

MCR - Multi Circuit Range





Design

The Lucy MCR constitutes a new approach by Lucy to Ring Main Units. The MCR is a panel style unit designed for front entry cabling. The unit can be used for indoor or outdoor application and is designed for long service life and virtually zero maintenance.

Key features

- Compact 'one tank' solution
- 12kV + 15kV versions
- Ergonomic mimic diagram
- Vacuum interrupters for all circuits
- Enhanced duty, in excess of IEC requirements
- Pre-wired for motor actuation
- Fault passage indicators
- Common stainless steel switching chamber
- Full ratings with zero atmospheric pressure

Options

Protection

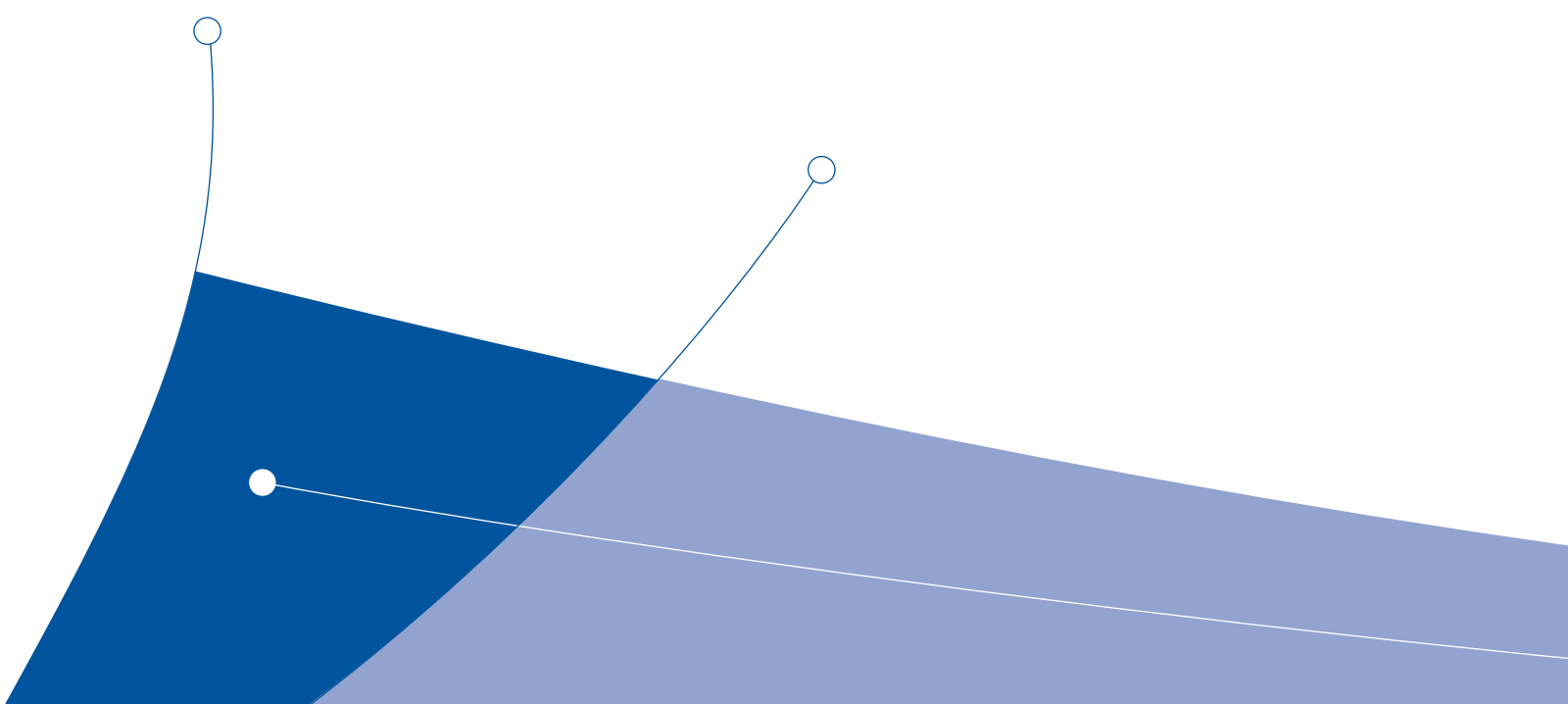
All options provide transformer over current protection for phase to phase faults. Earth protection covering phase to earth faults is also available if required.

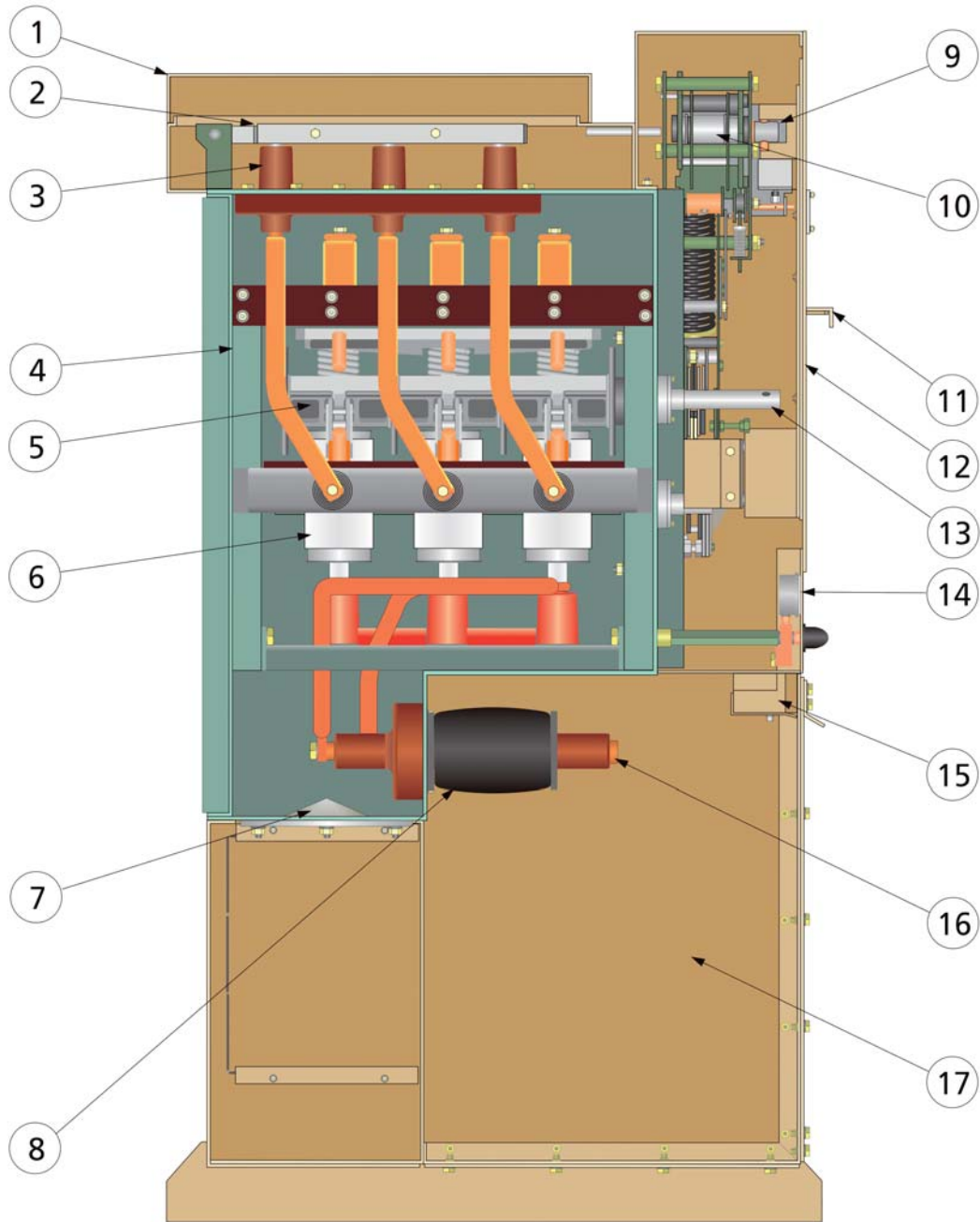
Cable Boxes

Internal arc test cable boxes are available for IEC and ENA specifications. Interlocked cable boxes are also provided as options.

Automation

The MCR can be pre-wired for automation. Rotary actuators can be easily and rapidly fitted on site whilst the unit is in service – no access is required to the internal workings of the RMU.





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|--|---|
| 1 Fully interlocked test access cover | 10 Circuit breaker or ring switch mechanism |
| 2 Removable and fully interlocked earthing point | 11 Interlocking |
| 3 Cable test terminals | 12 Facia and mimic |
| 4 Sealed tank | 13 Disconnector operation |
| 5 Disconnector | 14 Pressure gauge |
| 6 Vacuum interrupters | 15 Cable box interlocking |
| 7 Internal arc vent | 16 Cable termination |
| 8 Protection CT's | 17 Cable box |
| 9 Circuit breaker or ring switch operation | |

DESIGN

The Lucy MCR is a non-extensible ring main unit comprising of 3 or 4 functions in one common tank. It comprises of up to 4 vacuum circuit breaker units or a combination of vacuum circuit breakers and fault-make load break switches located in a stainless steel enclosure. The unit is suitable for both indoor and outdoor applications and can be used either as a freestanding unit or installed in compact mini-substations.

Stainless Steel Enclosure

The switching enclosure is manufactured from stainless steel and fabricated utilising automatic 'robot welding' techniques to produce the highest integrity housings.

Housing

The housing itself is fully treated; using zinc coated steel and electrostatically applied oven cured paint, to resist weather and pollution attacks. Units can be provided with a hinged, weatherproof and lockable door. The unit can be modified to allow for a variety of cable types and installations.

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 or via one of the many protection options available.

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 selector switch.

Ring Switches

There are two options for the fault-make load break switches where required. Ring switches can be provided using fully rated vacuum interrupters or utilising proven single break 3 position switches. Both designs provide 'ON', 'OFF' and 'EARTH' functionality.

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 external to the main enclosure.

Vacuum circuit breakers have two operating positions, 'ON' or 'OFF', with an off-load, interlocked selector allowing isolation and earthing of the circuits.

Test Facilities

Fully interlocked test facilities are provided in accordance with ENATS 41-36 Issue 2 and the very latest IEC requirements. The MCR has integral ring switch cable and circuit breaker test facilities as an option.

Interlocks

Positive safety interlocks are incorporated on all switch positions to prevent mal-operation.

Padlocks

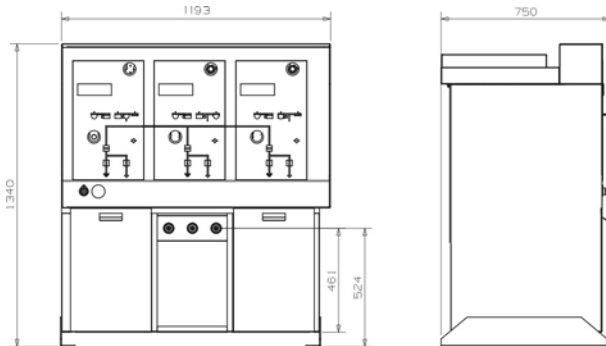
All switch and selector positions can be padlocked.

Transformer Protection

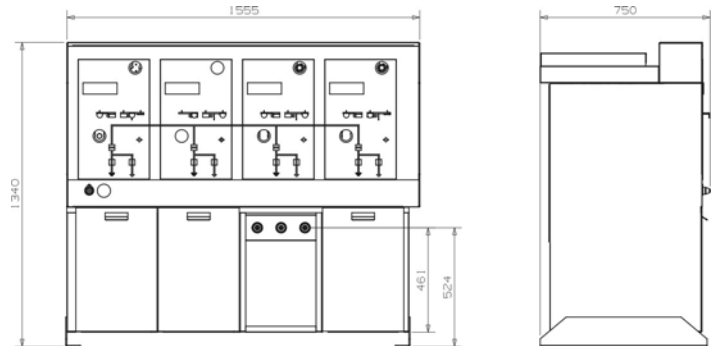
The circuit breaker enables the MCR to protect transformers with ratings well in excess of those achievable with a HV fused unit. Protection is achieved by the use of ring core current transformers in combination with Time Limit Fuse links or a protection relay. The ring core current transformers are mounted around the bushings, external to the switching 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.

MCR Standard Configurations and Dimensions

3-Way



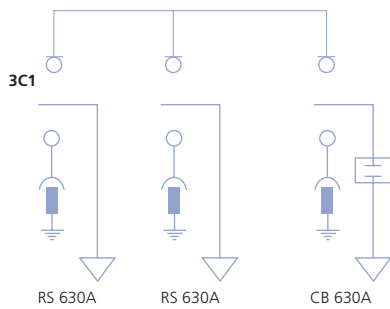
4-Way



MCR Schematic line diagram

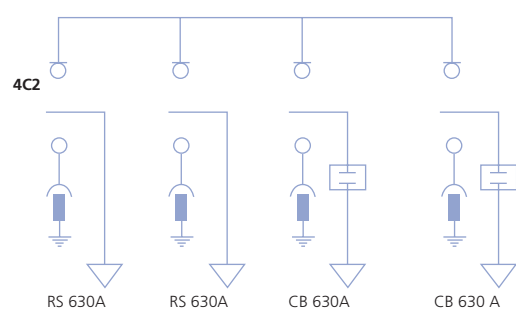
3-Way

RING SWITCH SOLUTION

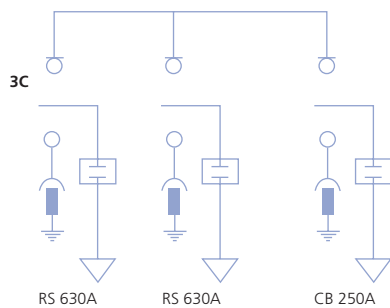


4-Way

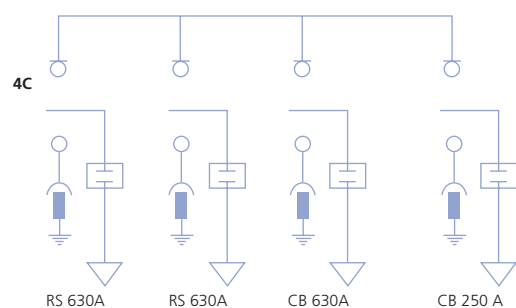
RING SWITCH SOLUTION



ALL VACUUM INTERRUPTER SOLUTION



ALL VACUUM INTERRUPTER SOLUTION



Technical data

(ratings in brackets are optional)

	MCR
Rated Voltage	12kV + 15kV
Impulse Withstand Voltage	75kV (95kV)
Normal Current	
Ring Switches	630A
Circuit Breaker	250A (630A)
Short Circuit Peak Making Current	
Ring Switches	50kA
Circuit Breaker	50kA
Short Circuit Breaking Current	
Circuit Breaker	20kA RMS
3 Second Short Time Current	
Ring Switches	20kA
Circuit Breaker	20kA
Earth Switch Peak Making Current	
Ring Switches	50kA
Circuit Breaker	7.9kA (50kA)
Internal Arc Rating	
Freestanding	20kA 1 sec
Substation	20kA 1 sec
Optional Cable Boxes Internal Arc Rating	12.5kA 1 sec (20kA)
Gas pressure	
Min Operating Pressure	0 Bar G
IP Rating	Up to IP33 (IP54)
Weight	4 Way 680Kg, 3 Way 540Kg
Testing standards	
BS EN 60265-1	•
BS EN 60129	•
BS EN 60694	•
BS EN 60298	•
IEC 60056	•
ENA TS 41-36	•
IEC 62271-102	•
IEC 62271-100	•
IEC 62271-103	•

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