

Rapier GX

Gas Enclosed Load Break Switch and Sectionalizer up to 38kV
with automation or remote control options

ENGINEERING BRILLIANT SOLUTIONS



RAPIER GX Gas Enclosed Switch

Our new RAPIER GX, pole-mounted gas enclosed switch has been developed to complement our low cost and low maintenance RAPIER RX air break switches and offers customers an alternative solution to open terminal arrangements.

Available up to 38kV, the GX switch has been designed utilising the latest SF6 puffer switching technology to achieve high performance and reliability. Whether operated as a base manually independent switch or equipped with fully automated features, the GX switch provides the answer to your sectionalising and network automation requirements.



Built to Last

All switch tanks are manufactured from stainless steel, sealed for life and maintenance free.

The “tulip” type contact system made from Tungsten-Copper ensures long contact life and high short-circuit making capability up to 31.5kA. Load breaking up to 630A is achieved with very short arcing times of less than half a cycle of power frequency. Full ratings are guaranteed at atmospheric gas pressure.

The standard operating mechanism is manual operator-independent for fast open, fast close GX switch operations. Motor operation time takes no more than 700 milliseconds.

Bushings are manufactured from polymeric materials to maximise protection against vandalism.

Safe Operation by Design

A number of safety features have been designed into the GX switch, which protects the operator from adverse operation.

From ground level, an operator has visibility of status of the switch underneath the switch tank and if low gas pressure mechanism has operated then the switch remains in its current state.

A software feature in the G2-RTU ensures that any remote or local electrical operation is duly inhibited, if a low gas pressure is detected.

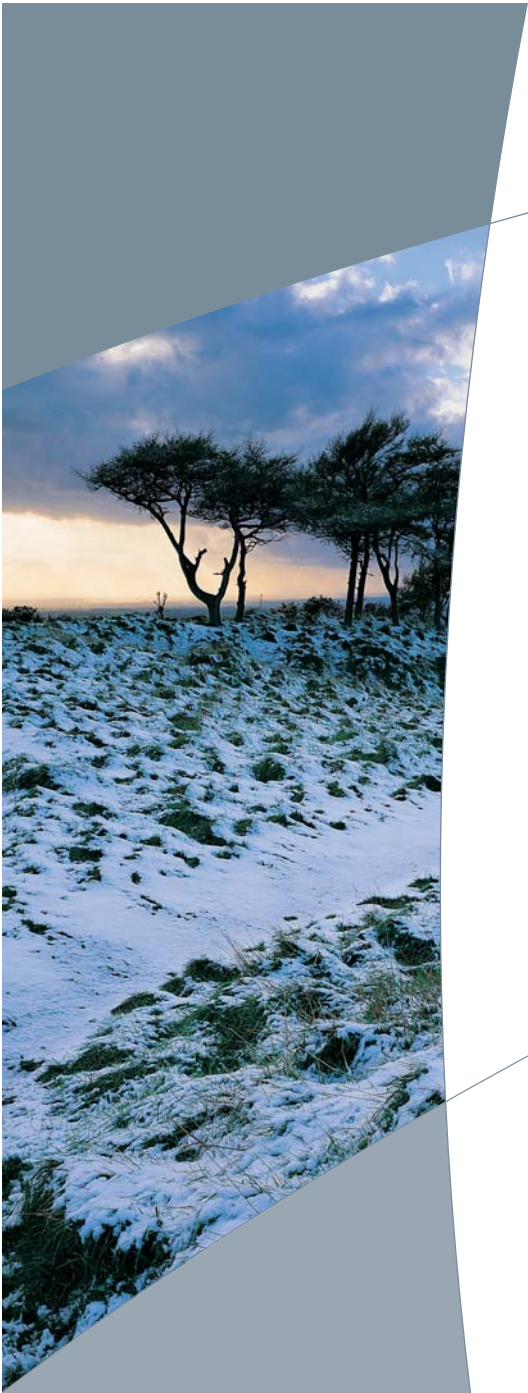
The operator is protected from an internal arc fault by the operation of a bursting membrane such that exhaust debris is directed away from the operator. In addition, a low pressure lock-out device operates to inhibit mechanical and electrical operation of the switch in the event of low gas pressure.

On isolating the GX switch to establish a Point of Isolation, a lock handle can be operated to lock-off the mechanism. The closure of the switch then requires two stages of operation to achieve the latter.

Key Features

- Available up to 38kV
- 3 built-in current transformers
- 6 voltage sensors in bushings
- Motor actuator
- Stainless steel tank sealed for life
- Polymeric bushings
- Gas pressure indicator
- Low gas pressure lockout device
- Overpressure bursting disc





Gemini-RTU2 (or G2-RTU)

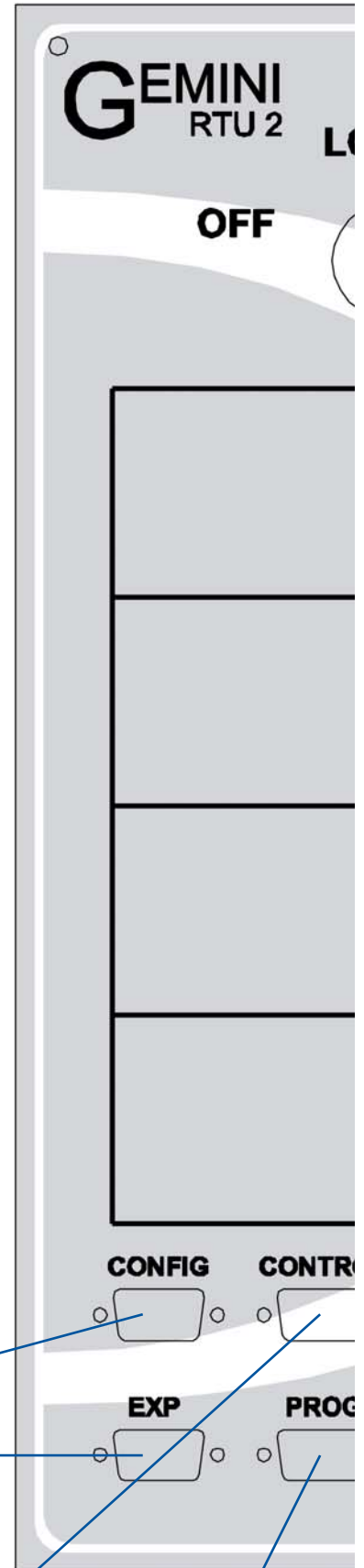
A key component part of the RAPIER GX-RC/S is the G2-RTU (Remote Terminal Unit), which provides the telecontrol and automation interface to a customer's Master SCADA or DMS. The inner RTU electronics are encased within an IP54 rated, stainless steel cabinet to ensure suitability for outdoor use. The G2-RTU is a highly flexible and versatile device that can be configured (via a laptop) with an array of software monitoring functions. These features improve the device availability and give diagnostic information on potential on-site issues.

Key Features

- Local and remote operation
- DNP3 and IEC 60870-5-101/104 protocols as standard – others on request
- Flexible communications interface – radio, RS232, RS485, Paknet, GSM, GPRS, PSTN, Bluetooth, optical fibre and TCP/IP networks. It also supports SMS messaging
- Isolated digital inputs (DI)
- Digital control outputs (DO)
- Analogue monitoring (AI)
- Embedded automation sequencing, ie sectionalising
- 24V battery for continued operation under power failure conditions
- Monitoring (battery condition, temperature compensation, number of switch operations, automatic cooling system, gas pressure)
- Fully EMC and environmentally tested



GX-RC/S Control Panel



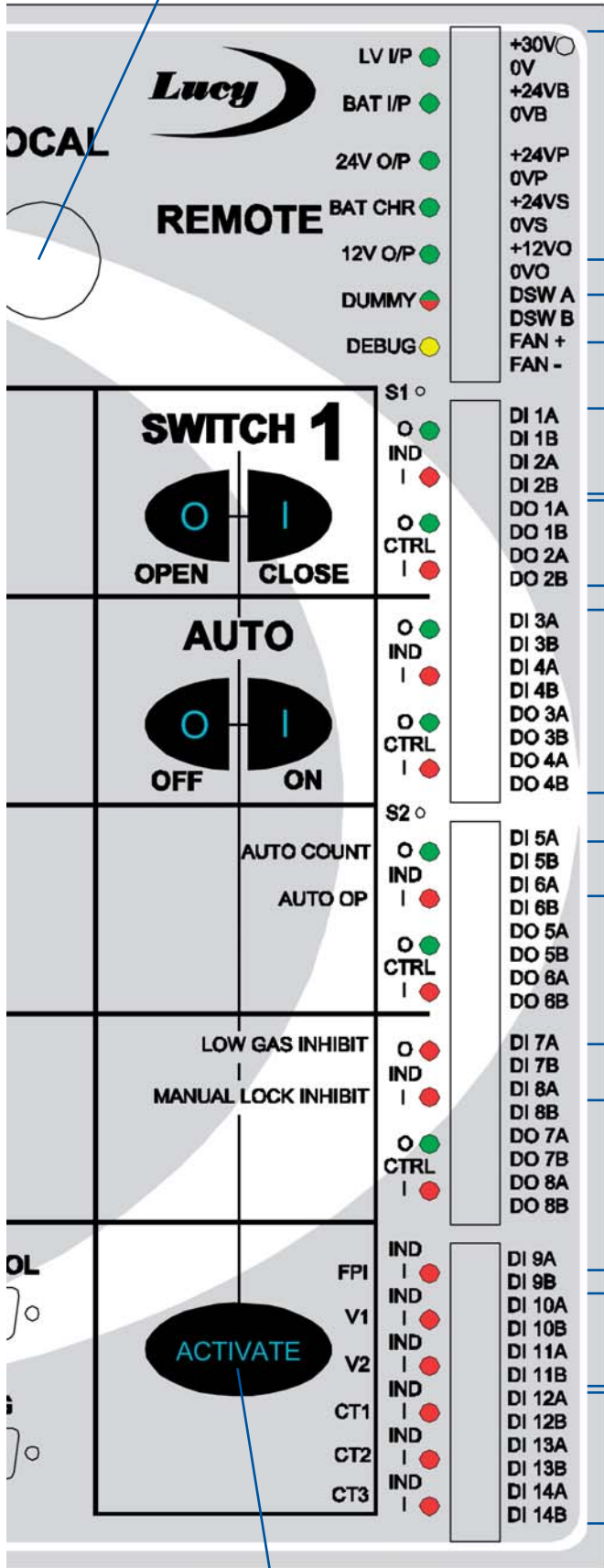
RS232 Configuration Port

I²C Expansion Port

RS232 Host Port to Modem

RS232 Programming Port

Local/Remote/Off control selector



Indications for RTU's AC & DC power supply statuses

Dummy control indication

Diagnostic indication

GX switch status indication – OPEN or CLOSED

Control output indications (only illuminate when active)

Control push buttons to switch 'sectionalising function' on and off, including indications

LED blinks to indicate number of fault pulses detected before opening

Sectionalising function operated

Low gas warning (software inhibits controls locally and remotely)

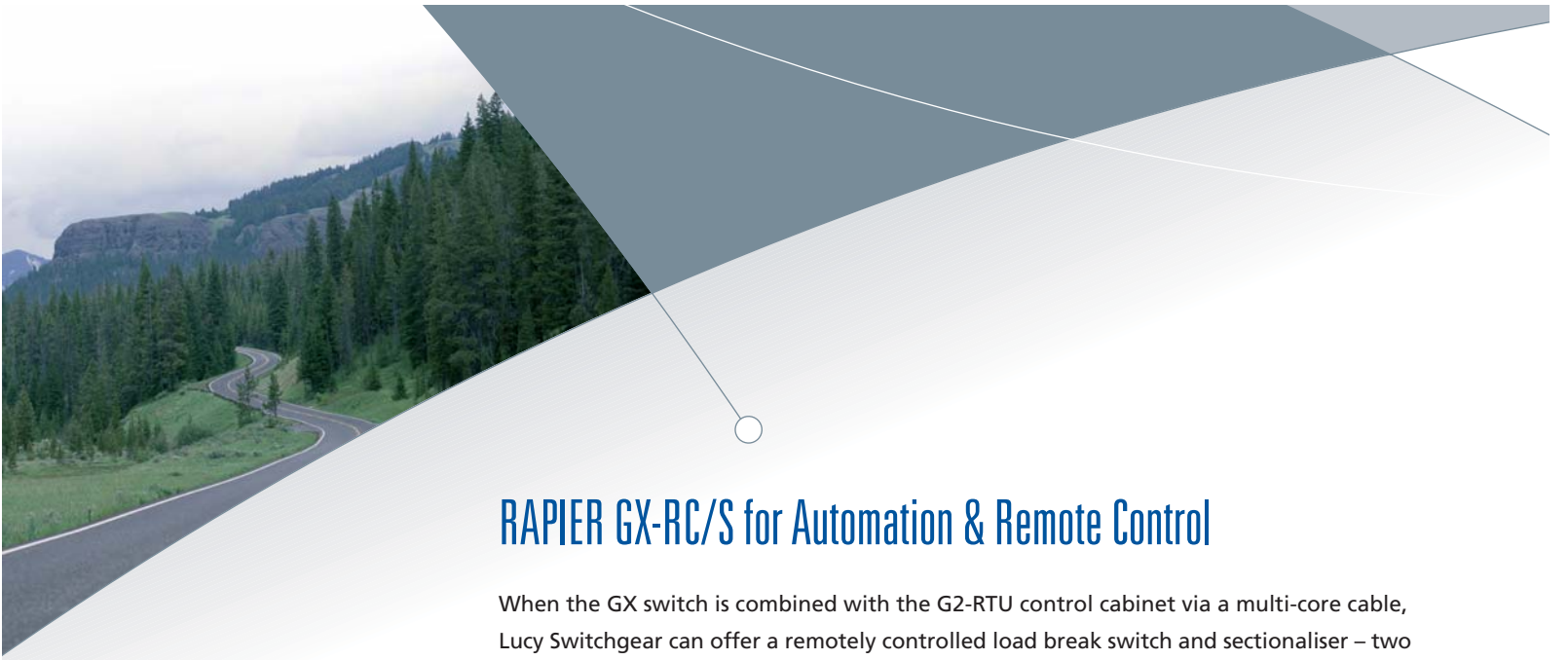
Indication when manual lock is applied

Fault Passage Indication (E/F or O/C)

Voltage presence indications (useful when GX switch is OPEN)

3 CT analogue inputs for FPI processing

Activate push button must be pressed simultaneously with other control push buttons to operate function



RAPIER GX-RC/S for Automation & Remote Control

When the GX switch is combined with the G2-RTU control cabinet via a multi-core cable, Lucy Switchgear can offer a remotely controlled load break switch and sectionaliser – two products in one, namely the [RAPIER GX-RC/S](#).

The automated GX switch is equipped with all the necessary hardware/software features to operate as a remotely controlled load break switch or a sectionaliser working in conjunction with an upstream recloser.

All mounting steelwork for the GX switch, control cabinet and VT is normally supplied as standard to fit the variety of pole structures installed worldwide.



Optional Features

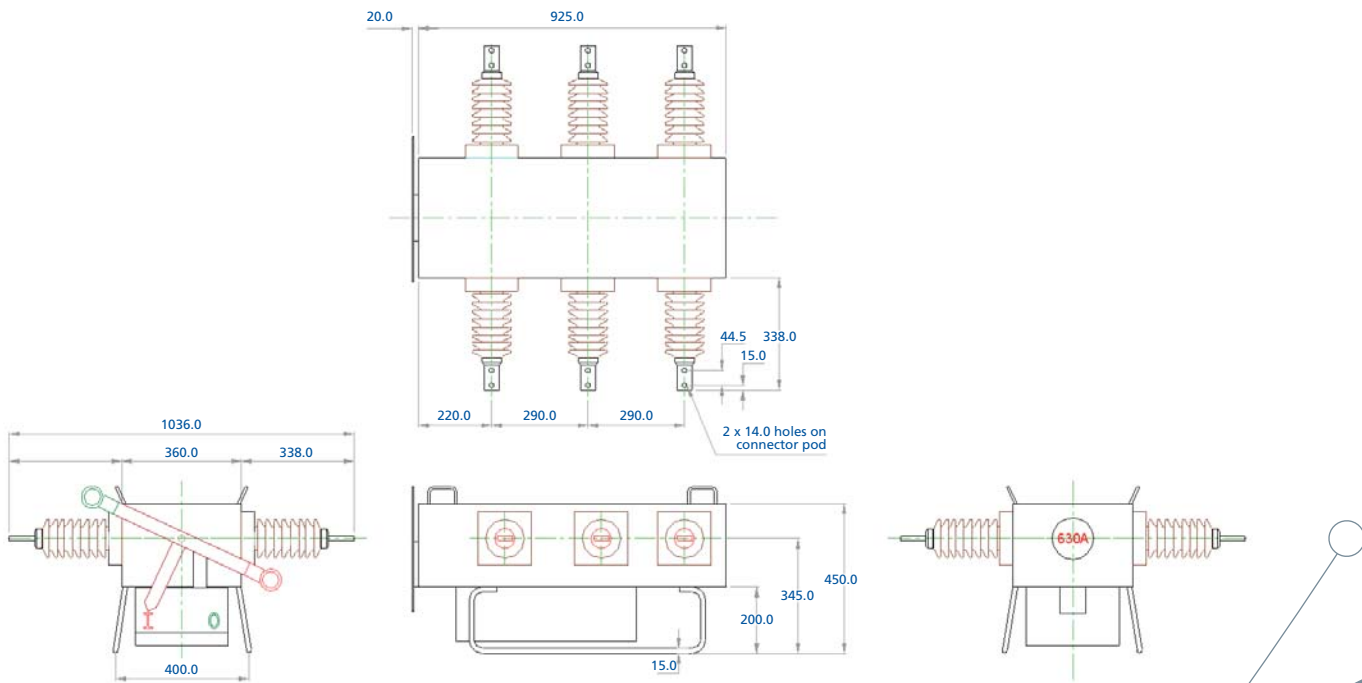
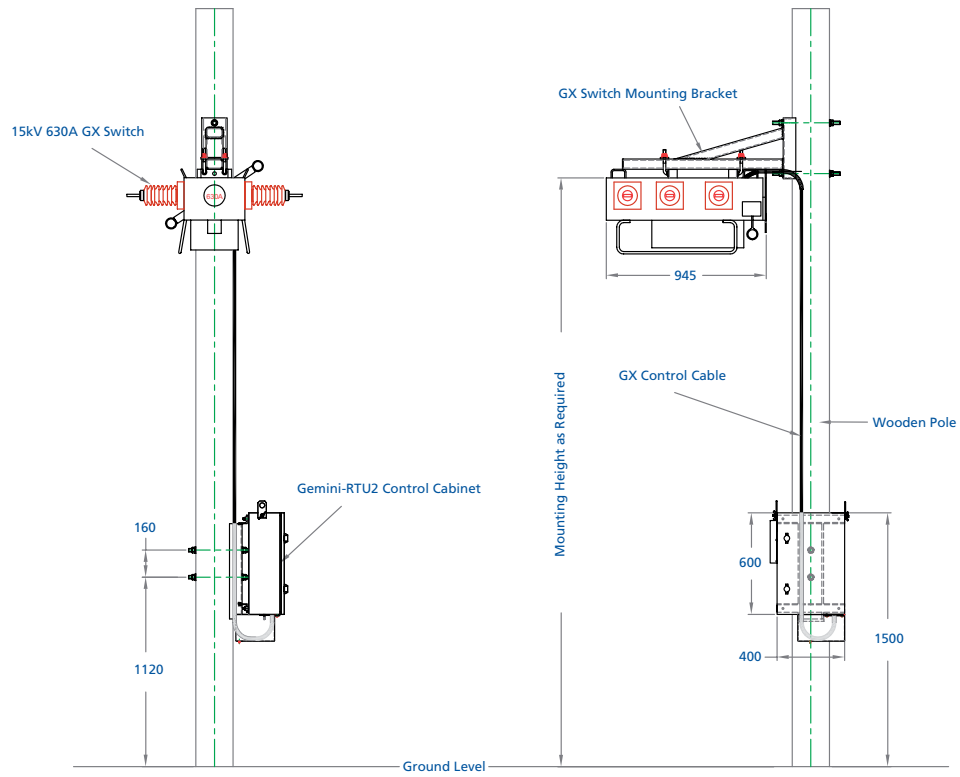
- Communications modem
- Pole-mounted Voltage Transformer (VT) and bracket
- Integral VT within the GX switch tank
- Longer control cable (8 metres standard)
- Porcelain insulators
- Surge arrestors brackets

Product Offering

The RAPIER RX-RC/S represents the fully automated format, providing customers with all the necessary features to meet applications for remote MV switching and sectionalising. The GX switch, equipped in this format, can be installed in locations where there is a likelihood of upgrading to automation in the future.

For situations where there is no likelihood or requirement for automation, Lucy Switchgear offers a low cost version of the GX switch as a independent manual, hookstick operated load break switch (no automation features) – the [RAPIER GX-M15/26/38](#). In addition, we supply the necessary mounting steelwork for any type of structure.

GX-RC/S General Arrangement



Rapier GX Electrical Performance

Product Range	Rapier GX		
	15kV	26kV	38kV
Maximum System Voltage	17.5kV	27kV	38kV
Rated Current	400/630A	400/630A	400/630A
Power Frequency	50/60Hz	50/60Hz	50/60Hz
Fault Make Capacity (rms)	20kA	12.5kA	12.5kA
Fault Make Capacity (peak)	50kA	31.5kA	31.5kA
Number of Make Operations	5	5	5

Breaking Capacity			
Mainly Active	400/630A	400/630A	400/630A
Closed loop current	400/630A	400/630A	400/630A

Impulse Withstand Voltage			
Phase to Earth	110kVp	150kVp	170kVp
Across Isolation gap	125kVp	165kVp	195kVp

Environmental	
Ambient Temperature	-25° to +50°C
Humidity	0 to 100%
Altitude (max)	Up to 1000m

Product Range

Product Designation	Mode	Description
GX-M 15, 26 or 38kV	Manual Operation	Manually operated enclosed switch via hook stick mechanism
GX-RC/S 15, 26 or 38kV	Remote Control/ Sectionalizer	Remotely controlled enclosed switch equipped with Gemini RTU2, FPI and optional sectionalising software

For pole mounted air break switches, refer to RAPIER RX range.

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