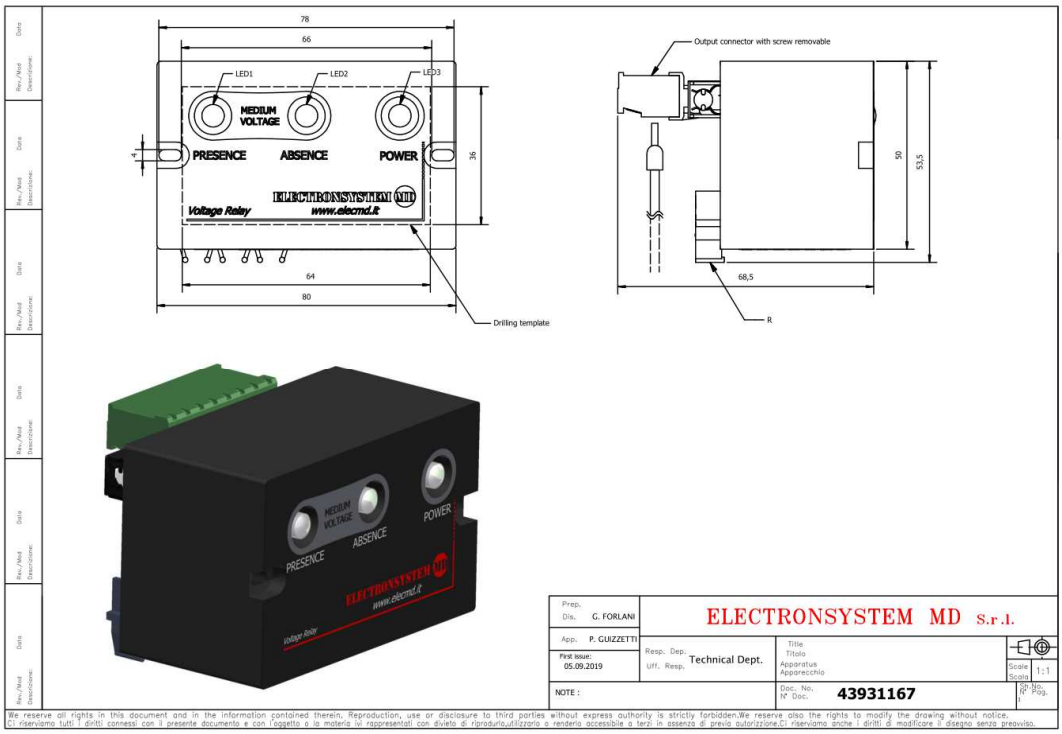
Dimension & Features RHV

Drawing: 43931167



Descrizione:
-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 :

1 : Positivo di alimentazione (+) 24÷220Vdc, 24÷230Vac 50-60Hz
2 : Negativo di alimentazione (-)

STATO RELE' SENZA ALIMENTAZIONE
3 : Contatto normalmente chiuso (nc)
4 : Comune (c)
5 : Contatto normalmente aperto (na)
RELE' R1
3 4 5

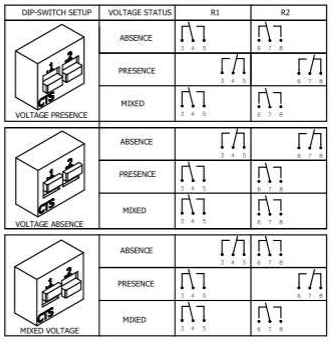
6 : Contatto normalmente chiuso (nc)
7 : Comune (c)
8 : Contatto normalmente aperto (na)
RELE' R2
6 7 8

Description:
-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)
-Ouput contacts with removable plug as following:

1 : Power (+) 24÷220Vdc, 24÷230Vac 50-60Hz
2 : GND (-)

RELAY STATUS WITHOUT AUX VOLTAGE
3 : Normally closed contact (nc)
4 : Common (c)
5 : Normally opened contact (na)
RELAY R1
3 4 5

6 : Normally closed contact (nc)
7 : Common (c)
8 : Normally opened contact (na)
RELAY R2
6 7 8



VOLTAGE STATUS	L1	L2	L3	LED1	LED2
ABSENCE	–	–	–	OFF	ON
PRESENCE	X	X	X	ON	OFF
MIXED	X X – –	– X X –	– – X X	OFF	OFF

– = OFF X= ON

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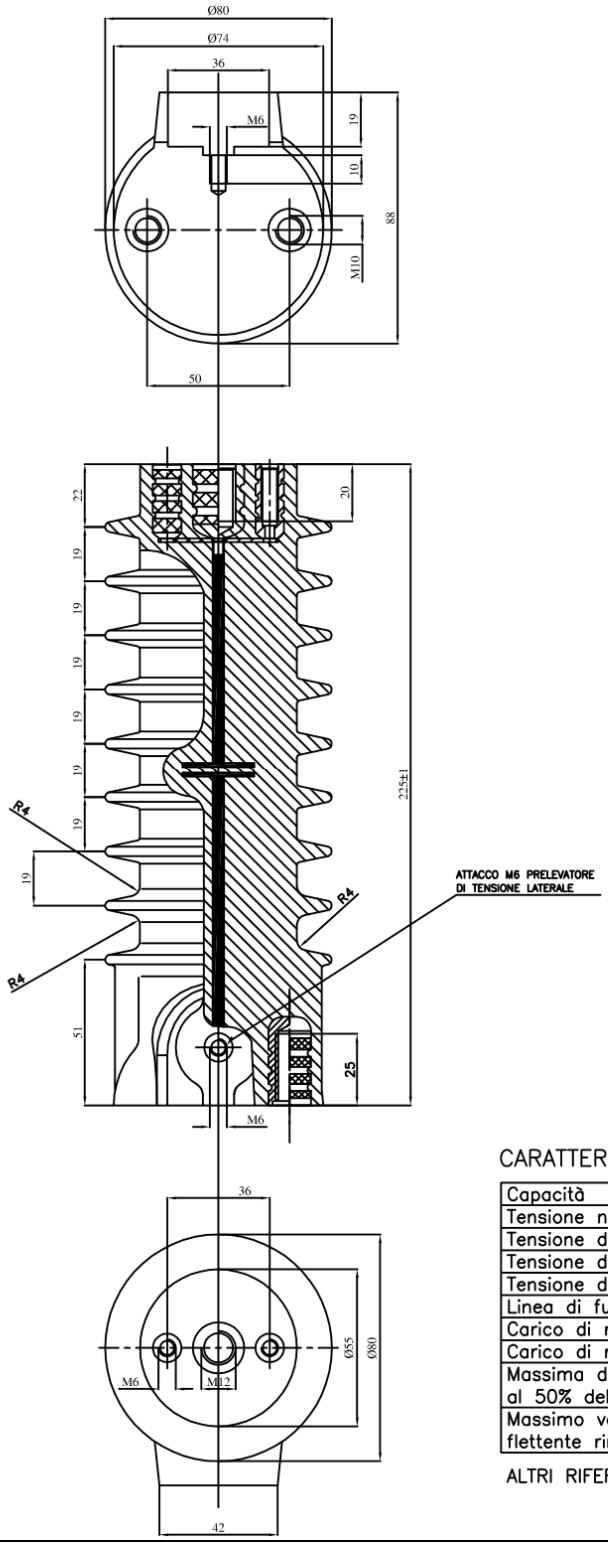
Accessories: Insulator CD24/L

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 Po	N	3000
Carico di rottura a flessione P_{50}	N	2500
Massima differenza tra le frecce al 20% e al 50% del carica di rottura a flesione Po	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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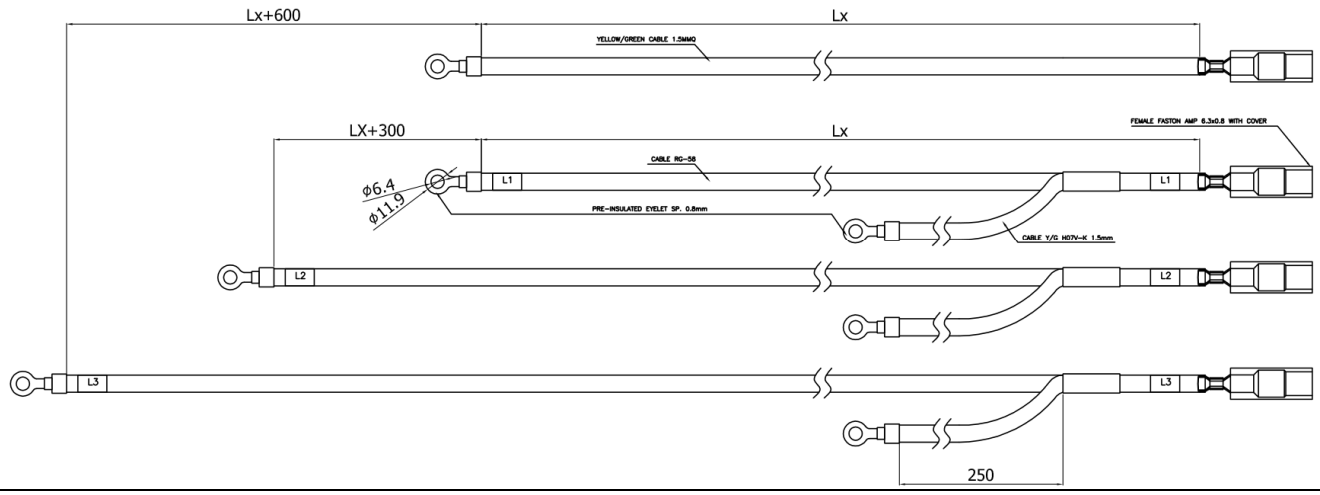
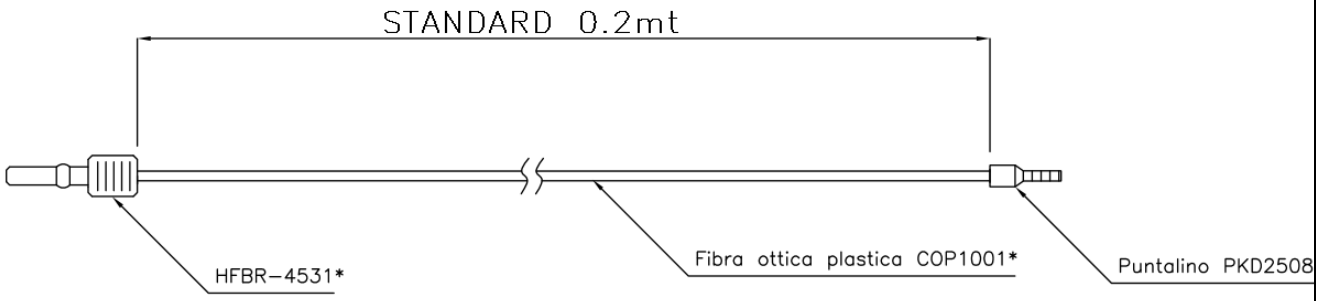
Accessories: Coaxial cable

Drawing: 43922223 Fig.1



Accessories: Optical fiber

Drawing: 43922224 Fig.1



Accessories: Fixing plate

Drawing: 43911735

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