

# Earth Relay Unit



# Osna Electronics Pvt. Ltd.

## Providing Solution Since 35 Years

An ISO 9001 : 2015 Certified Company

[www.osnaelectronics.net](http://www.osnaelectronics.net)

## 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 European 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(ERU)

The Truck is earthed through a crocodile clamp and the earth Loop is monitored through the ERU.

The terminal filling staff have often by passed the crocodile clamping of the truck by simply clamping to a metal structure in place of the body of the truck, this may cause fire and other damage as the static potential of the truck escalated above the safety values.

To avoid the above the crocodile clamp has largely been replaced by special male studs, which are mounted or welded to the truck body and are inserted into female sockets which are an integral part of the terminal earth bus.

### Features

- *Earth monitor detector in the Earth Loop.*
- *Single and Dual Output approved for  II 2G Ex d II C T6 Gb.*
- *Wide range of Earthing clamps.*
- *Intrinsically / Ex proof.*
- *Relay Outputs*

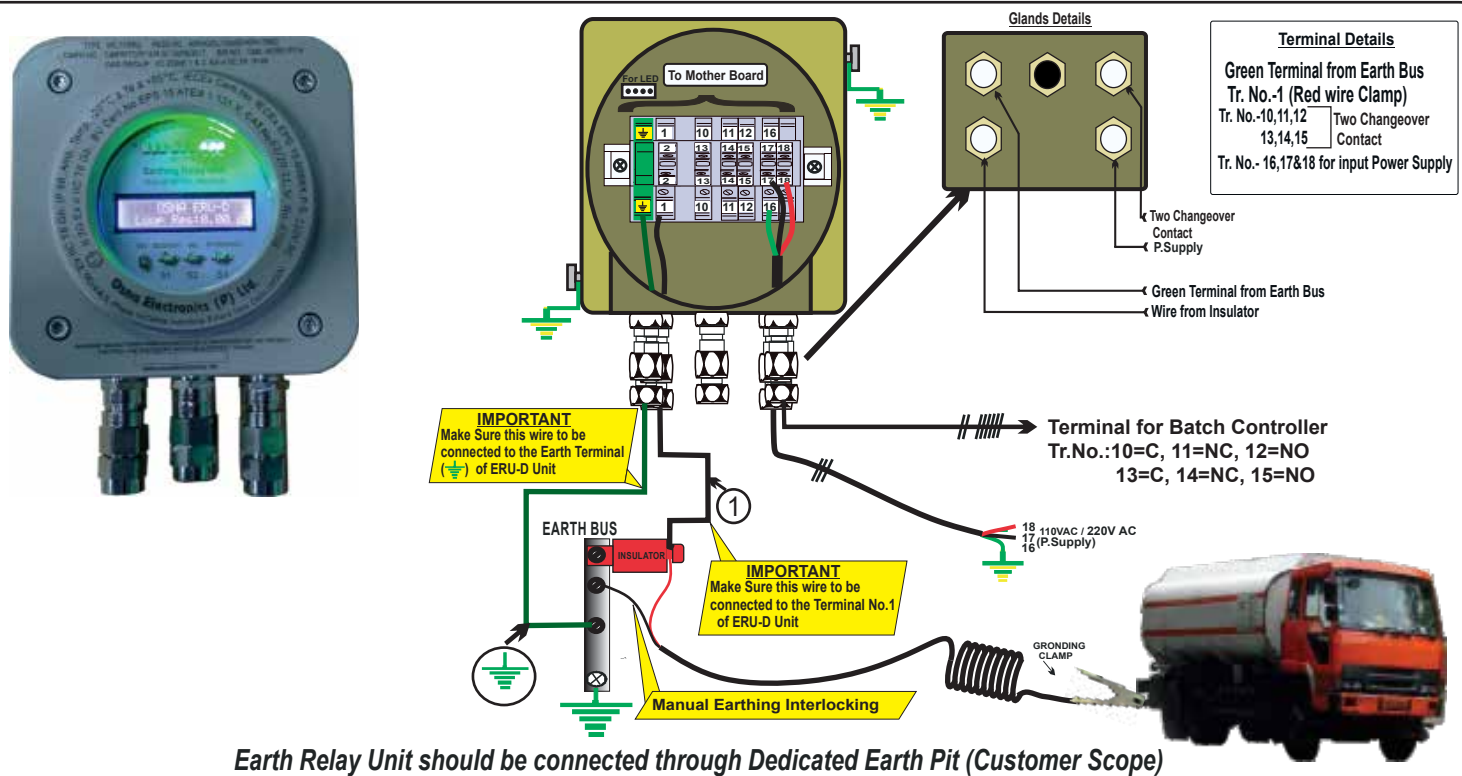
**RED-LED (Earth Not Ok)**



**Green-LED (Earth Ok)**



## Block Schematic and Typical Connections /G.A.Drawing

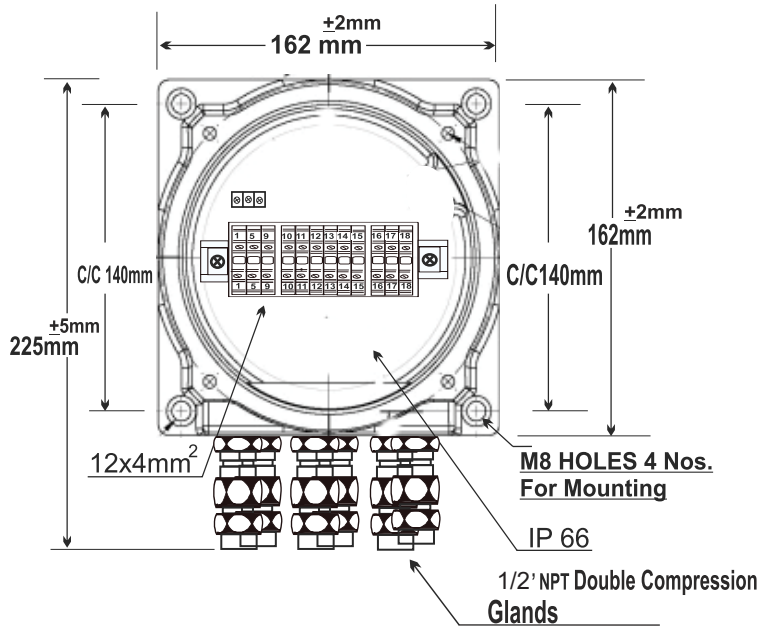


### Technical Information of Trip amplifier- OS-Ex-2G-WE77-Ex...ERU(ERU-D)

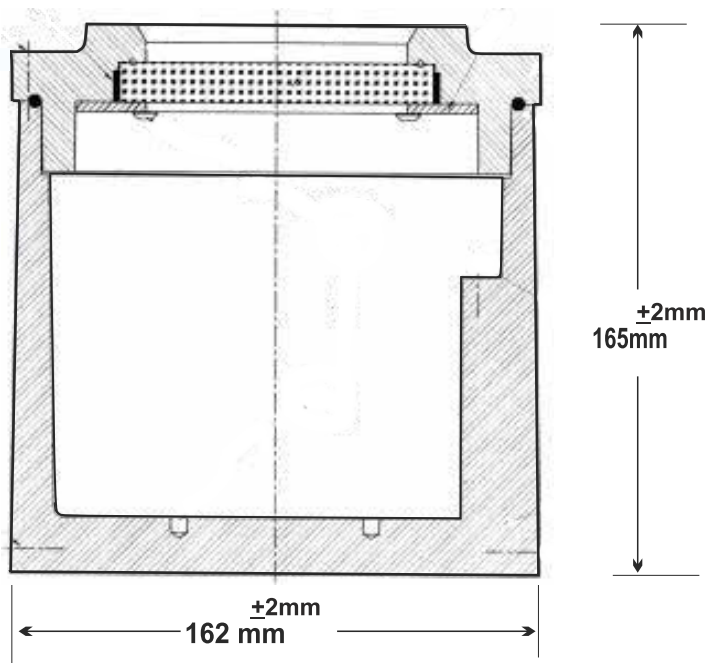
<b>Article No.</b>	ERU 017A for 110VAC & ERU 017B for 220VAC
<b>Power Supply</b>	220VAC OR 110 VAC-10%+15%,45-65Hz. / 24VDC
<b>Current Consumption</b>	approx. 3,5VA
<b>Ripple</b>	≤ 10%
<b>Hazardous Area Section</b>	
Inputs ( Intrinsically Safe )	as per DIN 19234 Equipment
Nominal data	approx. 8 V.DC
Open circuit voltage	approx. 8 mA
short circuit current	0 to 10 Ω Ssetting
Earth Loop Resistance	
<b>Parameters as per BUREAU VERITAS</b>	BV Certificate No. EPS 16 ATEX 1 019
<b>Certificate as per</b>	EN 60079-0 : 2012 , EN 60079-1 : 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
<b>Permissible circuit values</b>	
<b>Ignition protection class/</b>	<b>IIC (1)G [EX ia Ga] IIB/IIC , IIC (1)G [EX ia Ga] IIB/IIC</b>
Explosion group	II C
Max. External Capacitance	0.8 mF
Max. External Inductance	74μH
<b>Safe Area Section</b>	
Contact rating of relay	250 V / 4 A / Cos f > 0.7
<b>Circuit Response Time</b>	
Relay Energising / De-energising	»€20 ms / » 20 ms
Switching Frequency	Max. 10 Hz.
<b>Weight</b>	<b>6 kg</b>
<b>Ambient Temperature</b>	<b>Max. 55°C</b>
<b>Glands:</b>	
<b>Type of Thread</b>	½" NPT Double Compression
<b>Protection class</b>	IIA, IIB, IIC, Ex-d

## Dimensions of flame proof housings with clamp

**ENCLOSURE (TOP VIEW)**

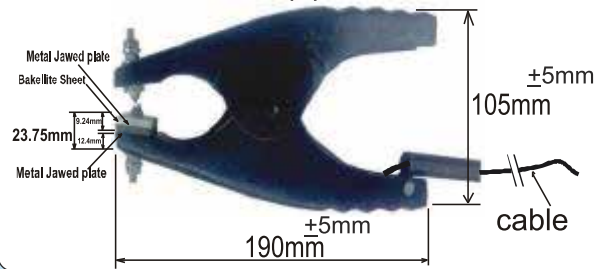


**ENCLOSURE (SIDE VIEW)**



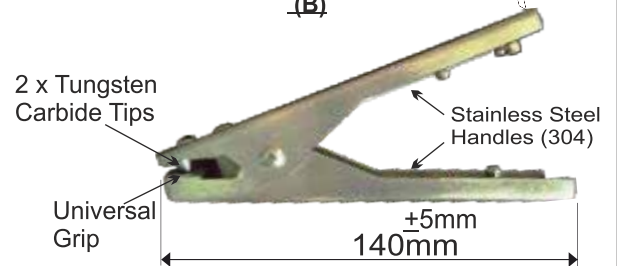
**CROCODILE CLAMP ALUMINUM**

(A)



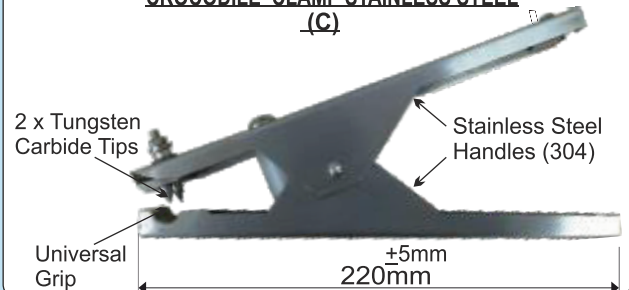
**CROCODILE CLAMP STAINLESS STEEL**

(B)



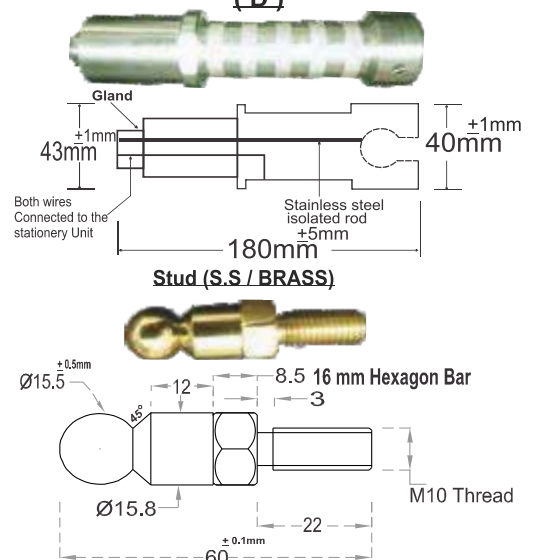
**CROCODILE CLAMP STAINLESS STEEL**

(C)



**STUD CLAMP ALUMINIUM**

(D)



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