Recloser Retrofit Control

Descriptive Bulletin

ABB

Upgrade to the future

The ABB control can retrofit the following Cooper control types:
Kyle®/Cooper Form 3, 3A, 4, 4A, 4C, FXA and FXB recloser controls.

The easy installation can be completed in five simple steps:

1. Remove the existing control cabinet
2. Attach the new cabinet to the same mounting holes
3. Plug the new control into the existing cable
4. Connect the power cables
5. Program the desired protective settings

Advantages of Upgrading

- Enhanced protection capability
- Extensive curve selection included (more than 50 curves)
- Advanced communication capability
- DNP 3.0 protocol standard
- Accommodates a wide variety of communication methods
- Free firmware upgrades
- 24/7 technical support
- Simple menu driven programming from the front panel or via included windows-based software
- Large cabinet easily capable of mounting a radio or other accessories
- Three year warranty
- 24 volt 12 ampere hour battery system for backup power
- ABB control can be used with either high or low voltage closing coils
- Loop control capability

Benefits of Control Unit

- Simple, menu-driven programming for easy use
- Hot line tagging feature on faceplate for simple and safe operation
- Easy local access via front panel RS-232 programming port
- Easy access to operational data via front panel
- Over 50 protection curves and 3 user programmable curves resident in control for superior coordination
- Optional loop control module for fast restoration of distribution systems
- Fault location reduces outage time
- Power quality monitoring records voltage sags, swells and interruptions
- 304 stainless steel enclosure prevents corrosion in harsh environments
- Ample space for mounting communications equipment to save installation time and money
- Convenient GFI receptacle for powering laptop

PCD

PCD Control Unit

① Local human-machine interface
– Enlarged LCD (1" x 5") with large characters (two lines of 20 characters)
– Simple menu-driven programming using large six-button keypad
– Backlit display indicates metering values, fault information and location
– Temperature compensated LCD contrast is always readable

② Indicator lights
– Continual self-checking with status indication
– Pickup and lockout indication
– Programmable targets
– User programmable LEDs for alarms, additional targets, etc.

③ Front panel pushbuttons
– Remote or local selection between three setting groups: Primary, Alternate 1 (Alt 1) and Alternate 2 (Alt 2)
– Front panel button to set Alt 1 settings
– Ground blocked, remote blocked and reclose blocked pushbuttons
– Sensitive Earth Fault (SEF) is optional, recommended for ungrounded or Delta CT applications
– PROG 1 battery test feature preprogrammed
– Counters button for easy access to a number of operations and overcurrent trip information

④ Hot line tagging feature
– On faceplate for simpler and safer operation
– Can be mapped for multiple applications

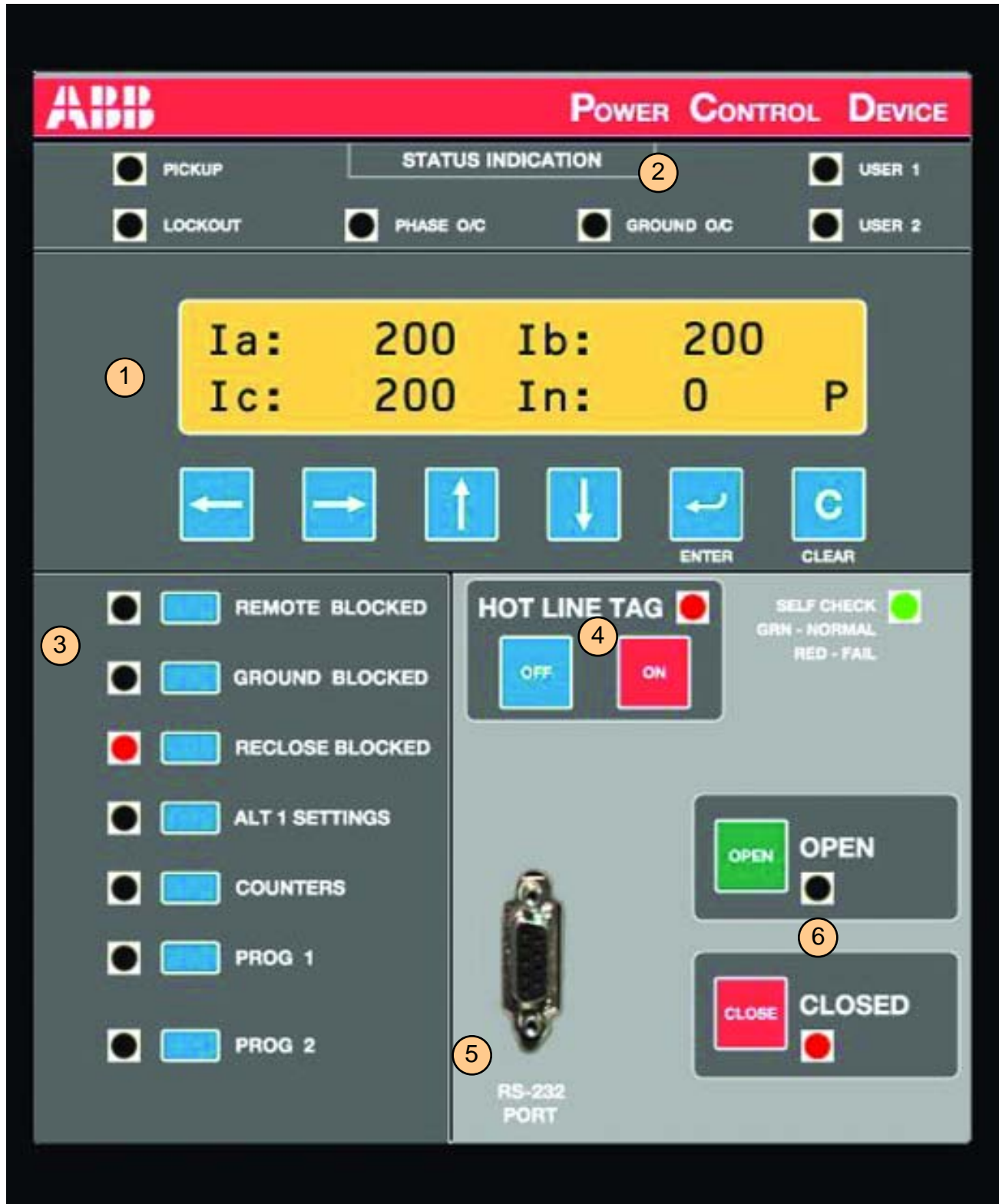### ⑤ Front mounted RS-232 port
– Isolated RS-232 port
– Easily download and upload data on-site using WinPCD

⑥ Separate open and close pushbuttons
– Separate indicator light for easier viewing
– ANSI or IEC coloring for individual practices

Features

Control Cabinet

Loop Control Module

Oscillographic Data

Control cabinet
– 304 stainless steel cabinet, NEMA 3R with drip shield
– Battery provides full operational capability for 48 hours
– Ample space for mounting communications equipment
– Three-point latching with padlockable handle
– Cabinet heater with thermostat standard
– Connector to fit existing Cooper control cable
– Integral temperature compensated battery charger with remote battery test capability through communication link

GFI
– Ground fault receptacle provides AC power for a laptop

Communication & I/O ports
– Isolated RS-232 and RS-485 ports
– Optional fiber optic port with ST connectors for interference-free communication; fiber optic signals are fully regenerated at each unit for successful daisy chaining
– User programmable I/O ports: 12 inputs, 8 outputs standard with AC power
– Programmable I/O ports: 10 inputs, 7 outputs standard with DC power
– Field upgradeable to meet future communication requirements
– Quick set up feature allows user to program all basic recloser and protection settings in minutes

Loop Control Module (optional)
– Speeds restoration on distribution power systems
– Reduces the number of outages
– Compliments the protective functions of the PCD
– Sectionalizes or removes the faulted section from the distribution system
– Algorithm detects loss and restoration of voltage
– Includes push button for "Alternate 2" settings
– Ability to monitor/accept six voltage inputs

Oscillographic data
– Ability to store 64 cycles of monitored waveform data at 32 samples per cycle
– All data can be downloaded on-site or remotely through communication interfaces
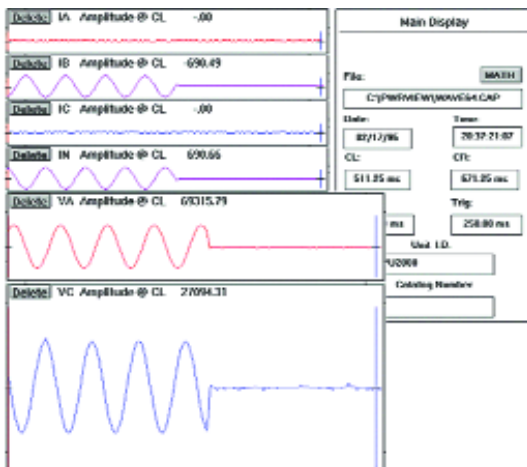
Fault recording
– Records last 128 operations of:
  • phase and ground fault amperes
  • phase and ground voltage
  • tripping element
  • reclose time
  • distance to fault
  • estimated fault resistance
  • time stamp
– Stores up to 512 operation records

Remote communications
– RS-232 port includes RTS/CTS handshaking
– Modbus ASCII and RTU, and DNP 3.0™ protocols included with all units
– DNP 3.0™ is compliant to Level 2
– Allows multiple communication methods: modem, radio, cellular device, fiber optic, etc.

Fault location*
– Patented algorithm estimates fault impedance and computes apparent distance to fault
– Works in background mode to maintain protection integrity

requires homogeneous distribution line and three phase voltage source

Power quality**
– Records voltage sags, swells and interruptions
– Implemented per ANSI/IEEE Std. 1159 and includes programmable voltage thresholds
– Triggers oscillographic capture

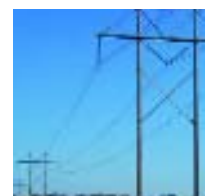**three phase voltage source required and is not available with loop control option*

Metering
– Meters current and voltage to ±1% accuracy
– Measures kWh and kVARh, power factor, demand Watts and VARs, and frequency to ±2% accuracy
– User-selectable load profile data sampling with 5, 15, 30, or 60 minute time interval, which will retain 13.3, 40, 80 or 160 days of information
– All data can be downloaded on-site or remotely through communications interface

Protective functions
– Phase time overcurrent protection (51P)
– Phase instantaneous overcurrent protection (50P-1)
– Two definite time phase overcurrent settings (50P-2, 50P-3)
– Ground time overcurrent protection (51N)
– Ground instantaneous overcurrent protection (50N-1)
– Two definite time ground overcurrent settings (50N-2, 50N-3)
– Negative sequence overcurrent protection (46)
– Phase and ground directional overcurrent protection (67P, 67N)
– Two independent steps for load shed, restoration, and over-frequency (81S, 81R, 81O)
– Undervoltage/overvoltage control and alarm (27/59)
– Up to four reclose cycles (close four times/trip five)
– Adaptive reclosing shots: each reclose sequence allows independent programming of protective functions
– Sensitive Earth Fault protection with directional features (optional)
– All 38 traditional recloser curves, nine ANSI curves, four IEC curves and three user programmable curves
– All available protection curves resident in control

Adaptive protection
– Three independent protection groups
– Zone sequence coordination
– Cold load pick-up
– Reverse power reconfiguration (32P, 32N)

■ Catalog Number Selection ➡ PC C N - 2 1 12 8 9 - N C R N 0000 $4,000

User
Selections

Type
PCD for Cooper recloser control
cabinet retrofit (standard) PC

Cabinet and Mounting
Standard Cooper bracket dimensions for
substation or pole mounting (standard) C

Cable
No cable supplied, use existing
Cooper cable (standard) N

Close Voltage
24 VDC high voltage solenoid closing including two pin
connection for low voltage closing (standard) 2
125 VDC closing coil (requires control voltage 125 VDC) 5 +$0

Controller (Battery charger and batteries always supplied
when AC is selected)
120 VAC (standard) 1
24 VDC (must have high voltage solenoid) 2 +$300
125 VDC (requires high voltage solenoid closing
or 125 VDC close coil) 5 +$300

Input/Output Selection (not including those used to run the control)
12 inputs, eight outputs (standard) 12

Control Faceplate
ANSI (Green trip and red close button) (standard) 8
IEC (Green close with line symbol and red trip with 0 symbol) 9 +$0

Controller Pickup Range
1000:1 CT without Sensitive Earth Fault (SEF) (standard) 9
1000:1 CT with SEF (Select with IEC faceplate) A +$0
Feeder Type (for 0-5A BCT Input) without SEF 7 +$0
Feeder Type (for 0-5A BCT Input) with SEF 8 +$0

Communications Boards
Non-isolated RS-232 with RTS/CTS delay function (standard) N
Isolated RS-232 and RS-485 ports and fiber optic 2 +$350
Isolated RS-232 and RS-485 with CTS/RTS 3 +$425
Fiber optic, isolated RS-232 and RS-485 ports with CTS/RTS 4 +$500
Isolated RS-232 and RS-485 with CTS/RTS, plus loop control
(required when Loop Control Option is selected) 5 +$600

Communications Protocol
Protocol MODBUS™, RTU, Modbus ASCII and DNP (standard) C

Software Option
Load profile, ANSI, IEC and recloser curves, programmable curves
and oscillography (standard) R

Loop Control Option
None (standard) N
Loop Control Module (requires option 5 under Communications Boards) L +$1,600

Alphanumeric Serial Number 0000

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