

# Type: P9680 & P9680C

## Combined Over current and Earth Fault Relay



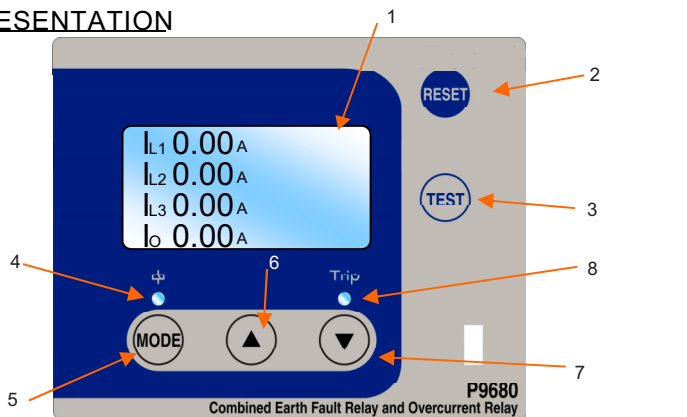
**Z-TRAUQ INC.**

- \* True R.M.S. measurements
- \* Low Set and High Set tripping thresholds for both Over current and Earth Fault detection
- \* 6 selectable IDMT (Inverse Definite Minimum Time) characteristic curves
- \* Adjustable DT (Definitive Time)
- \* Three phase over current & earth fault detection with live display of both individual faults
- \* Last trip memory (last 10 trips stored and can be recalled)
- \* Pre-defined selectable CT ratio's (5:5 to 6000:5)
- \* Microprocessor based (self-checking) with non-volatile memory
- \* "Ecosmart" Energy efficient power supply design
- \* Rear mounted pluggable connectors for supply, relay contacts and current inputs
- \* MODBUS-RTU version available (P9680C)



Dims: W x H. 96 x 96mm (face)  
89.5 x 89.5 x 100mm D (main body)

### PRESENTATION



1. LCD (Liquid Crystal Display) for user information
  2. "RESET" button
  3. "TEST" button
  4. "Power supply" green LED indication
  5. "MODE" button\*
  6. Parameter increment button\*
  7. Parameter decrement button\*
  8. "Trip status" red LED indication
- \* accessible only when the front cover is open

### OPERATION & OVERVIEW

The P9680 and P9680C (from the P9600 series family of IDMT/DT relays) are microprocessor based relays that monitor and detect Over current on individual phases and non-directional Earth faults (by measurement of the neutral current) in 3-phase apps. Typically, they're wired in conjunction with external current transformers of the feeder to be protected.

The P9680C model provides a MODBUS communication allowing the user access to settings, measurements & carry out a test & reset operation if required. Refer to the end of data sheet for further information.

The backlit LCD provides all key information the user requires for both operation and setting up. Setting is achieved in a few simple steps.

Normal operation provides the user with actual live individual phase & earth fault currents all on one screen. The actual phase current represents that of the current passing through the primary side of the externally connected CT's achieved by the setting of their ratio.

Programming mode allows the user to assign both internal relays' operation modes. They can be individually assigned to Overcurrent, Earth fault or a combination of both. They can also be configured for Auto or Manual resetting. Relay 2 has the added option to energise at the start or end of a time out period. If assigned to energise at the start, the Relay can be used to operate a buzzer or lamp giving early warning before a system actually shuts down.

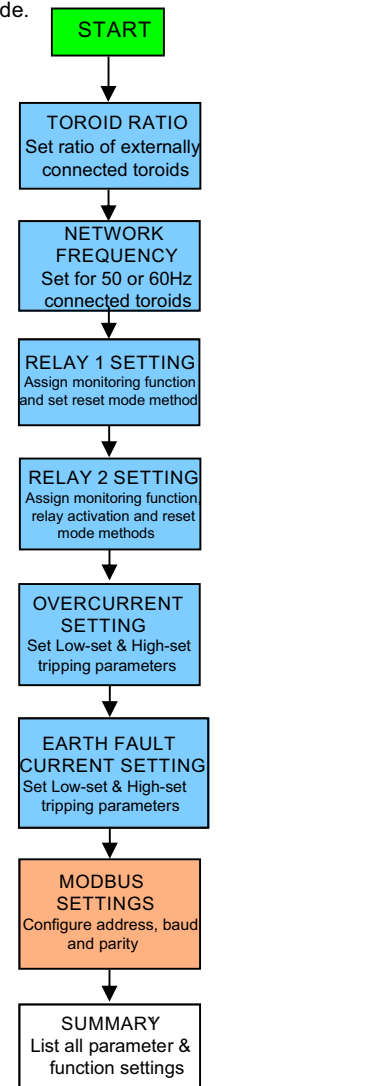
Low-set and High-set thresholds can be programmed for both Overcurrent and Earth fault detection. The time current characteristic of the low-set units are selectable between Normal Inverse curve 3/10, Normal Inverse curve 1.3/10, Long Time Inverse curve, Very Inverse curve, Extremely Inverse curve, Extremely Inverse 0.65 curve and Definitive Time. High-set units are the Definitive Time type. Instantaneous tripping is possible by setting the time to minimum.

Two simple Summary screens are displayed once the programming is complete. These screens can also be displayed by presses of the 'RESET' button. This allows the user to access key information with the tamper proof transparent cover closed and sealed. Similarly, a 'TEST' mode is provided to confirm the correct operation of the internal relays. The relays will energize when the "TEST" button is pressed and de-energize when the button is released (AUTO Reset) or when the "RESET" button is pressed (MAN Reset)

Following a trip condition, the information about the trip is then stored. This can then be recalled later if required using the 'RESET' button to access the information. P9680/P9680C have the ability to store up to 10 trips and using the "Up" and "Down" buttons, allows each trip to be displayed individually. Each is also marked with a time stamp showing the time from power up as well as the time from the previous trip. This feature is very useful for establishing a pattern on particular inputs, knowing when they occurred and how frequently!

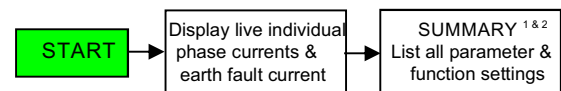
### FUNCTION OVERVIEW

Programming mode.



■ Programmable parameters ■ P9680C only

### User settings summary mode



1-Summary screens are split into two with one screen showing Overcurrent settings and the other showing Earth fault settings.

2 Displaying of the Summary screens during normal operation is achieved via subsequent presses of the "RESET" button.

See Section 8. QUICK VIEW OF USER SETTINGS for further information.