

# ELECTRICAL INDUSTRIAL COMPANY (EICO)

## LUCY SWITCHGEAR

Extensible Unit - **VCE2a**

(Sabre)

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# Electrical Industrial Company (EiCo)

## Lucy Switchgear

### Extensible Unit VCE2a Front Panel:



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### EXTENSIBLE UNIT **VCE2a**:

#### **General**

The Extensible Unit VCE is compact SF6 insulated Vacuum Circuit Breaker Unit. The Unit can be mounted to the smallest distribution transformer, or be sited in a free format. The unit is suitable for both indoor and outdoor applications. The unit has a long service life and requires virtually zero maintenance.

#### **1- Stainless Steel Gas Enclosure**

The gas enclosure is manufactured from stainless steel and fabricated utilizing automatic 'robot welding' techniques to produce consistent leak-free equipment.

#### **2- Housing**

The housing of the Sabre VCE2a is fully treated; using zinc coated steel and electrostatically applied oven cured paint, to resist weather and pollution attacks. All units are provided with a hinged, weatherproof and lockable door. The external support legs provide an Extensible bushing height of 1072mm,

#### **3-Tee-Off Circuit Breaker**

The circuit breaker comprises of three vacuum interrupters, which have a fault-make, fault-break rating. Opening of the circuit breaker is achieved by manually operating the handle as standard. Earthing of the outgoing cable, from the circuit breaker, is achieved by the use of the circuit breaker in series with the off-load disconnect or / selector switch.

#### **4- Extensible**

The extensible bushing are available in three versions, left hand only, right hand only and both left and right hand.

All versions have an extensible bushing height of 1072 mm.

## **5- Operation**

All operating positions and instructions are indicated on the main panel at the front of the unit. Operation is by means of manually independent mechanisms, which are mounted externally to the gas enclosure. The tee-off vacuum circuit breaker has two operating positions, 'ON' or 'OFF', with an off-load, interlocked selector allowing isolation & earthing of the tee-off circuit. A single, "Y"-bar type operating handle is stored at the front door. Symbols located on the end of the operating handle indicate direction of operation.

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## **6-Test Facilities (Extra Option)**

The Sabre VCE2a has fully interlocked integrated ring switch cable test facilities in accordance with ENATS 41-36 requirements. Access to the test terminals is achieved by pulling a lever located on the front fascia inside the front door. This will allow the cover underneath the unit to drop down.

## **7- Interlocks**

Positive safety interlocks are incorporated on all switch positions.

## **8- Padlocks**

The door has a quarter-turn lock that can be padlocked. The handle has a padlock hasp hole size 8mm diameter.

All switch and selector positions can be padlocked. The padlock hasp hole size is 8.5mm diameter.

## **9- Transformer Protection**

The circuit breaker enables the VCEa to protect transformers with ratings well in excess of those of a comparable HV fused unit. Protection is achieved by the use of ring core current transformers in combination with Time Limit Fuse links or a protection relay. The ring core current transformers are mounted around the rear tee-off bushings, external to the SF6 chamber, but within the cladding of the unit. The Time Limit Fuses, or the protection relay, are mounted behind a cover at the front of the unit.

## **10- Time Limit Fuse Protection (TLF)**

Dual ratio CT's are provided as standard transformer protection. Access for CT ratio change is provided by means of a cover plate on the front panel of the unit.

### **11- Cable Termination**

The tee-off bushings are located at the rear of the unit and are in line bolted connections M12 threaded .all tee-off bushings are fitted with white stress relief collars and must not be removed unless a taper kit is being fitted (see picture below) If cable boxes are fitted ,then the bushing are accessible by removing the cable box side cover.

The maximum cable size that can used is :

- 300mm<sup>2</sup> 3- core
- 500mm<sup>2</sup> single- core

The following type of terminations can be used with the VCEa

#### **Tee-off bushings**

Insulating bushing boot

#### **Tee-off taper kit**

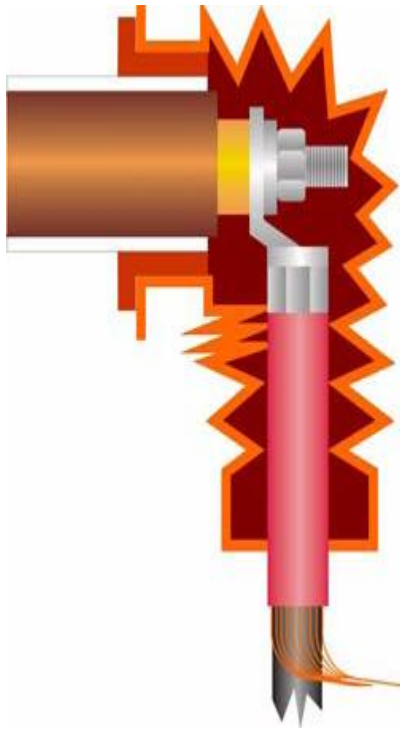
( with white stress relief collar removed)

#### **Torque Setting on cable bushings**

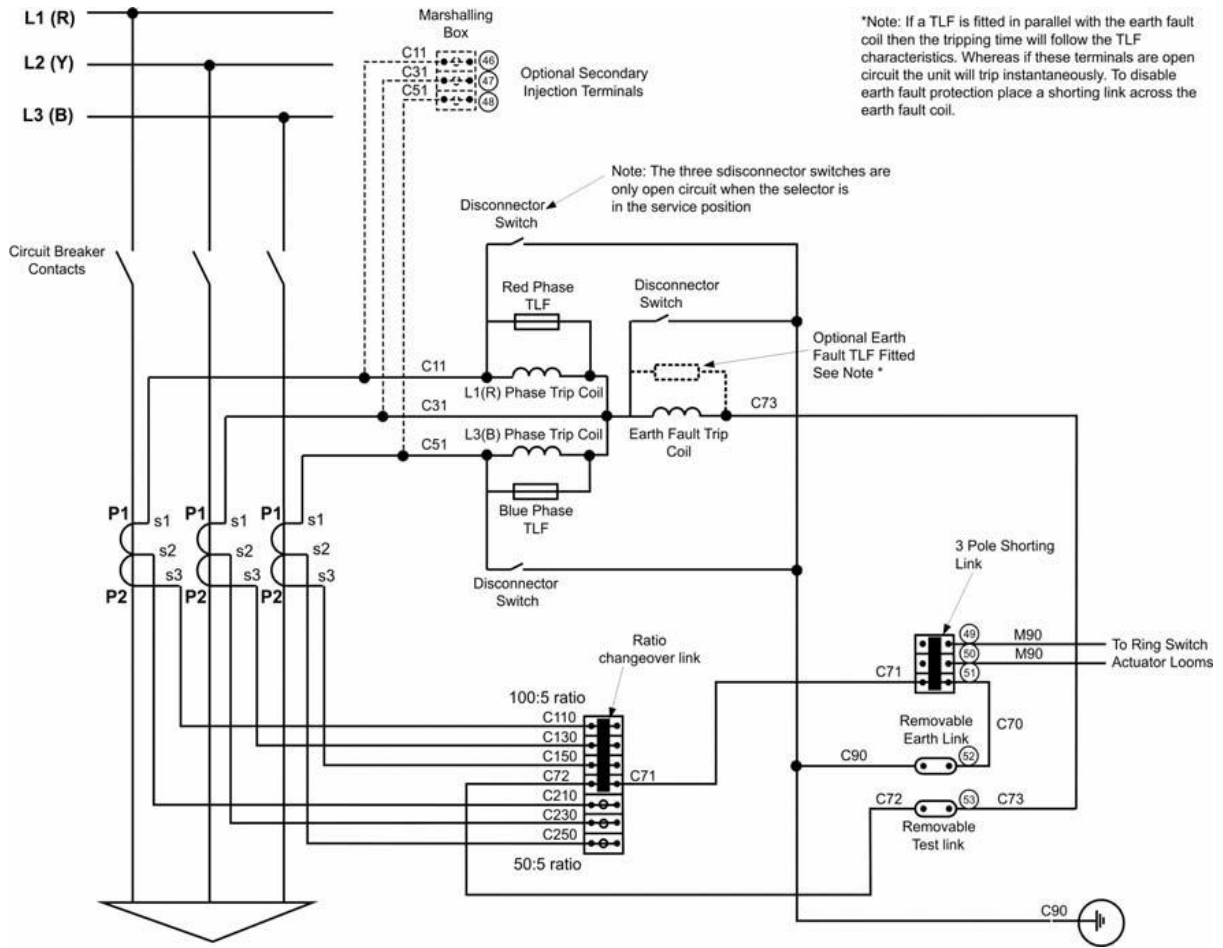
M12 copper thread or into copper 35 Nm

**Insulating Bushing Boot**

**Tee-off taper kit**



**TLF TRIP PROTECTION SYSTEM DIAGRAM:**



## 12- Earthing

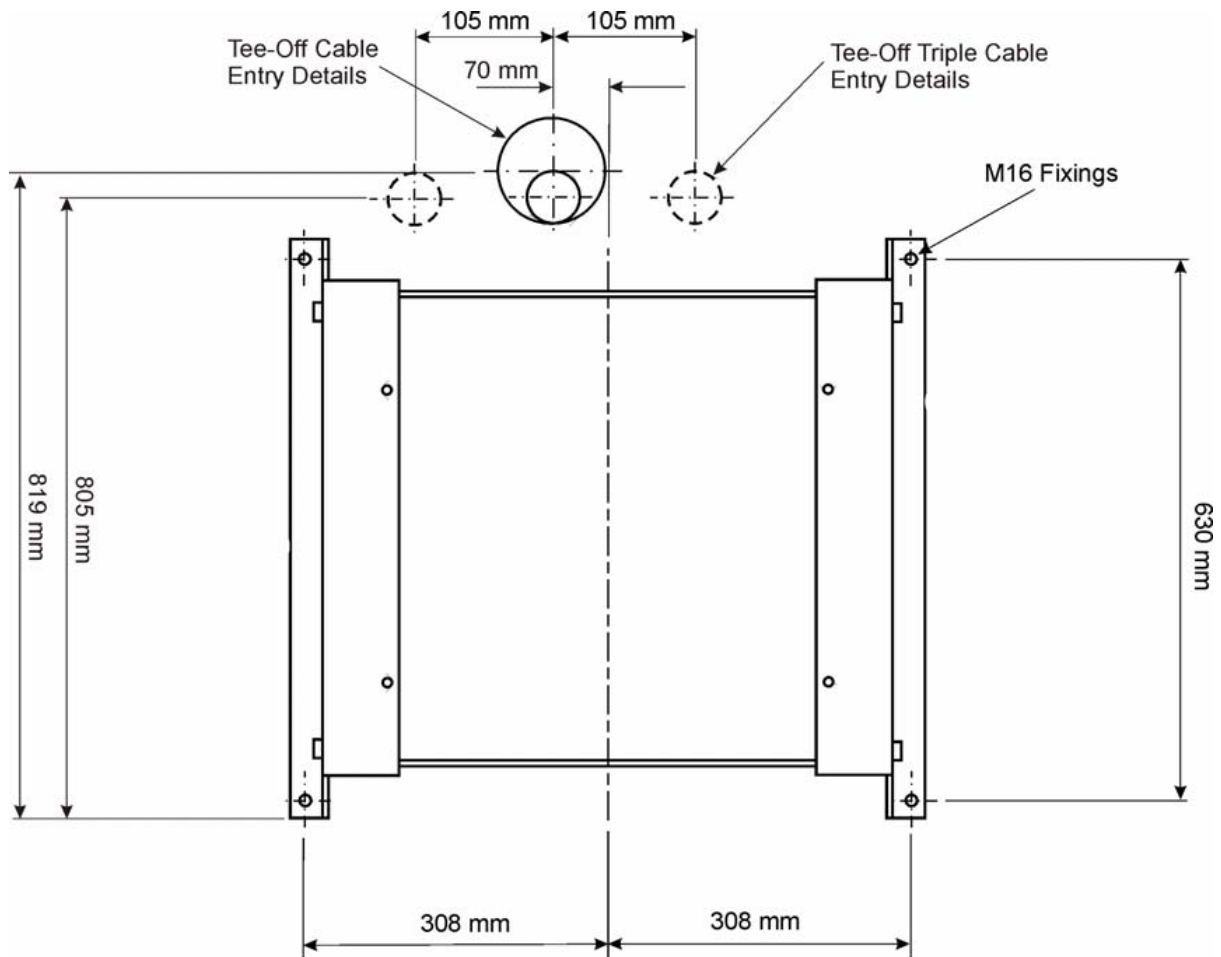
The Sabre VCEa unit should be earthed at the primary earth point located at the rear of the unit.





### 13- VCEa Unit Floor Mounting Dimensions

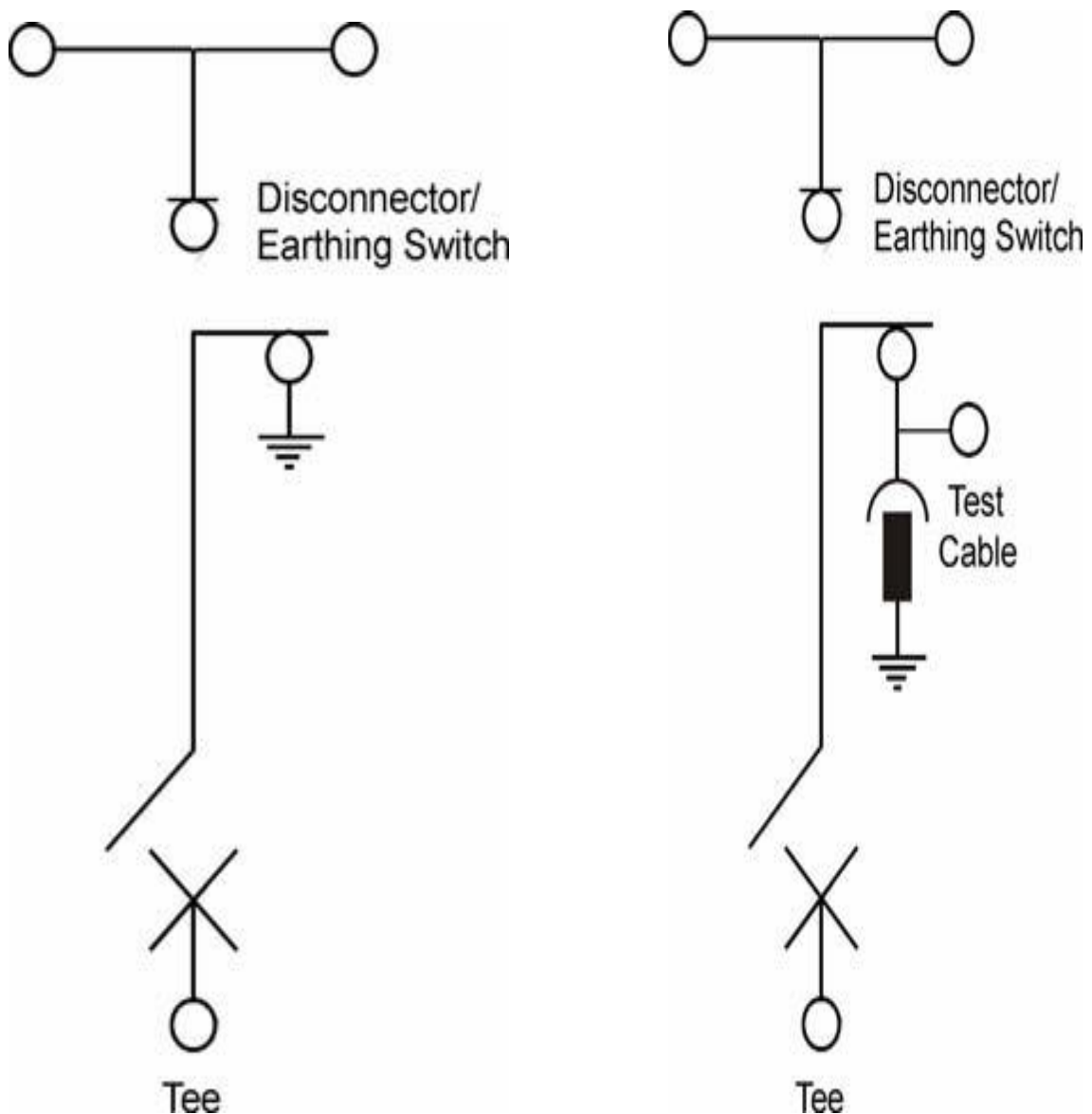
The units are designed for bolting down onto a concrete plinth using 4 - M16 bolts.



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### Extensible Unit VCE2a schematic line diagram:



## Technical data

Extensible Unit VCE2a	
<b>1- Rated Voltage</b>	<b>12KV (15.5KV)</b>
<b>2- Impulse Withstand Voltage</b>	<b>75KV (95KV )</b>
<b>3- Normal Current</b>	
- BUS BAR	630Amp
- Tee- Off Circuit Breaker	250Amp
<b>4- Short Circuit Peak Making current</b>	
- Tee-Off Circuit Breaker	50KA
<b>5- Short Circuit Breaking Current</b>	
- Tee-Off Circuit Breaker	20KA RMS
<b>6- 3 Second Short Time Current</b>	
- Tee- Off Circuit Breaker	20KA
<b>7- Earth Switch Peak Making Current</b>	
- Tee-Off Circuit Breaker	7.9 KA
<b>8- Internal Arc Rating</b>	<b>20KA 1 sec</b>
<b>OPTIONAL CABLE BOXES INTERNAL ARC RATING STANDARD TYPE</b>	<b>12.5KA 1 sec</b>
<b>9- Gas pressure</b>	
- Min Operating Pressure	0 Bar G
<b>10- IP Rating</b>	<b>up to IP54W</b>
<b>11- Weight</b>	<b>290kg</b>

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### Extensible Unit VCE Dimensions:

