



# Rapier AX

Air Break Switch Disconnecter

*engineering brilliant solutions*

# Rapier AX

## Air Break Switch Disconnecter

*engineering brilliant solutions*

### Lucy Switchgear would like to present its Air Break Switch Disconnecter.

The Rapier AX is compact and robust and provides a reliable, lightweight and flexible solution for all single break, rocking type switch disconnector requirements.

Lucy Switchgear has experience spanning over 100 years in the supply of electrical equipment to the global power distribution sector. The company is at the cutting edge of Air Break Switch design and innovation, engineering flexible and original solutions for our customers worldwide.

The Rapier AX range is suitable for 12 kV (15.5 kV), 24 kV and 36 kV supply voltages, and a maximum current rating of up to 800A.



### Safety Features

- Lightweight and ergonomic design assists with safe and controlled manual handling of the switch
- Independent manual spring (IMS) mechanism can be selected to provide added operator safety
- Both the Dependant Manual (DM) and Independent Manual Spring (IMS) hookstick mechanisms have as standard a self-latching shoot bolt that locks the mechanism and causes the change of state of the Rapier AX-M (Manual) to be a two stage operation. For additional safety, by the fitting of the optional Safety Lock flap the process becomes a three stage operation.
- In built Over-toggle design built in to the mechanism, preventing inadvertent operation
- Safe Load Breaking capability via optional Load Breaking Arc Chutes or Load Breaking Heads
- Remote operation: the AX can be supplied as a remote controlled air break switch with the AX-A (automated) by fitting an IMS mech, actuator and Remote Terminal Unit (RTU). This feature can also be fully retrofitted to the AX-M (manual) at a later date.

### Key Features

- 12 kV (15.5 kV) / 24 / 36 kV options
- Silicon Insulators
- Compact / robust
- Lightweight, universal base design for all voltages
- Suitable for single cross arm mounting (preferred) and also ESI standard mounting and customer specific arrangements
- Can be mounted horizontally (and vertically), pole top mounted or underslung
- Dependent Manual (DM) and Independent Manual Spring (IMS) assisted hookstick mechanism, and down pole handle variants
- Self latching Interlocking shoot bolt
- Safety Lock cover (optional)
- AX can be provided with full remote control for automation (AX-A) or the automation can be retrofitted at a later date
- Fully Certified
- Ice tested

### Benefits

- Compact design, minimal loose parts, easily lifted (one man lift) and manually handled
- Ease of erection and installation
- Flexible mounting arrangements, can be mounted to literally any structure, wooden, concrete, steel etc.
- Long service life, virtually maintenance free
- In House design expertise for quick accurate service and delivery, efficient end-to-end service
- Can be supplied ready assembled to cross arm for faster installation

# Rapier AX

## Features in detail

---

### Rapier Product Range

The Rapier AX range incorporates a modular design switch that can be configured to suit a variety of applications. Combining high performance and reliability, the Rapier AX rocking type switch can be a key element in rural distribution networks. They can be installed at cable termination point, as a simple isolator (AX-M) or through to a fully automated load break switch (AX-A).

The standard AX has been tested up to 630A (800A max.) 25kA / 3 secs. The AX switch can easily be fitted with Load Break Arc chutes / Load Break Heads, and the contact arrangement is self aligning negating the need for any specific setting. The folded universal support steelwork allows the switch to be mounted horizontally or vertically on most structures. The common use of polymeric (silicone) insulators provides a lightweight, durable and vandal resistant solution.

### Robust and Reliable

A high proportion of the AX switch components are manufactured from stainless steel for maximum protection against corrosion.

The self aligning contact arrangement provides high reliability and low friction ensuring a consistent performance even after long periods without operation. The contacts are designed to enable them to withstand short time currents of up to 25kA.

Laminated flexible connections, supported by spring steel strips, have a life span far in excess of the standard 1000 cycle test duty.

The AX switch is fully certified and has successfully completed ice testing up 10mm (class 10) and temperature rise tests (IEC 60265-1 / IEC 62271-1-2) via an independent test laboratory. This makes the AX suitable for the most extreme climates and conditions (coastal areas, high pollution and humidity).

### Mounting arrangements and Mechanisms

Working in partnership with our customers, Lucy Switchgear has been able to produce a simplified, single cross arm mounting design (pole top or underslung) suitable for 12 kV (15.5 kV), 24 and 36 kV switches. This is suitable for bolting onto single pole wood, steel or

concrete. As a consequence, ease of installation has been greatly improved along with faster lead-times and better economies for stock holding requirements and materials management.

The AX can also be mounted to traditional double channel steelwork with the addition of optional mounting brackets.

The AX switch can be operated by manual dependent (DM) hookstick mechanism, Independent manual spring (IMS) hookstick or down pole handle. The vertical operating pipe can have an optional insulated section if required.

### Quality

Manufactured in an ISO 9000 / 14000 quality system environment, each unit is carefully assembled and tested prior to shipment, and information relating to production dates and individual serial number are provided with each unit. The AX has been developed and tested in accordance with the following relevant standards; IEC 60265, IEC 62271-102, IEC 60694 and ENA TS 41-36.

### Options

- Mounting steelwork
- Hook stick operating mechanism / down pole handle device
- Safety Lock cover
- Porcelain Insulators
- Load Break Arc Chutes / Load Break Heads (load breaking duty)
- Surge Arrestor brackets

### Service

With our Lucy Switchgear heritage you can trust that you are in good hands. We have extensive in-house design and after-service expertise offering a complete design package that identifies the correct disconnectors, connectors, busbars and insulators for your specific requirements. This provides an end-to-end service, giving you the confidence and complete peace of mind.

# Rapier AX

*Related products*

## Rapier AX – A (automated)

The Rapier AX-A is a fully integrated product, comprising key features such as:-

- Rapier AX switch
- Independent Manual Spring (IMS) mechanism
- Gemini – RTU with built in actuator
- Mounting steelwork to UK ENA and industry standards

The standard installation would be underslung beneath the overhead conductors.



## Optional accessories to meet the total package requirement

- Patented fault passage indicator / current monitor
- Pole mounted voltage transformer (VT)
- Communications modem
- Surge arrestor brackets
- Cable protection cover

## AX-DO, 12 kV (15.5 kV) / 24 / 36 kV (Drop Out Expulsion Fuse – up to 100A), suitable for vertical mounting



## Rapier-IL Removable Isolating Links, 12 / 36 kV (up to 400A)



## Accessories Connectors, busbar, adaptors and end Caps up to 145 kV



## 36 / 72.5 / 145 kV DSB Substation disconnectors (Double Side Break), Manual or Motorised mechanisms (PTD)

## Supply of Porcelain and Polmeric insulators up to 145 kV

# Rapier AX

## Features

Electrolytically tinned copper laminations with stainless steel support



Self-aligning contact design

Simplified single cross arm mounting  
Lightweight, compact, robust design



Optional Load breaking arc chute up to 630A



Environmentally tested, class 10 (10mm ice test)



Durable silicone insulators

# Rapier AX

## Technical specifications

Rated Voltage	kV	12 kV (15.5 kV)	24 kV	36 kV
Lightning Impulse Withstand Voltage peak	kV	110	125	200
Frequency	Hz	50 / 60	50 / 60	50 / 60
Normal Current	A	630	630	630
3 sec Short Time Current Withstand rms	kA	25	25	25
3 sec Short Time Current Withstand Peak	kA	62.5	62.5	62.5
Making Current rms / peak	kA	3 / 7.5	3 / 7.5	3 / 7.5
Making Current rms / peak optional	kA	10 / 25	10 / 25	10 / 25
Switch orientation		Vertical / Horizontal	Vertical / Horizontal	Vertical / Horizontal
Mechanism type		Manual / Motor	Manual / Motor	Manual / Motor
Mechanism Mount		Low level / High level	Low level / High level	Low level / High level
Current breaking capacity		Up to 630A	Up to 630A	Up to 630A
Number of Insulators per Phase		3	3	3
Current Carrying Component Material		Electrolytic Tinned Copper	Electrolytic Tinned Copper	Electrolytic Tinned Copper
Cable Connection Type		14mm Hole + Slot	14mm Hole + Slot	14mm Hole + Slot
Ice test		10mm – Class10	10mm – Class10	10mm – Class10
Metal Finish		Hot Dip Galvanised	Hot Dip Galvanised	Hot Dip Galvanised
Type of Disconnecter		Rocking	Rocking	Rocking
Mechanical Endurance		1,000 operations M0	1,000 operations M0	1,000 operations M0

## Lucy Switchgear worldwide offices

### Lucy Electric UK Ltd.

Howland Road, Thame, Oxfordshire,  
OX9 3UJ, United Kingdom

**Tel: +44(0)1844 267267**

Fax: +44 (0)1844 267223

Email: salesuk@lucyswitchgear.com

### Lucy Middle East F.Z.E

PO Box 17335, Jebel Ali, Dubai, United Arab Emirates

**Tel: +9714 812 9999**

Fax: +9714 812 9900

Email: salesme@lucyswitchgear.com

### The Saudi Lucy Co. Ltd.

PO Box 834, Al-Khobar,  
31952, Saudi Arabia.

**Tel: +966 388 23057**

Fax: +966 388 22553

Email: salesksa@lucyswitchgear.com

### Lucy Electric South Africa (Proprietary) Limited

Suite 117 & 118, Fourways Business Centre,  
Design Quarter, Nicole Grove Office Park, Leslie Road,  
Fourways, 2055, South Africa

**Tel: +27 11 5133415**

Fax: +27 86 6783418

Email: salesza@lucyswitchgear.com

### Lucy Asia Pacific Sdn Bhd

Suite 32-01-92, 32nd Floor, Wisma Keck Seng,  
203 Jalan Bukit Bintang,  
55100 Kuala Lumpur, Malaysia

**Tel: +603 2116 5640**

Fax: +603 2116 5647

Email: salesmy@lucyswitchgear.com

To find out more about us, visit  
[www.lucyswitchgear.com](http://www.lucyswitchgear.com)