

# Remote Racking Device for Schneider NW/MTZ ACB'S



## Safety Device

This RRD is specifically designed with operator safety in mind and in consultation with Engineers from mining and other related industries. It provides a reliable and economical solution to ensuring that personnel do not have to enter the switchboard room for switching and total isolation racking operations. Racking the breaker in and out, and switching when required (using the proprietary NW/MTZ accessories) can be done remotely, external to the switch room.

### Arc-Faults *Mines Safety Bulletin No. 138*

“An arc flash is a dangerous condition associated with the uncontrolled release of energy caused by an electric arc. The temperature of the arc can be as much as four times that of the sun’s surface, and it can vaporise a copper conductor to several thousand times its solid volume in a fraction of a second. The resulting explosion, or arc blast, can seriously harm people and damage equipment.”

One of the actions required, according to Resources Safety, Department of Mines and Petroleum, Government of Western Australia is:

“Where practicable, *consider installing or retrofitting equipment such as remote switching and racking of circuit breakers...*”

## Unique Features

- The RRD is permanently installed within the ACB Chassis Cradle. It is only accessible with the breaker removed. (Unlike other ACB racking devices which are fitted to the front of the ACB chassis and are intended to be transferred on to the next ACB to be operated by personnel within the switch room).
- In the case of an unforeseen emergency, the manual crank handle can still be used. (Insertion of the handle locks out the RRD electrical operation, as does the standard fitted racking padlock facility when a padlock is fitted/tagged).
- An operations counter records the number of movements.
- The controls can be set to bypass the 'test' position if required.
- Remote control is available by a variety of means as itemised below.

## Tests and Standards

All of the tests required by IEC 60947-2 have been carried out on the RRD. These include:

- Operating temp. range up to +70°C
- Rack in-out (endurance) continuous operations – 200 required (700 done on sample unit)
- All lock out/safety features of NW remain in place.
- Glow-wire tests on plastic parts 650°C

## Installation

The RRD does not require any modifications to be made to the NW ACB. The mechanical drive unit is mounted to a precise laser cut plate which matches and replaces the existing cover plate at the bottom of the sub-chassis. A separate enclosure containing the electronic controls is installed in a convenient location adjacent to the ACB, within the switchboard. This is connected to the mechanical drive unit by a plug-in lead. The installation of the RRD takes approximately one hour.

## Power Supply

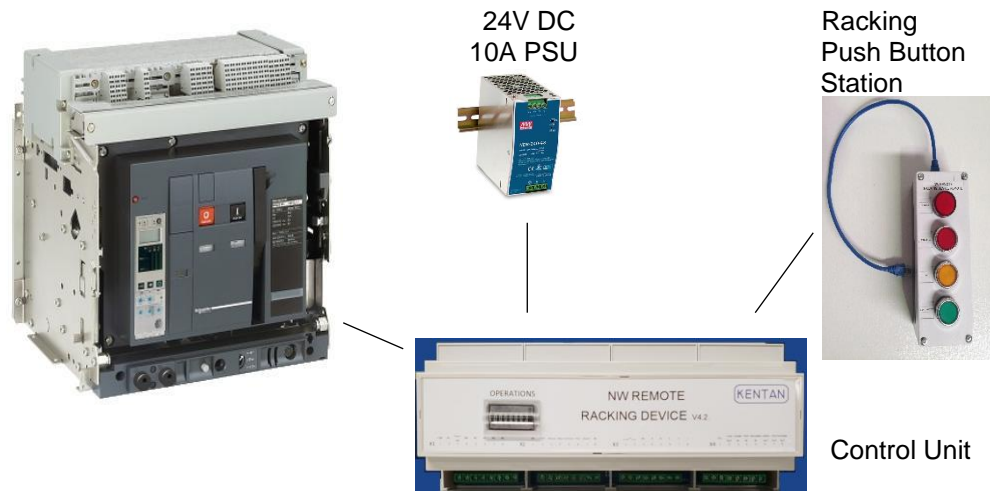
The RRD is operated by a 24V DC 10A supply. (Supplied)

## Methods of Remote Control

The RRD can be controlled by 3 methods.

- Push-button station (Remote switching of ACB is optional)
- I/O module with SCADA or HMI interface

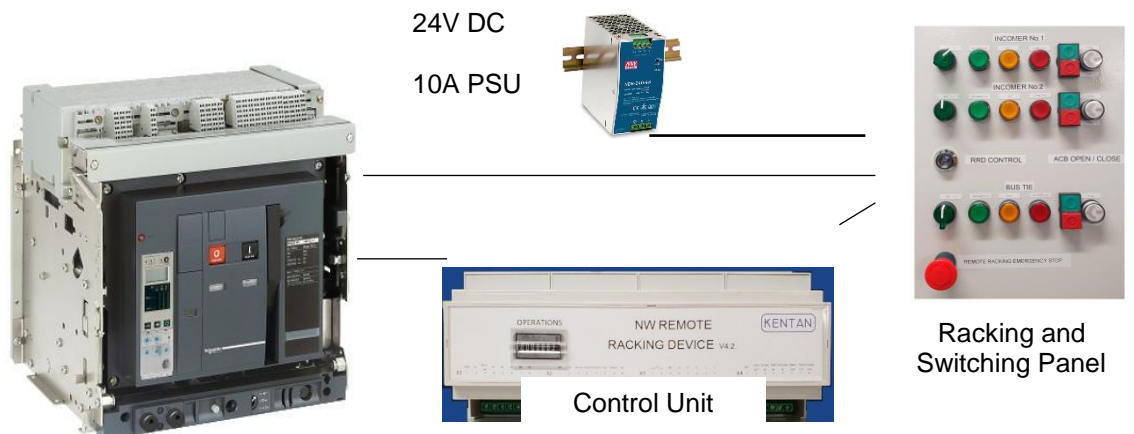
## Push Button Station (Racking Only)



The mechanical drive unit in the sub-chassis is connected to the DIN rail mounted Control Unit by means of pre-made leads (supplied).

The push button station (supplied) is connected to the Control Unit by a Cat 5 patch cord. (Max. length 20 metres supplied).

## Push Button Station (Racking and Switching)

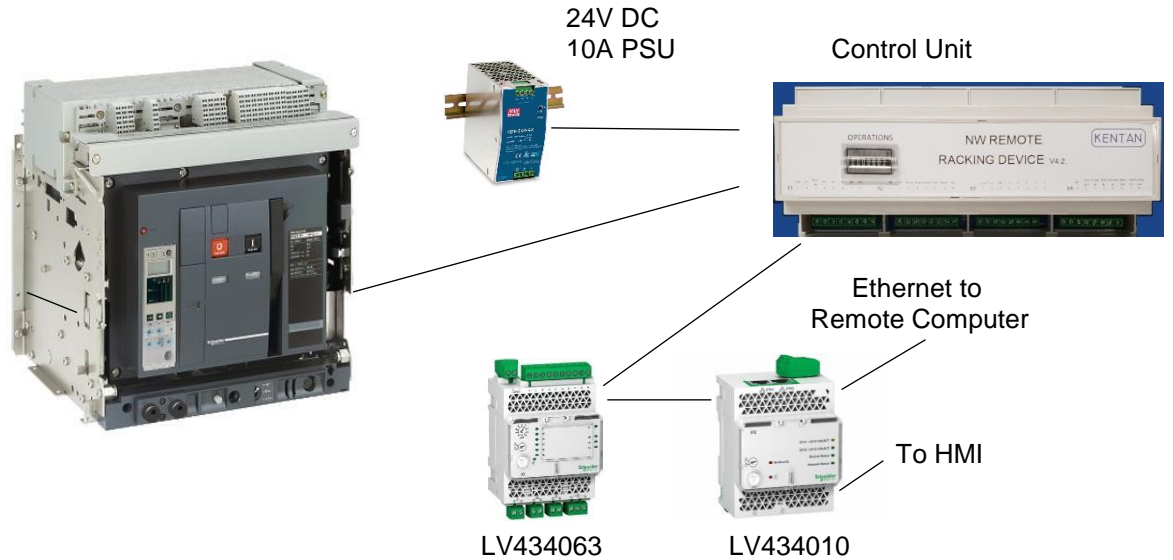


In addition to the racking only arrangement, a Racking and Switching Panel is required. In order for the NW ACB to be remotely switched, the following Schneider parts are fitted.

- Closing voltage release S48481 24V DC Non-communicating type
- Opening voltage release S48491 24V DC Non-communicating type
- Charging Motor S48521 24V DC

The mechanical drive unit in the sub-chassis is connected to the Control Unit. A separate lead connects the aux. contact terminals related to the remote switching to Racking and Switching Control Panel.

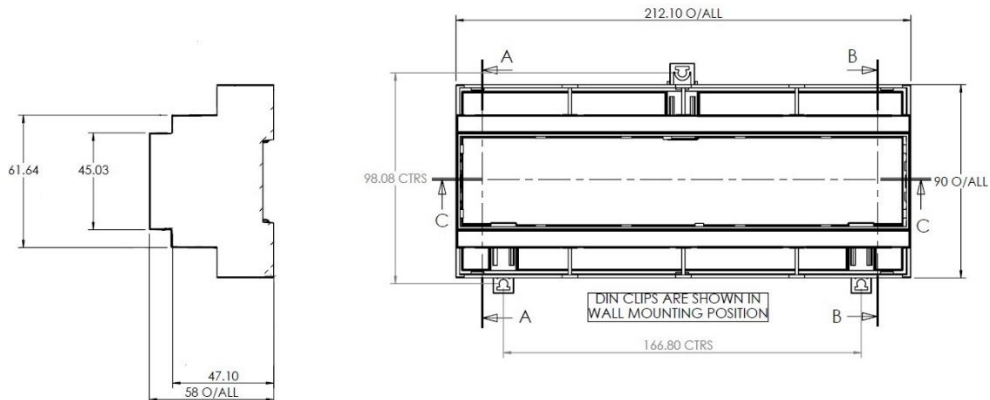
# I/O Module with SCADA or HMI



The following Schneider parts are fitted:

- BCM ULP Communication Module
- Closing voltage release 24V DC S33033 Communicating MX
- Opening voltage release 24V DC S33033 Communicating XF
- Charging motor 24V DC S48521

## Control Unit Dimensions



This RRD is patented in Australia and a number of other countries.

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