Switchsync™ PWC600
Point-on-Wave controller

Switchsync PWC600 is ABB’s newest generation of point-on-wave controllers, based on the successful Relion® platform of protection and control products. Offering the full functionality and reliability of previous Switchsync products, it additionally includes Ethernet interfaces, which support modern communication protocols, and enhanced functionality towards the user.

Switchsync PWC600 is designed for single-pole operated circuit breakers, controlling each pole to close and/or open at the point on wave that is optimal for the switched load, the circuit breaker, or power quality.

**PWC600-M controlled switching applications** (essential switching operation in parentheses)
- Capacitor bank (energizing)
- Shunt reactor (de-energizing)
- Power transformer (controlled energizing supported by controlled de-energizing)
- Transmission line or power cable (energizing)

**Main features**
- Controlled closing and opening in one device
- Accepts voltage and current signals from conventional voltage transformers/current transformers, and/or sampled values according to IEC 61850-9-2(LE)
- Station bus communication according to IEC 61850-8-1, including GOOSE messaging and Parallel Redundancy Protocol (PRP)
- Web interface allows online viewing and downloading of operation data
- Local HMI (human/machine interface) for direct access to settings and operation data
- Setting wizard (PC based) for guided entry of application data
- Semi-automatic learning of circuit breaker operating times during commissioning and detection of wiring errors
- Circuit breaker operations monitoring, based on auxiliary contact signals and current/voltage signals
- Compensation and range supervision of control voltage, circuit breaker idle time, temperature, drive energy, etc.
- Time synchronization: 1PPS (for IEC 61850-9-2), IRIG-B, SNTP
- Stores waveforms of last 100 operations, and operation data of last 1000 operations
- Seamless integration in ABB’s Protection and Control Manager PCM600

**Hardware overview**
Switchsync PWC600 comes in a 3U 19” steel enclosure, with a local Human-Machine Interface (LHMI) on the front panel.

The LHMI includes an LCD screen, LEDs, pushbuttons, and a RJ-45 Ethernet interface. The rear panel allows access to the other functional modules.
User interfaces
Switchsync PWC600 supports all tools and interfaces available in ABB’s Relion® series of control and protection devices, including LHMI and various tools in PCM600. On top of those, it provides two advanced ways of interacting with the device.

1. Switchsync Setting Tool (SST) is a wizard-style tool in PCM600, for configuring the point-on-wave controller to the application. Taking advantage of a flexible default application configuration, it guides the user through entering the relevant settings, explaining every value along the way. SST also includes a library of ABB circuit breakers and allows adding new breaker types by the user.

2. Web HMI is an embedded webservice that allows online access to stored data through any modern web browser (recommended: Internet Explorer® 9 or higher). It provides graphical viewing of waveform records and trend data, and list views of operation records, events, alarms, etc. Most functions available on the LHMI can also be accessed remotely through Web HMI.

Hardware interfaces
- 2 command inputs (Close, Open)
- 6 command outputs (3 Close, 3 Open)
- 1 or 3 reference voltage transformer inputs
- 3 current transformer inputs, 3 load voltage transformer inputs
- Ethernet interface (optical, LC) for station bus communication
- Ethernet interface (optical, LC) for IEC 61850-9-2(LE) process bus communication
- Ethernet interface (electrical, RJ45) for local communication
- 10 binary outputs (relay contacts) for status/alarm indication
- 6 inputs for circuit breaker auxiliary contacts
- Dedicated inputs for time synchronization: 1PPS (optical, ST), IRIG-B (electrical)
- Power supply 48 to 125 V or 110 to 250 V DC

Installation data
- Dimensions: 442 x 132 x 249.5 mm (17.4 x 5.2 x 9.8"), for installation in 19” rack
- Net weight: 10 kg (22 lbs)
- Protection class of enclosure: IP 21
- Operating temperature:
  -25 to +55 °C (-13 to +131°F); -40 to +70 °C (-40 to 158 °F) for <16 h