



# INSTRUCTION MANUAL

ENGLISH



## ISU R

Integrated Safety Unit



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## 1 Safety Precautions

The following safety precautions must be observed during all phases of operation, service and repair of this unit. By purchasing this equipment the purchaser assumes all liability for the operation and use of this equipment. The intended use of the Integrated Safety unit, its design and manufacture, is to be conducted within the precautions or other specific warnings located within this manual. Failure to comply with these precautions and other specific warnings violates safety standards of design, manufacture, and intended use. Raytech GmbH assumes no liability for the operation and use of this equipment.

### **SAFE OPERATION:**

Only qualified knowledgeable persons should be permitted or attempt to operate this test equipment. All test personnel should fully familiarize themselves with the correct application and operation of this and all test equipment prior to operation. Persons directly and indirectly engaged in the operation of this test equipment should keep clear of all high voltage apparatus while conducting tests and measurements.



### **WARNING!**

⇒ BE CAREFUL WHEN USING DUMMY PLUGS FOR EXTERNAL SAFETY INTERLOCK. DO NOT USE IT TO BRIDE AN EXISTING INTERLOCK SYSTEM

### **GROUND THE UNIT:**

To minimize shock hazard, the units Ground Terminal must be connected to a properly grounded receptacle. In many cases, the quality of the safety ground provided by the power cord does not fulfill safety needs. Also the power cord supplied with the equipment must be connected an electrical receptacle with an electrical ground (safety earth ground). A non grounded unit is dangerous and may cause instrument damage.

### **DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE:**

Do not operate the Integrated Safety Unit in the presence of flammable gases or fumes.

### **KEEP AWAY FROM LIVE CIRCUITS:**

Operating personnel must not remove unit covers. Component replacement and internal adjustments must be made by qualified service personnel. Do not replace components with power cable connected. To avoid injuries, always disconnect power, discharge circuits, and remove external voltage sources before touching components.

### **DO NOT SUBSTITUTE PARTS OR MODIFY THE UNIT:**

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the instrument. Return the instrument to a Raytech service department for service to ensure proper operation and that safety features are maintained.

Instruments, which appear damaged or defective, should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.



## 2 Description

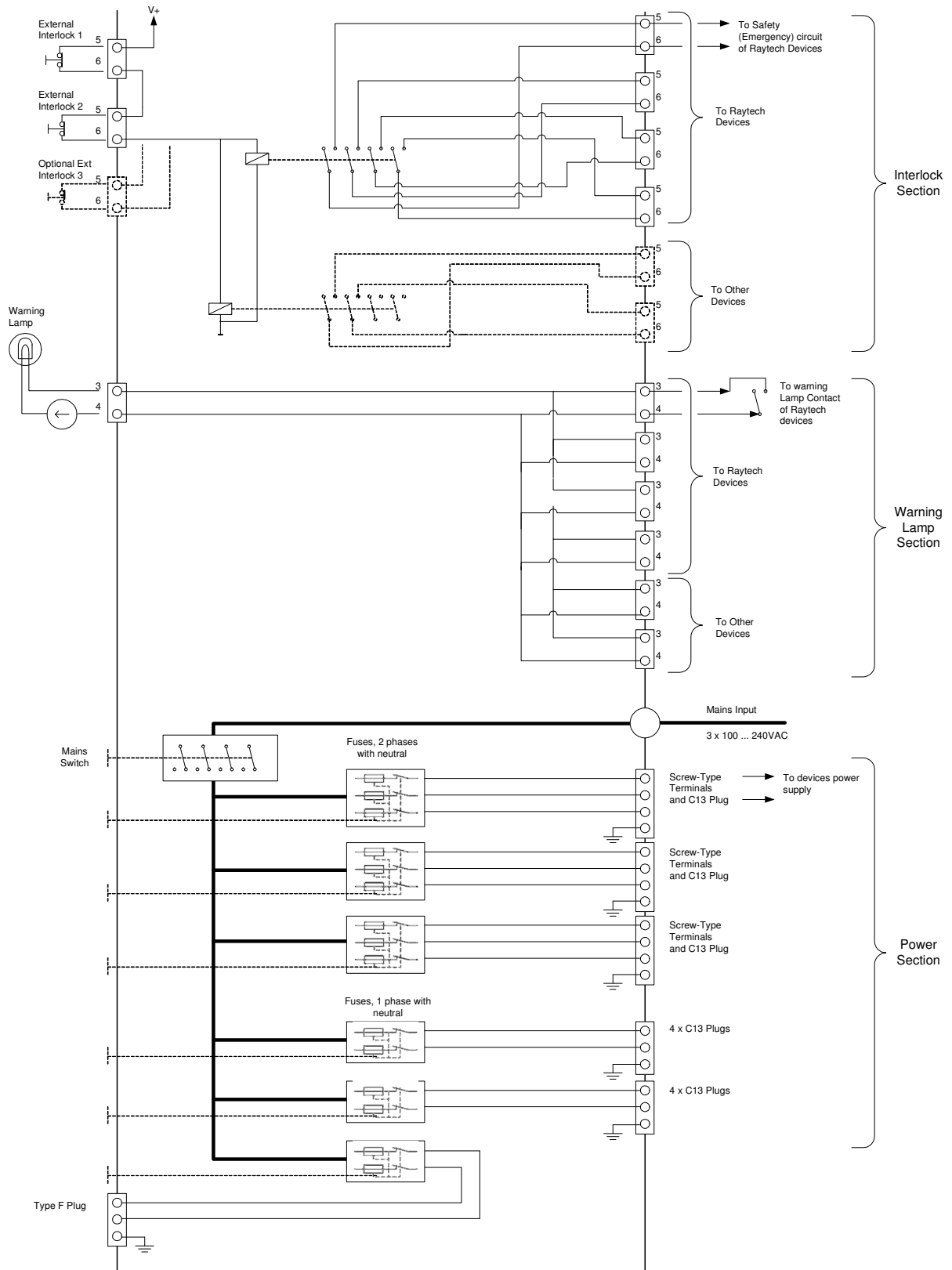
Raytech Integrated Safety Unit is a useful device when creating rack mounted transformer observing systems. It supplies Raytech devices with fused electrical power, manages external Interlocks and provides a single interface for an external warning lamp. The whole system can be turned on and of with a single mains switch.

## 3 Advantages and Features

- Compact power distribution
- Mains switch for entire system
- Additional fuses for connected devices and power lines
- Two external interlocks
- One warning lamp connector for all devices
- Additional power plug on front panel for general use

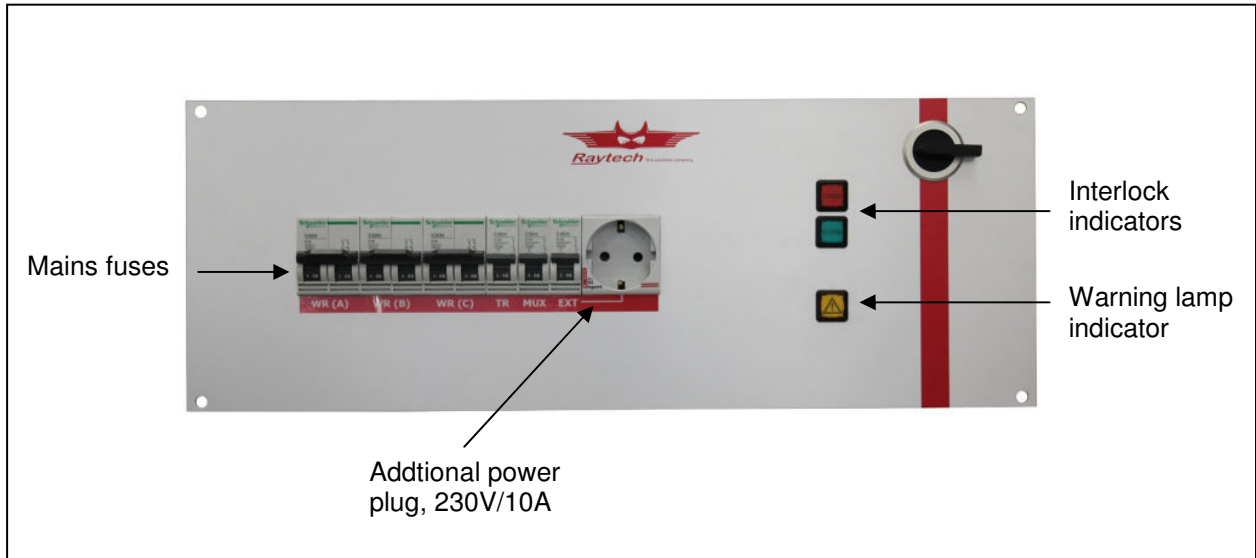


## 4 Schematic Diagram

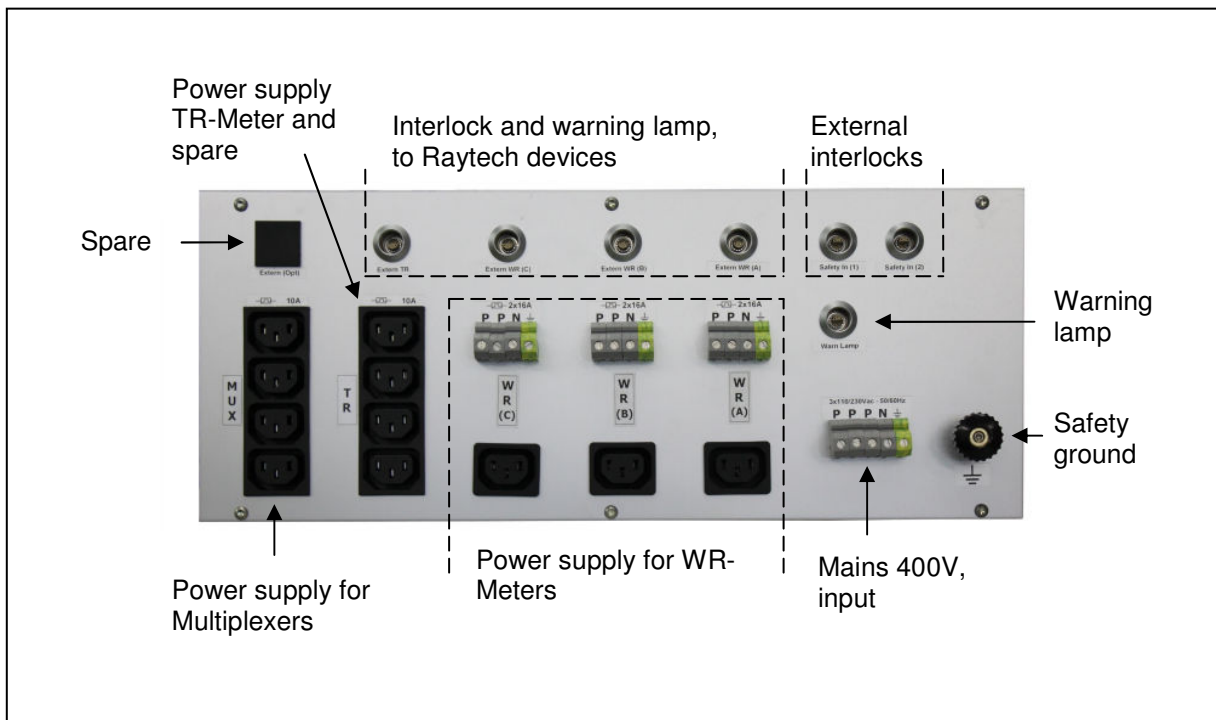




## 5 Front Panel



## 6 Rear Panel

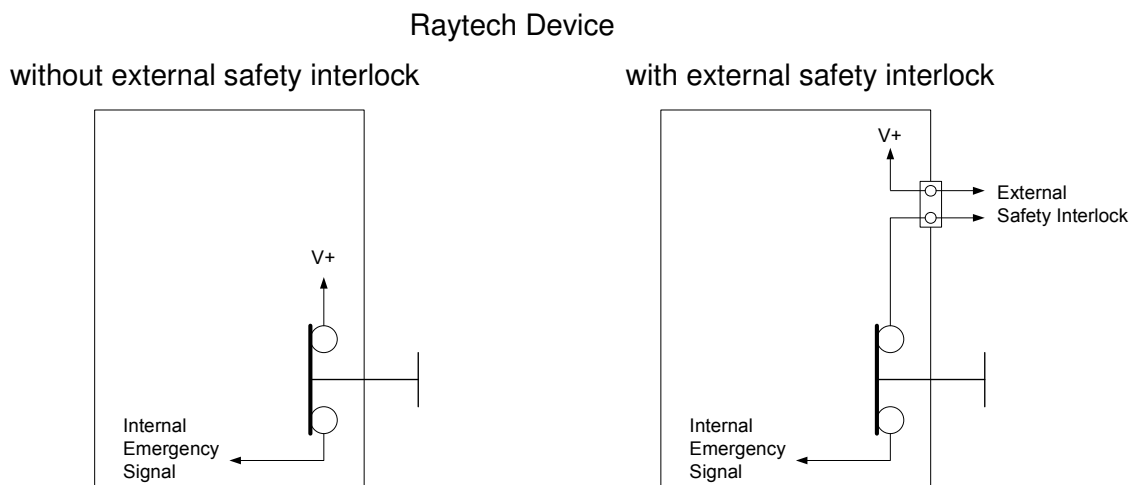




## 7 Interlock and Emergency Stop

These two signals have the same nature. Both should make sure, that the equipment is brought to a safe state rapidly when safety circuit is broken.

In fact, the external safety interlock is nothing more, than the external add-on of the internal safety interlock. For example for a Turns Ratio or Winding Resistance Meter internally, it doesn't matter if you push the emergency stop or interrupt the external Safety Interlock. Both actions will force the device into a safe state.



### 7.1 Integrated Safety Unit and External Safety Interlock

As Shown in Chapter '4 Schematic Diagram' the Integrated Safety Unit is multiplying the external interlock signal and sends it to every connected device. In other words, an opening of the external interlock line will bring every connected component into a safe state.



**NOTE**

⇒ Pushing an Emergency Stop button on a Raytech device has only a local effect. No other device will be affected.



## 7.2 Indication on front panel



**NOTE**

⇒ The **indication on the front panel** shows only the status of the external safety interlock line. Emergency Stop buttons on devices have no effect to it.

To make diagnostics easier, local emergency stop buttons have no effect to the external interlock indication on the front panel. In general you will find the following two cases

1. The external interlock indication on the front panel shows 'red' and all connected Raytech devices display the message 'Emergency pressed!'.  
⇒ External safety interlock is open
2. A Raytech device displays the message 'Emergency pressed!', but the interlock indication on the Integrated Safety Unit shows green.  
⇒ Local emergency stop is pressed.





## 8 Contacts

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