



Grid Solutions
a GE and Alstom joint venture

RPH3

Controlled switching device

RPH3 controlled switching device ensures optimum switching of circuit-breakers.



RPH3

CUSTOMER BENEFITS

- Longer lifespan of assets
- Greater network availability
- Higher power quality
- Smarter than closing resistor: cost-effective and reliable
- Remote support

For circuit-breakers up to 800 kV

Grid Solutions, a GE and Alstom joint venture, makes the most of more than 80 years of experience in design, material selection, development, engineering, manufacturing and servicing of circuit-breakers.

OPTIMUM SWITCHING FOR GRID ASSETS

- Power transformer
- Shunt reactor
- Long transmission line and cable
- Shunt capacitor bank and AC filter

HIGH RELIABILITY

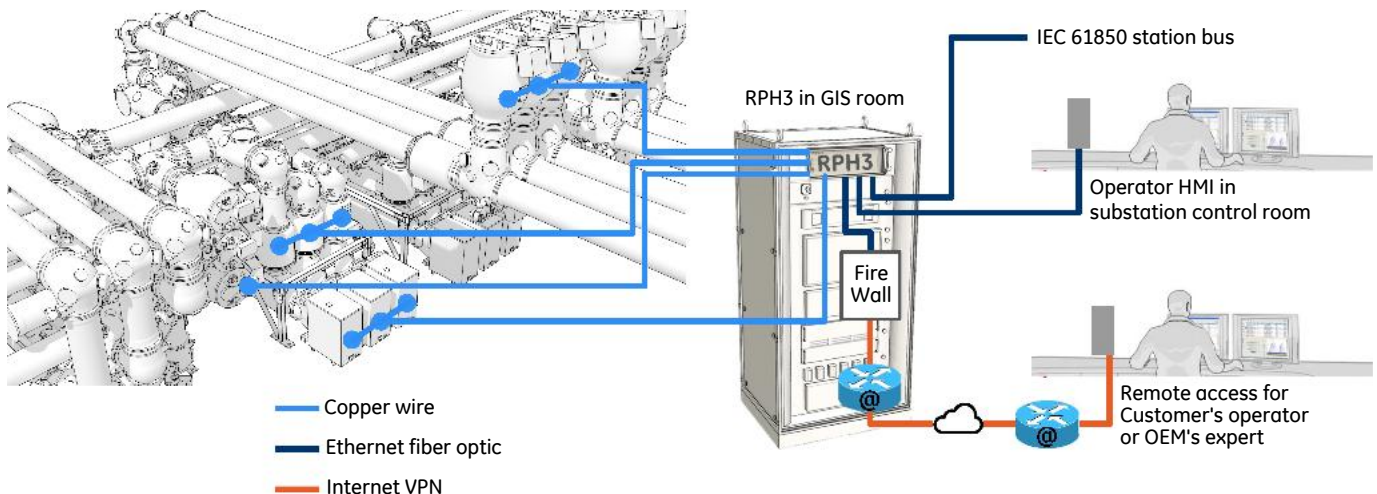
- Successful experience with over 1,000 RPH3 around the world
- Elimination of switching transients
- Minimization of inrush current, overvoltage and stress
- Accurate and fast analysis of current and voltage for optimal switching time
- No impact on protection scheme

GREAT VERSATILITY

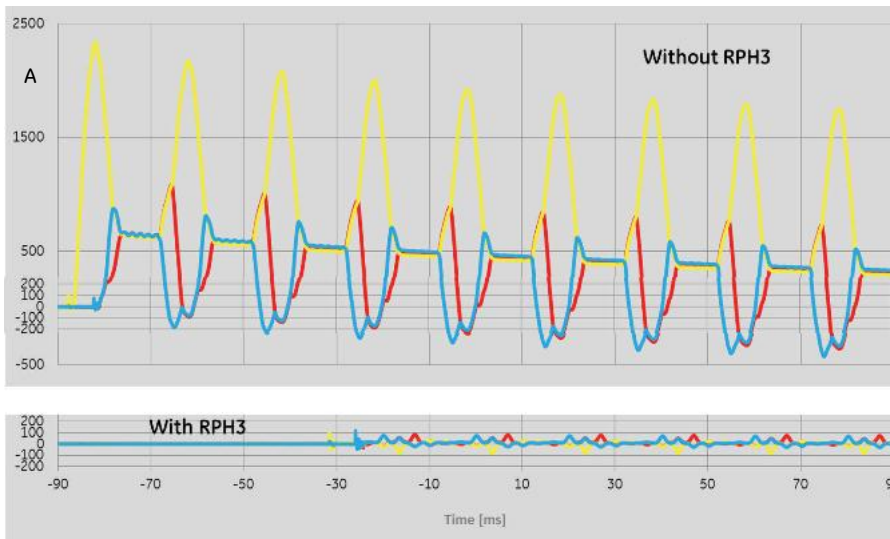
- Dynamic adaptation to all network and load characteristics
- Compatibility with a wide range of circuit-breakers (with appropriate dielectric strength) and operating mechanisms (with appropriate operating time scatter)
- Compensation for coil voltage, ambient temperature, driving pressure, idle time and long-term operation time drift.

SMART GRID FEATURES

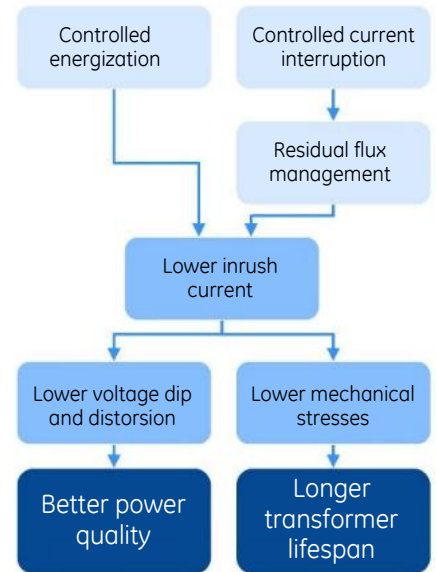
- Remote access for customer's and OEM's experts
- Available with IEC 61850 communication



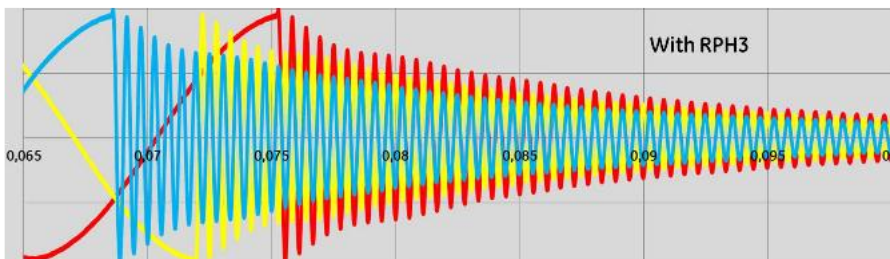
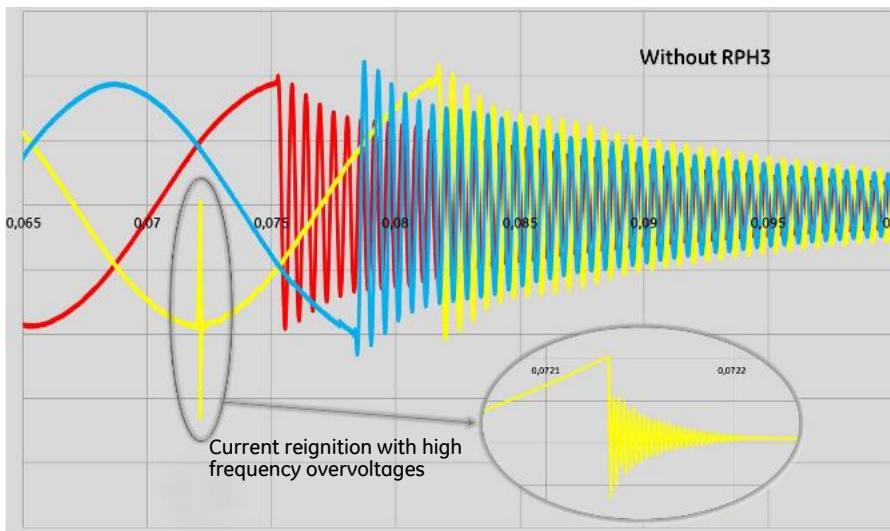
CONTROLLED SWITCHING OF POWER TRANSFORMERS



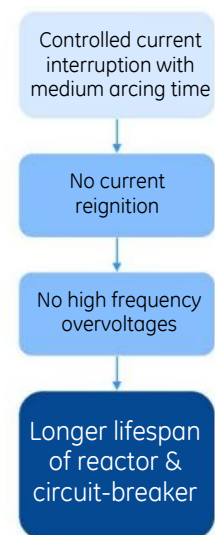
Inrush current



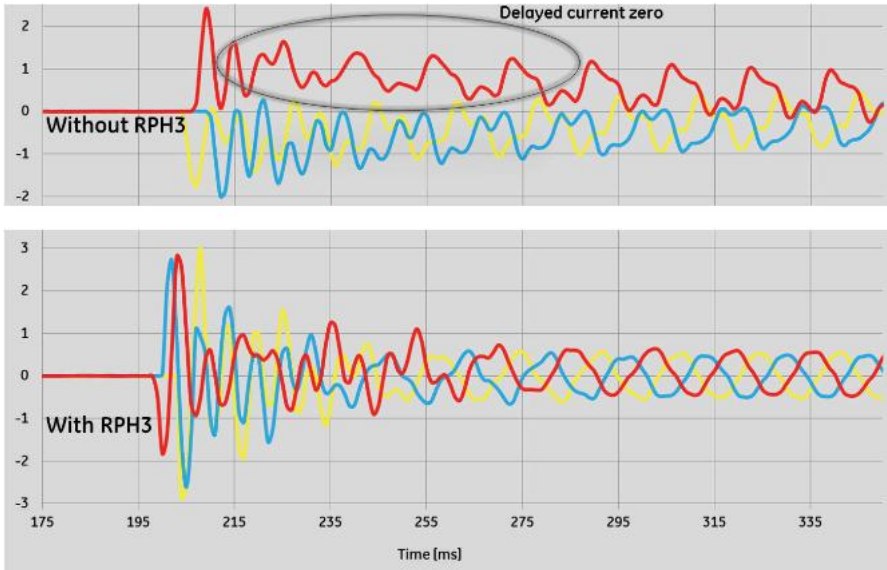
CONTROLLED SWITCHING OF SHUNT REACTOR



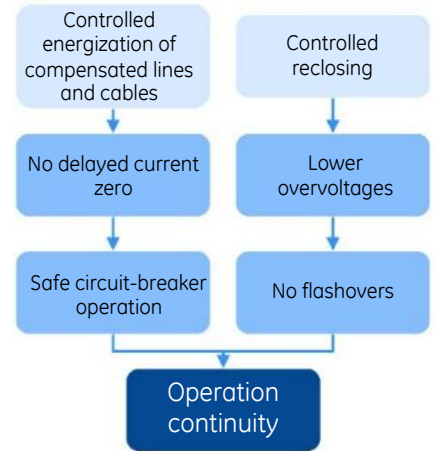
Overvoltages



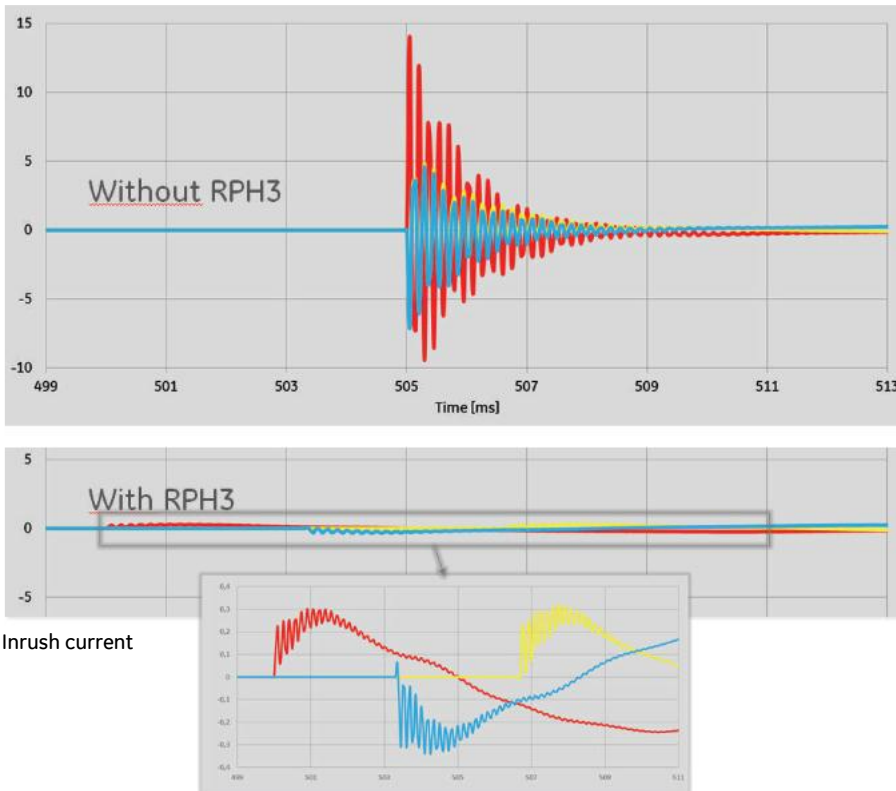
CONTROLLED SWITCHING OF LONG TRANSMISSION LINE AND CABLE



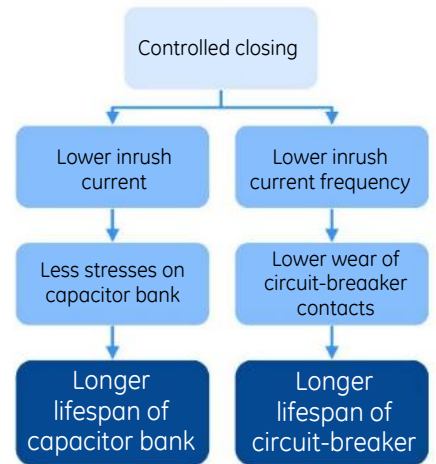
Compensated line charging current



CONTROLLED SWITCHING OF SHUNT CAPACITOR BANK



Inrush current

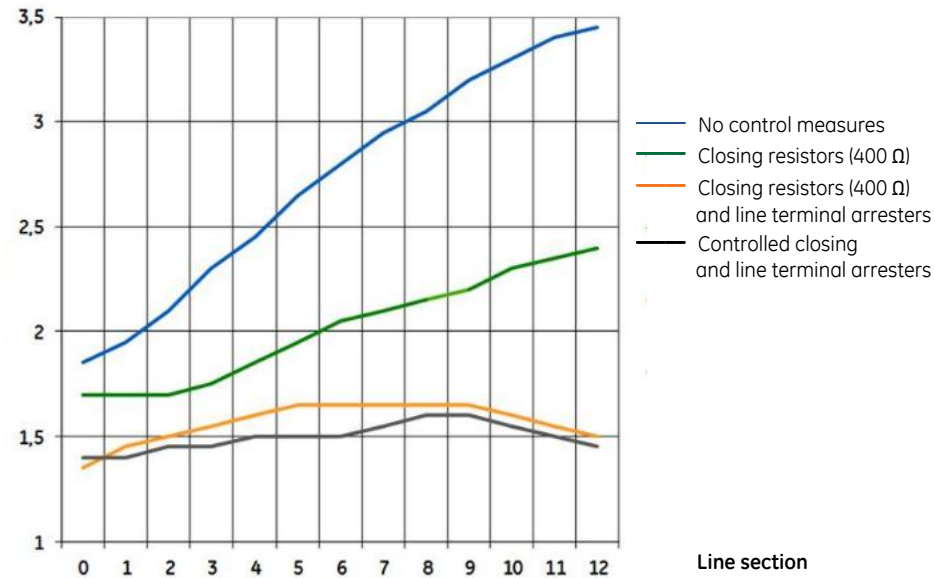


GENERAL RATINGS

Temperature	°C	-25 to +55 (in operation)
Main supply	VDC / VAC	48 (-15 %) - 250 / 110 - 240 ±20 %
Power consumption	W	<20
Solid-state control of circuit-breaker	V / A	48 - 250 / 10 - 15
	ms (L/R of CB coil)	300 @ 10 A / 200 @ 15 A
Alarm relays operating range	V / A	230 / 5
Synchronizing voltage range	V (at 20-60 Hz)	15 - 330
Switching time resolution	ms	<0.1
EMC immunity standards		IEC 61000-4-2, 4, 5, 8, 16 Level 4 IEC 61000-4-3, 6, 17 Level 3
Emission standard		EN 55022 Class A
Digital interface		Ethernet 100 Mbit/s
Communication protocol		Ready for 61850, TCP-IP

COMPENSATION

Switching overvoltage of long transmission line (P.U.)



Voltage profile along line for various mitigation measures

For more information please contact
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