



OSNA

SMART Earth Relay Units



Intrinsic Safe Interface
In Terminal Automation



Providing Solutions Since 33 Years

Sensors • Process Automation • FactoryAutomation • Terminal Automation

Introduction to Safety for Terminal Automation

The process of filling inflammable liquids for transportation or storage, safety standards and procedures must ensure that the static voltage which occurs during this process, should not lead to an explosion.

To handle this static voltage, the vehicle or the container should be properly earthed. This is important so that the static voltage does not build up to a dangerous flash point. The Earthing method should be proper and perfect, otherwise dangerous losses can take place.

The **OSNA EARTHING RELAY UNIT** gives complete reliability and assurance of a true and correct grounding for maximum safety in all loading operations for variety of loading applications for use with tank trucks, rail cars, air craft refuellers.

The core unit has been successfully use with Industrial users for over 8 years. The ATEX Approved OS-Ex-2G / WE77-Ex-ERU are core of the Earth Relay Unit are certified from the BUREAU VERITAS in Germany / ISSeP in Begium/ PTB in Germany CIMFR Dhanbad /PESO Nagpur . Housed in IECEx / ATEX Approved enclosure for II 2G Ex d II C T6 Gb.

Principal users in Chemical /Oil & Gas plants and other hazardous areas are to avoid static charge.

The unit is manufactured according to Europeon standards EN 60079-0, EN 60079-1.

The trip Amplifier is intrinsically safe and is galvanically isolated from both input and output control circuits.

Earth Relay Unit - OS-Ex-2G / WE77/Ex-ERU(ELMCRU)

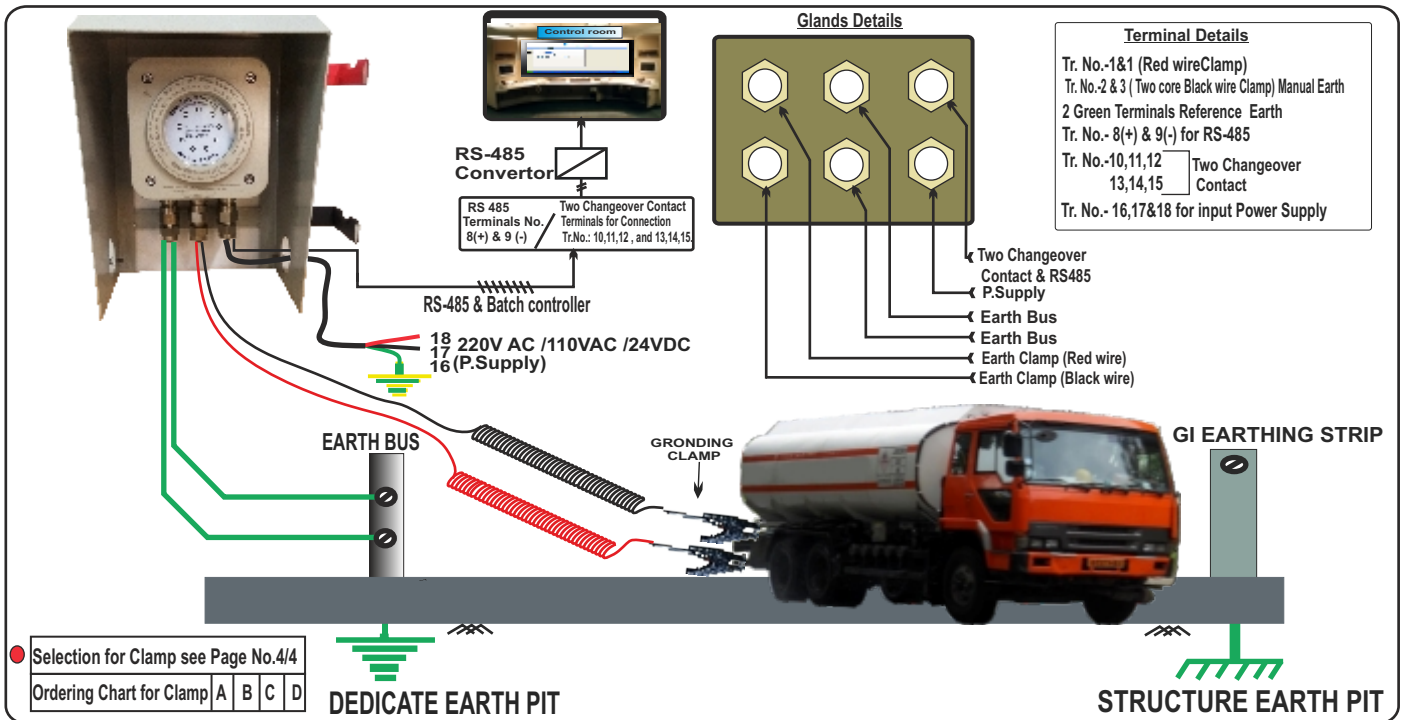
The **Smart Earth Relay Unit**, can detect the Tanker "Not structure" The actual value of the LOOP resistance is available through a RS- 485 and can be stored externally in the PC or a data logger of the user. In order to allow the data be stored longer, the scanning time to register the LOOP resistance can be increased from a few sec. to an hour as per the below schematic. The time between cleaning of files can also be pre-set and changed in the software.

Features

- **Earth monitor and resistance detector in the Earth Loop.**
- **Single, Dual and Triple Output approved for II 2G Ex d II C T6 Gb.**
- **Wide range of Earthing clamps.**
- **Intrinsically / Ex proof.**
- **Verifications of Tanker / Truck**
- **Digital logic RS-485**
- **Relay Outputs**



Block Schematic and Typical Connections /G.A.Drawing

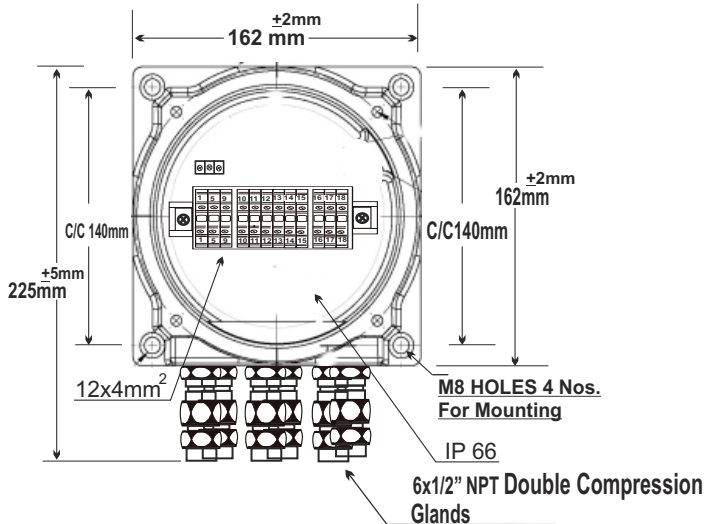


Technical Information of Trip amplifier OS-Ex-2G / WE77/Ex-ERU (ELMCRU)

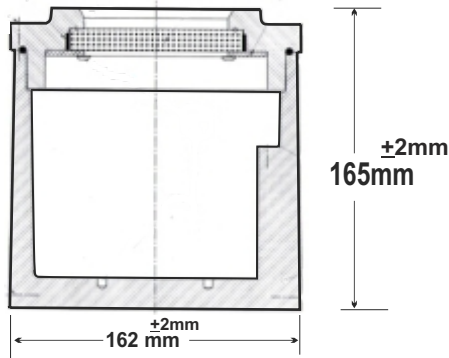
Article No.	ERU-003B for 220VAC , ERU-003A for 110VAC, ERU-013D for 24VDC
Power Supply	220VAC OR 110 VAC -10% +15%, 45-65Hz. / 24V DC \pm 10%
Current Consumption	approx. 3.5VA
Ripple	\leq 10%
Hazardous Area Section	
Inputs (Intrinsically Safe)	
Nominal data	as per DIN 19234 Equipment
Open circuit voltage	approx. 2 to 9 VDC
short circuit current	approx. 2 to 9 mA
Earth Capacitances	1200 PF to 7200 PF
Earth Loop Resistance	0 to 10 Ω (Adjustable By Software)
Parameters as per BUREAU VERITAS	BV Certificate No. EPS 16 ATEX 1 019
Certificate as per	EN60079-0 : 2012 , EN EN60079-1 : 2014
	Values per circuit Values when connecting the both circuit
Output Voltage (max.)	12.87 V
Output Current (max.)	15.86mA
Output power (max.)	64 mW
Permissible circuit values	
Ignition protection class/	IIC (1)G [Ex ia Ga] IIB/IIC , IIC (1)G [Ex ib Ga] IIB/IIC
Explosion group	II C
Max. External Capacitance	800 nF
Max. External Inductance	74 μ H
Safe Area Section	
Contact rating of relay	250 V / 5 A / Cos f \geq 0.7
Circuit Response Time	
Relay Energising / De-energising	\geq 50 ms / \geq 50 ms
Switching Frequency	Max. 10 Hz.
Weight	6kg
Ambient Temperature	Max. 55°C
Glands:	
Type of Thread	1/2" NPT Double Compression
Protection class	IIA, IIB, IIC, Ex-d

Dimensions of flame proof housings with clamp

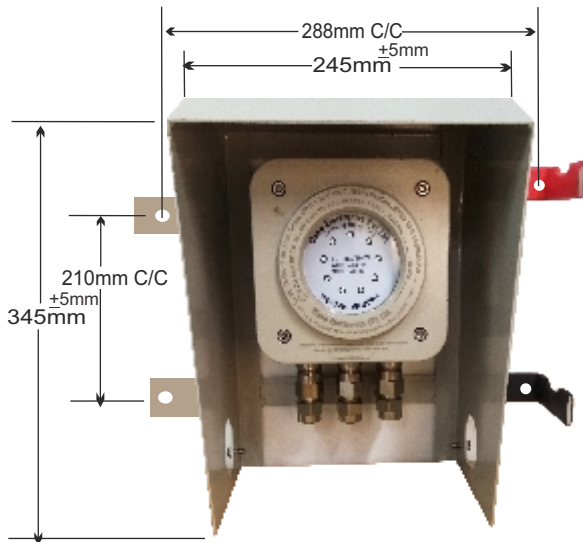
ENCLOSURE (TOP VIEW)



ENCLOSURE (SIDE VIEW)

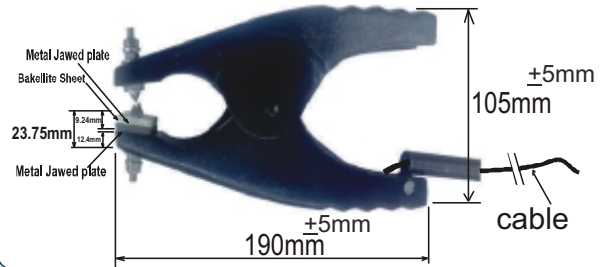


MOUNTING



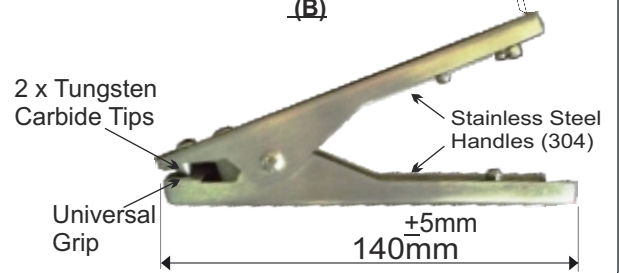
CROCODILE CLAMP ALUMINUM

(A)



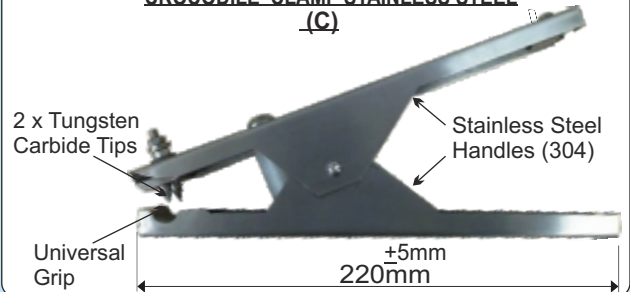
CROCODILE CLAMP STAINLESS STEEL

(B)



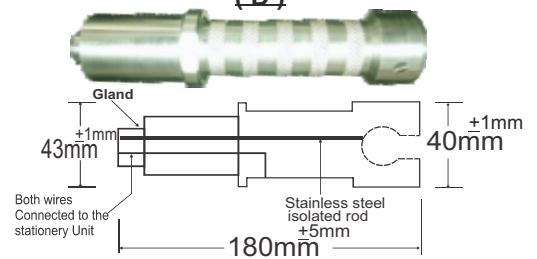
CROCODILE CLAMP STAINLESS STEEL

(C)

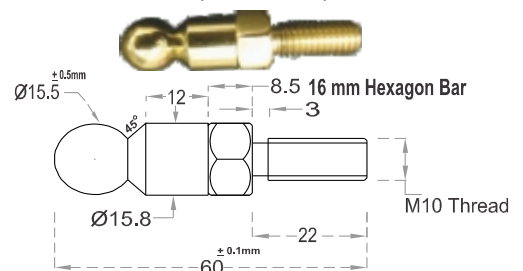


STUD CLAMP ALUMINIUM

(D)



Stud (S.S / BRASS)



01/072018

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