NOJA POWER®

OSM

ACCESSORIES
PRODUCT GUIDE

OSM RECLOSER & RC10
CONTROL COMMUNICATION
CUBICLE ACCESSORIES

INTRODUCTION

The OSM recloser is supplied with an RC10 Control Cubicle. NOJA Power can provide a number of accessories which include:

- Communications
- Test Sets
- Simulators
- Bird Guards
- Voltage Transformers
- Mounting Brackets

OSM15 & RC10 Control Communications Cubicle

ACCESSORY LIST

Part Number	Description
COMMUNICATIONS	
USB-RS232-01	USB to RS232 adaptor
USB-RS485-01	USB to RS485 adaptor
MOD-0003	RS232 GSM modem
MOD-0013	Ethernet to fibre optic modem
MOD-0012	3G Dual SIM Ethernet modem
MOD-0008	RS232 Serial fibre optic modem
ISO-0002	Isolator Repeater
USB-Ethernet-01	USB to Ethernet adaptor
USB-EthernetSurge-01	USB to Ethernet 5kA surge protector
USB-Wifi-Adaptor-01	USB to Wifi adaptor (Direct single connection)
USB-Wifi-Router-01	USB to Wifi router (Multiple connections)
IOM-11	Input/Output Module
PAN-REMOTE-02	RC10 dual remote panel HMI unit
TEST SETS & SIMULATORS	
RC-RMT-10	Rack Mounted Test Set
ITSS-10	OSM Simulator
DEM-10	Demonstration Unit
RC-10ES-DSA	RC10 distribution system automation (DSA) Simulator
INSTALLATION ACCESSORIES	
OMB	Pole Mounting Bracket
SMF	Substation Mounting Frame
PAL	Palm Connector
BGD	PVC Bird Guard
VT	Voltage Transformer

COMMUNICATION ACCESSORIES

The RC10 provides flexible communication options for Supervisory Control and Data Acquisition (SCADA) and to connect the Control and Management Software (CMS) for engineering access across serial, modem and Ethernet links.
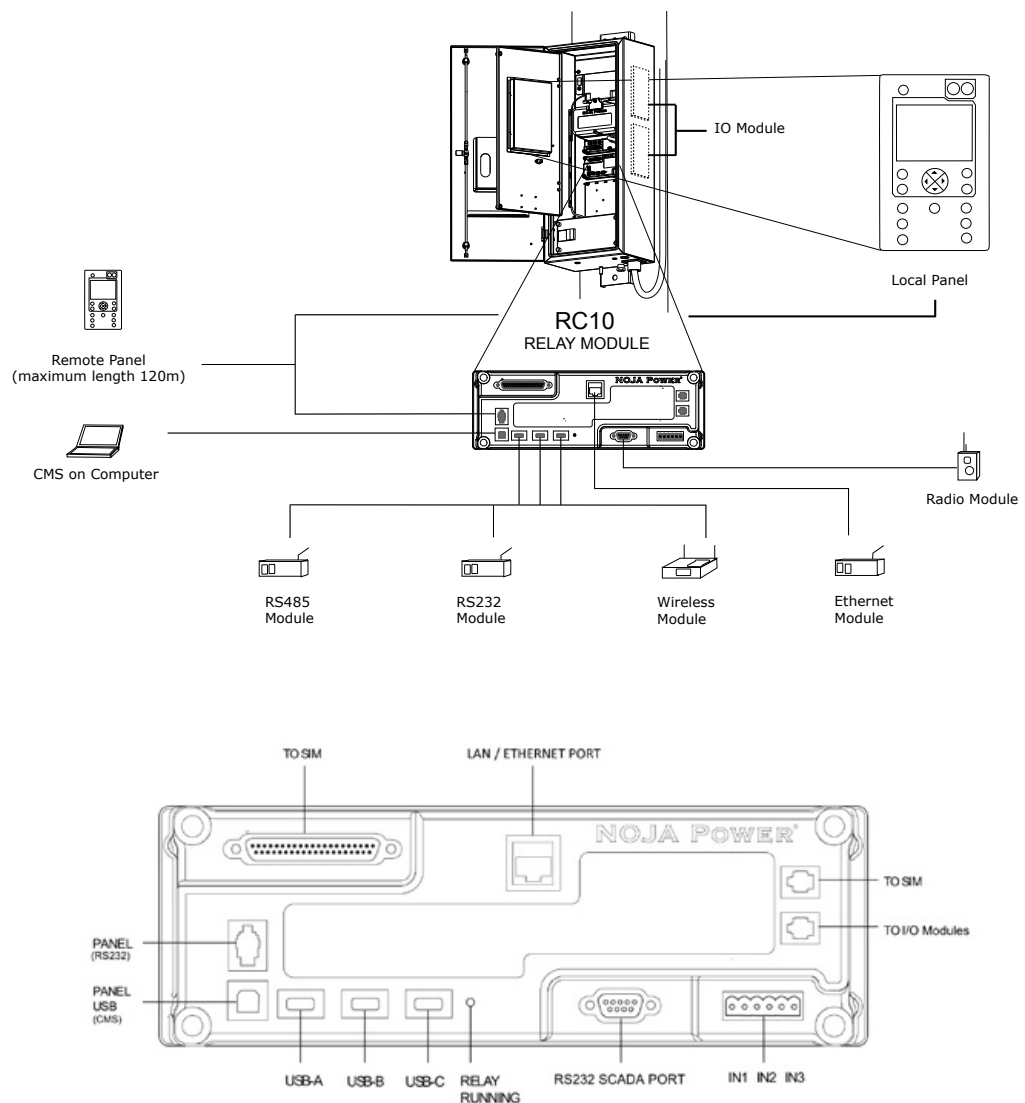
The Relay module inside the RC10 has 3 USB ports, one RS232 port and one LAN/Ethernet port available for communication accessories connections.

The USB ports can be used to provide a wide number of interfaces such as RS485, RS232, Ethernet, WiFi, GSM and GPRS modems.

NOJA Power supplies approved communication accessories. Using these accessories ensures the required drivers are supplied in the relay module.

All approved accessories are designed to work within the RC10 specified temperature range of −40°C to +55°C.

USB TO RS232 CABLE

USB-RS232-01

PRODUCT DESCRIPTION

This cable provides a USB to RS232 port complete with a male DB9 connector. This can be used to provide a second serial port when the SCADA RS232 port on the relay is already in use with other communications equipment.

The USB cable has Rx and Tx LEDs in the USB plug to give a visual indication of data transfer across the cable.
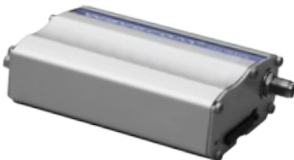
USB TO RS485 CABLE

USB-RS485-01

PRODUCT DESCRIPTION

This cable provides a 2-wire USB to RS485 port. The ends are bare cables for connection onto the terminals of the RS485 communications equipment.

The USB cable has Rx and Tx LEDs in the USB plug to give a visual indication of data transfer across the cable.

Note: The RS485 port must be isolated if cables are exiting the cubicle.

GSM RS232 SERIAL MODEM

MOD-0003

PRODUCT DESCRIPTION

The MOD-0003 is an industrial GSM modem to provide fast, reliable connection for RC10 communications requirements.

The modem includes serial data connection, quad band capability, AT command support and Status LED inside a metal case. The modem can be easily mounted on the RC10 RTU mounting plate and powered from the RC10 External Load supply.

The modem can be used with the following protocols:

- CMS Remote Protocol
- DNP3
- IEC 61870-5-101

ETHERNET TO FIBRE OPTIC MODEM

MOD-0013

PRODUCT DESCRIPTION

The Ethernet to Fibre Modem is designed to convert Ethernet networks to fibre networks by transparently converting Ethernet signals to optic signals. The Ethernet to Fibre Optic Modem is very easy to install and offers a high speed electrically isolated communication over a long distance.

The Ethernet to Fibre Modem is a 10/100Base-TX Industrial Ethernet Media Converter with 1x Ethernet port (RJ45, LINK/ ACT), 2x Fibre optic ST connections (TX, RX), Active, Earth, Neutral points (V+, FG, V-) and additional earth point enclosed in an IP30 metal case.

The device has 35mm DIN mount fittings for attaching to the RC10 Radio tray.

3G DUAL SIM ETHERNET MODEM

MOD-0012

PRODUCT DESCRIPTION

The KIT-0052 is an industrial 3G GPRS Ethernet modem to provide fast, reliable 'always on' wireless connection for RC10 communications requirements.

This modem supports dual SIM cards, which allows it to switch to a secondary telecommunications provider if the connection to the main provider is lost. The modem can also be used in single SIM card mode.

The modem features an Embedded RJ-45 10/100 LAN port, 6 status LEDs and can be powered from the RC10 External Load supply. The modem can be easily mounted on the RC10 RTU mounting plate and allows use of Virtual Private Networks (VPN).

The Ethernet interface can be used with the following protocols:

•   CMS Remote Protocol over Ethernet
•   DNP3 TCP/IP
•   IEC 61870-5-104.

RS232 SINGLE MODE FIBRE OPTIC MODEM

MOD-0008

PRODUCT DESCRIPTION

The Serial to Fibre Modem RC10 accessory is designed to convert Serial data to optic signals. The Serial to Fibre Optic Modem is very easy to install and offers a high speed electrically isolated communication over a long distance.

The accessory is ideal for remote panel or substation applications.

The device features ST fibre optic connectors with status LEDs and RS232 DB9 port and a RS422/RS485 connector, housed inside a metal case.

The modem can be powered from the RC10 External load supply and installed on the RC10 RTU Mounting plate.

RS485 ISOLATOR

ISO-0002

PRODUCT DESCRIPTION

The RS485 isolator is used with the RS485 cable to provide up to 3.5kV of opto-isolation for incoming cables. A rapid Transient Voltage Suppressor inhibits lightning and electrostatic discharge surges to 1kV. This provides protection against lightning strikes and common mode interference.

The isolator is provided with a power cable. The power cable plugs into the 12VDC External Load connector on the SIM module.

The isolator should always be used when copper communications cables are exiting the cubicle.

RC10 DUAL REMOTE PANEL HMI UNIT

PAN-REMOTE-02

PRODUCT DESCRIPTION

The Dual Remote HMI Unit is suitable for 19 inch rack mounting and houses two Human Machine Interfaces (HMI) designed for safe and easy operation. Each HMI is connected to an ACR allowing the engineer to control and configure two network protection devices from a single Dual Remote HMI Unit.

The Dual Remote Panel HMI Unit is intended for use inside a substation control room allowing an engineer to control and configure two ACRs or access network information such as feeder voltage, current levels and advanced power protection configurations in a safe and comfortable environment.

USB TO ETHERNET

USB-Ethernet-01

PRODUCT DESCRIPTION

This adaptor is used to provide an Ethernet port in the RC10 cubicle. It is powered from the USB port on the relay and has a standard RJ45 socket. The Ethernet port supports 10/100Mbit network speeds.

Note: The Ethernet port must be isolated if cables are exiting the cubicle.

ETHERNET SURGE PROTECTOR

USB-EthernetSurge-01

PRODUCT DESCRIPTION

The surge protector is used to protect the Ethernet port from surges up to 5kA for incoming cables. It must be used when Ethernet cables are exiting the cubicle. The earth cable is bolted to the cubicle earth, and the Ethernet cables are connected into the two RJ45 ports at either end.

The surge protector should always be used when copper Ethernet cables are exiting the cubicle.

USB TO WIFI

USB-WIFI-Adaptor-01

PRODUCT DESCRIPTION

This adaptor is used to provide 802.11b/g wireless Ethernet connections to the RC10 cubicle. It is powered directly from the USB port on the Relay, and is supplied complete with an antenna. The following authentication and encryption types are supported:

Authentication – WEP Open, WEP Shared, WPA Personal and WPA2 Personal Encryption – TKIP and AES

USB WIFI ROUTER
USB-WIFI-ROUTER-01

The WiFi Router is used with the Ethernet to Wireless adaptor to provide an outdoor wireless access point for connection to the RC10 cubicle. It has a weather proof housing and can be used with an external antenna if required.

It can be powered from the RC10 external load with a supplied cable. A 12VDC power source can be used if the router is used elsewhere.

The router is configured through the Ethernet port with a web interface.

The following features are supported:

- Wireless 802.11g, 802.11b, 802.3 and 802.3u supported
- AP Client Router, AP Router and AP operation mode
- High output transmit power and receive sensitivity optimized
- Passive power over Ethernet
- Antenna Alignment
- Provides throughput monitor indicating the current wireless throughput
- Output transmit power adjustable
- Supports PPPoE, Dynamic IP, Static IP Internet Access
- Built-in NAT and DHCP server supporting static IP address distributing
- Supports UPnP, Dynamic DNS, Static Routing, VPN Pass-through
- Built-in firewall supporting IP address filtering, Domain Name filtering, and MAC address filtering
- Provides WLAN ACL (Access Control List)
- Supports Web management

To configure the NOJA Power Recloser App for Android Smart Phone/Tablet, iPhone and iPad the USB WiFi router must be fitted to the RC10 to allow remote engineering access. The NOJA Power Recloser App is available on Android and Apple App Store free of charge.

USB-WIFI-ROUTER-01

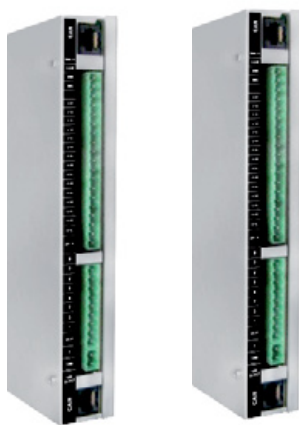NOJA POWER RECLOSER APP

IO MODULE
IOM-11

Up to two Input Output (IO) modules can be supplied with the RC cubicle as an option. Each I/O module has eight opto-coupled inputs and eight voltage free contact outputs with normally open and normally closed contacts. The modules can be used to control or monitor external equipment, implement custom automation functionality and provide remote I/O when not using the built in SCADA functionality.
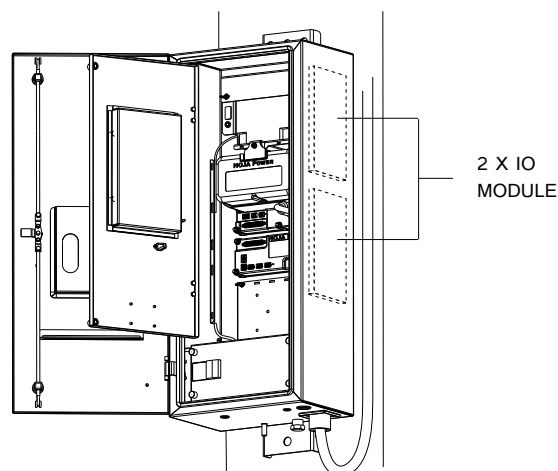
The CMS configuration software is used to program the modules. Any available control signal can be programmed for each input and any combination of available indications can be programmed for each output.

Ratings:

Digital Inputs	
Input Type	DC Voltage
Input voltage	Up to 150 Vdc
Pickup Voltage	Above 7 Vdc
Reset Voltage	Below 3 Vdc
TIME FROM VALID INPUT TO ACTIVATION OF THE CONTROL	30ms
Output Relay Contacts	
Rated Voltage	
- AC	6-230 Vac
- DC	4.5 - 125 Vdc
Rated Current	16A

IOM-11

2 X IO
MODULE

TEST SET & SIMULATOR ACCESSORIES

Test set, Simulators and demo units are available for OSM reclosers and RC10 communication and control cubicle. These accessories have been designed to assist engineers with bench testing of protection settings by allowing system voltages and currents to be simulated when used with a power system. These accessories could also be used for training and demonstration purposes.

Part Number	Description	Connection
ITS-03	Interface Test Set	RC10
ITSS-10	OSM Simulator	
RC-RMT-10	Rack Mounted Test Set	Communication Accessories / SCADA
DEM-10	Demonstration Unit	
RC-10ES-DSA	RC10 Distribution System Automation (DSA) Simulator	PC/Communication Accessories

RC10 DISTRIBUTION SYSTEM AUTOMATION (DSA) SIMULATOR

RC-10ES-DSA

PRODUCT DESCRIPTION

The NOJA Power Distribution System Automation (DSA) Simulator demonstrates RC10 grid automation functionality, The Simulator uses NOJA Power's standard RC10 firmware/software and includes the below reclosing features:

1. Voltage Reclosing Control (VRC)
2. Automatic Backfeed Restoration (ABR)
3. UV3 AutoClose
4. Loss of Supply Reclosing Mode (LSRM)
5. AutoOpen: Power Flow
6. AutoOpen: Timer
7. Temporary Time Addition (TTA)

Five total RC10 systems are arranged in a ring formation. 3 Phase power with options for both 127V AC and 240V AC operation. Switch status indication are shown for each RC10 and LED's power flow indication are shown between each device.

Switchable loads and faults are available at each midpoint between devices to simulate: phase to ground faults, phase to phase faults and 3 phase faults.

Communication ports and USB A/B/C access are available for CMS connections and application simulation.

RACK MOUNTED TEST SET

RMT-10

PRODUCT DESCRIPTION

The RC10 Rack Mounted Test Set has been custom designed to assist engineers with bench testing of reclosers in protection and SCADA systems.

The test set can be mounted into a standard 19 inch Rack or onto existing testing benches.

It provides all functions for full Protection and SCADA point to point testing with the ability to simulate all recloser and control conditions for full functional testing.

OSM SIMULATOR

ITSS-10

PRODUCT DESCRIPTION

An optional RC10 OSM simulator is available for testing purposes where an actual OSM recloser is unavailable. The simulator plugs into the OSM Harting socket on the SIM and provides signals required to simulate an actual recloser.

Two banana sockets on the simulator connect to voltage free relay contacts to provide OSM position indication.

INTERFACE TEST SET

ITS-03

PRODUCT DESCRIPTION

The Interface Test Set simulates the output signals of an OSM recloser's current and voltage sensors. Its main purpose is to conduct testing of protection settings by allowing system voltages and currents to be simulated when used with a power system and three phase test set. Additionally, the ITS is able to provide signals that simulate an actual recloser and simulate coil faults. The simulator contact feedback is provided through voltage-free relay contacts. A control cable is supplied for connection to a control cubicle.

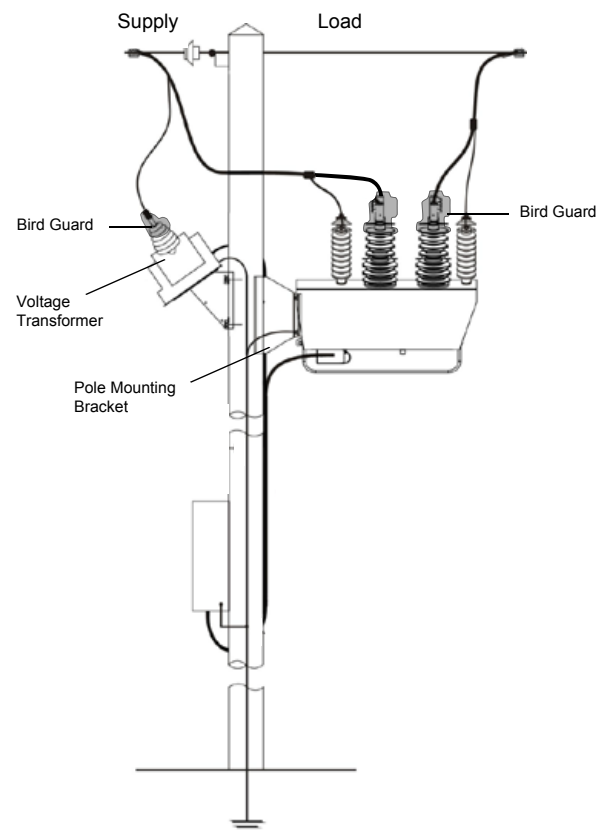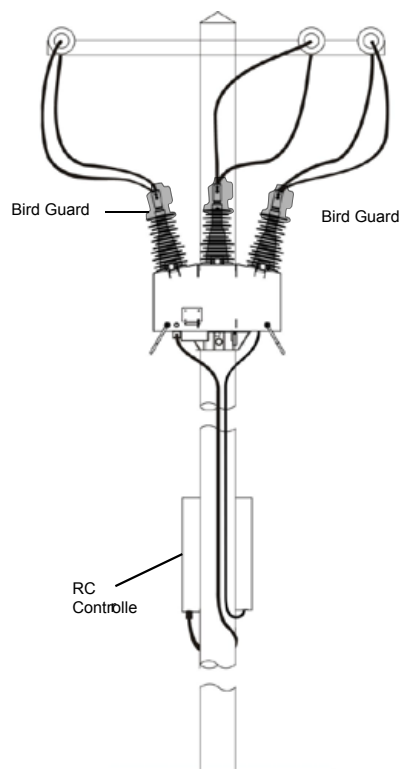## DEMONSTRATION UNIT

DEM-10

PRODUCT DESCRIPTION

The RC10 Demo Unit is used primarily for training and demonstration purposes. It can also be used to test SCADA connections using RS232, USB and Ethernet ports.

The unit includes a Panel and Relay mounted in a sturdy case. Supplied complete with power adaptor suitable for 110/220V AC input.

INSTALLATION ACCESSORIES

Installation accessories consist of items such as bracket connectors and voltage transformers for RC10 Auxiliary Supply.

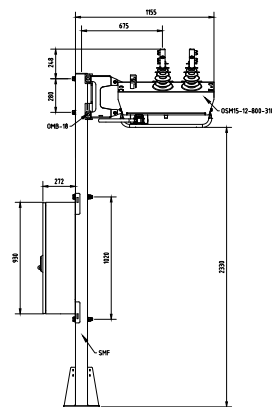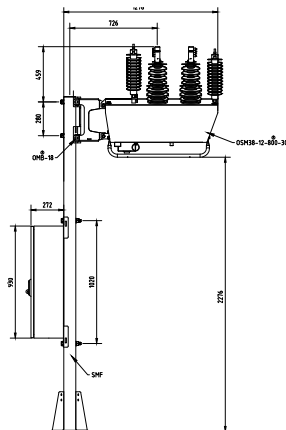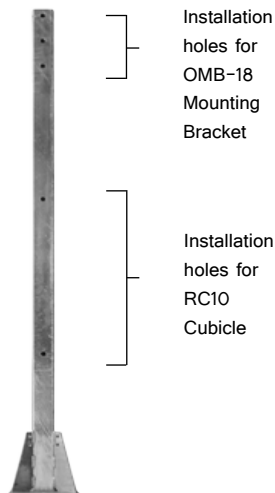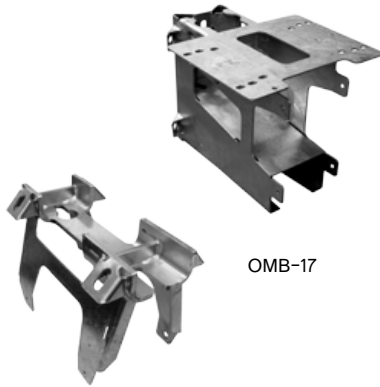| Part Number	Description
INSTALLATION ACCESSORIES	
OMB	Pole Mounting Bracket
SMF	Substation Mounting Pole
PAL	Palm Connector
BGD	PVC Bird Guard
VT	Voltage Transformer

POLE MOUNTING BRACKET

OMB-17

OMB-18

PRODUCT DESCRIPTION

OMB-17

The Combined Pole Mounting Bracket is used to mount both the VT and OSM15, OSM27 or OSM38 reclosers to both wooden and concrete poles. It is constructed out of structural grade steel with a hot-dip galvanized finish.

OMB-18

The Pole Mounting Bracket is used to mount the OSM15, OSM27 and OSM38 reclosers to both wooden and concrete poles. It is constructed out of structural grade steel with a hot-dip galvanized finish.

SMF-01

The Substation Mounting Frame is designed to fit all OSM reclosers and control cubicles. The frame is manufactured out of structural grade steel and is hot-dip galvanized. It is used in conjunction with OMB-18 Pole mounting Bracket.

Installation holes for OMB-18 Mounting Bracket

Installation holes for RC10 Cubicle

SMF-01

Typical substation mounting frame installations with OSM300 series recloser and RC10

Typical substation mounting frame installation with OSM310 series recloser and RC10

VOLTAGE TRANSFORMER

VT

PRODUCT DESCRIPTION

Voltage Transformer

Pole mounted outdoor voltage transformer complete with mounting bracket and accessories.

These VTs are designed to supply our control cubicle with LV supply where a local LV supply is unavailable.

PALM CONNECTOR

VT (Single Phase)

PRODUCT DESCRIPTION

Single Phase Voltage Transformer

Pole mounted outdoor single phase voltage transformer complete with mounting bracket and accessories.

These Single phase VTs are designed to supply our control cubicle with LV supply where a local LV supply is unavailable.

PALM CONNECTOR

CON-0020   PAL-02

PAL-01   PAL-03

PRODUCT DESCRIPTION

CON-0020
Tunnel Connector is suitable for cable sizes from 40mm^2 to 260mm^2 Cables are secured in the connector with two hexagonal socket screws. A tin-plated brass Palm Connector can be fitted to the bushing instead if required.

PAL-01
NEMA 2-Hole Palm Connector provides an alternative connection method to the OSM recloser HV terminals with 12mm threaded holes.

PAL-02
Right Angle 2-Hole Palm Connector provides an alternative connection method to the OSM recloser HV terminals.

PAL-03
NEMA 2-Hole Palm Connector provides an alternative connection method to the OSM recloser HV terminals with 14mm non-threaded holes.

PVC BIRD GUARD

BGD-06   BGD-02

BGD-03

PRODUCT DESCRIPTION

BGD-02
This bird guard has been custom designed and manufactured for use with the 300 and 310 series OSM reclosers. This design fits the bushing connectors perfectly for a neat and unobtrusive finish.

BGD-06
This bird guard is used for NEMA 2-Hole Palm Connector. It has been designed for the palm connector to allow for the increased height.

BGD-03
This bird guard is used for voltage transformers.

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