NPUH800R

RETROFITTING
Zero Sequence Voltage Protection Relay

NPUH800R (R2 case) is dedicated to the refurbishment of 700 and 7000 of CEE relays (R2 case) providing the supervision of zero-sequence voltage of electrical networks with isolated or high impedance earthed neutral. This numerical and multi-function relay supervises the phase to earth faults and the good operation of the circuit breaker and its trip circuit.

NP800R relays provide monitoring, measurement and recording of the electrical quantities of the network. The relays can be set locally, using either the keypad and display or the RS232 port, or remotely using the RS485 port.

Two mountings are available, Flush Rear Connection (**EDPAR**) or Projecting Rear Connection (**SDPAR**). A blank cover R1, provide in option, can improve mechanical installation (replacement of CEE case R3 by a NPUH800R).

Setting, reading, measurement and recording are all available locally or remotely.

NPUH800R - EDPAR

- Minimises retrofitting man-hours
- Maximises preservation of existing installation
- Simplifies and reduces re-commissioning time
- Minimises retrofitting costs

Protection function

- Maximum of zero sequence voltage with 2 thresholds **[59N]**

Additional functions

- Latching of the output contacts **[86]**
- Trip circuit supervision of the breaker **[74TC]**

GENERAL CHARACTERISTICS

Auxiliary Supply	
• Auxiliary supply ranges	19 to 70 – 85 to 255 / Vdc or Vac 50 or 60 Hz
• Typical burden	6 W (DC), 6 VA (AC)
• Memory backup	72 hours
Analogue inputs	
• VT nominal value	Un: 33 to 120 V input impedance > 80 kΩ Continuous rating 240 V, short duration withstand 275 V - 1 min measurement from 1 to 240 V VT setting: primary value from 220 V to 250 kV
• Frequency (50Hz or 60Hz)	measurement: 45 to 55 Hz or 55 to 65 Hz
Digital inputs (4)	
• Polarizing voltage	20 to 70 Vdc for 19 to 70 V auxiliary supply range 37 to 140 Vdc for 85 to 255 V auxiliary supply range
• Level 0 • Level 1	< 10 Vdc range 19 to 70 V – < 33 Vdc range 85 to 255 V > 20 Vdc range 19 to 70 V – > 37 Vdc range 85 to 255 V
• Operating of the input by level 1 or 0	programmable
• Burden	< 15 mA
Output Relays (3 + 1 WD)	
• Relays A, B: (signalling, Shunt Opening Release)	double contact NO, permanent current 8 A closing capacity 12 A / 4 s short circuit current withstand 100 A / 30 ms breaking capacity DC with L/R = 40 ms: 50W breaking capacity AC with cos φ = 0.4: 1,250 VA
• Relays C & WD: (control, WD : Watchdog) (C, D, G: programmable for CB Shunt Opening Release or Under Voltage Release)	changeover contact, permanent current 10 A closing capacity 15 A / 4 s short circuit current withstand 250 A / 30 ms breaking capacity DC with L/R = 40 ms: 50W breaking capacity AC with cos φ = 0.4: 1,250 VA
• Relays pulse, except WD	adjustable from 100 to 500 ms
• Assignment of name to the output maximum of 16 characters	by the setting software capital letters or digits
Max of zero sequence voltage [59N]	
• Measurement method (according wiring)	calculated: 3 phase and neutral connection measured: with 1 neutral point VT or 3 VT with broken delta
• Setting of thresholds Vo> - Vo>>	2 to 80 % Un
• Thresholds accuracy	2% of Un
• Reset percentage on the operating level	97%
• Instantaneous operating time	60 ms including trip relay Vo ≥ 2 Vs
• Definite time delays	40 ms to 300 s
• Accuracy of the time delays	± 2% or 20 ms
• Accuracy of displayed measures	3% from 3 to 240 V
Trip circuit supervision of the breaker [74TC]	
• Trip circuit supervision	requires one or two digital inputs (see application guide)
• Operating time (in faulty condition)	500 ms fixed for [74TC] function
Latching of the output contacts [86]	
• Manual reset for output relays	A, B, C (programmable assignment)
• Reset	digital input, digital communication or local MMI

GENERAL CHARACTERISTICS

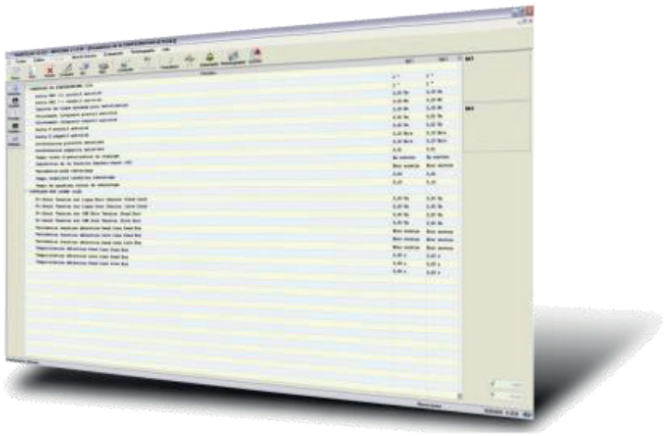
Digital inputs assignment	
• By setting software	
• Setting table selection	set 1 – set 2
• Disturbance recording order	
• Interlock o/o	
• Interlock c/o	
• Control mode	dedicated to remote control, local / remote
• Reset [86] function	acknowledgment of the selected output(s)
• Trip circuit supervision	[74TC] function
• CB trip external order	function [74TC] blocked if external trip order
• Input – output programmable functions	
User programmable functions (digital inputs – digital outputs)	
• Status of the function	in or out of service, by local MMI or by the setting software
• Tripping mode or report	report: for time stamping and event recorder
• Operating and release time delays	tripping mode: 40 ms to 300 s
• Assignment of name to the function, maximum of 14 characters	by the setting software
• Assignment of one or more output relays (alarm or trip)	by local MMI or by the setting software
	A, B, C
Load shedding – Load Restoration, remote control	
• Load shedding level	1 to 6
• Time delay before reclosing	1 to 120 s, ± 2%
• Reclosing pulse	100 to 500 ms (remote control)
• Output relays assigned	programmable by local MMI or by setting software
	A, B, C
Digital outputs assignment	
• By local MMI or by setting software	
Signalling LEDs assignment	
• By setting software	
Man Machine Interface	
• Relay display	2 lines of 16 characters
Language	French, English, Spanish, Italian
• Configuration and operating software	Windows® 2000, XP, Vista and 7 compatible
Language	French, English, Spanish, Italian
MODBUS® Communication (option)	
• Transmission	asynchronous series, 2 wires
• Interface	RS485
• Transmission speed	300 to 115,200 bauds
Disturbance recording	
• Number of recordings	4
• Total duration	52 periods per recording
• Pre fault time	adjustable from 0 to 52 cycles

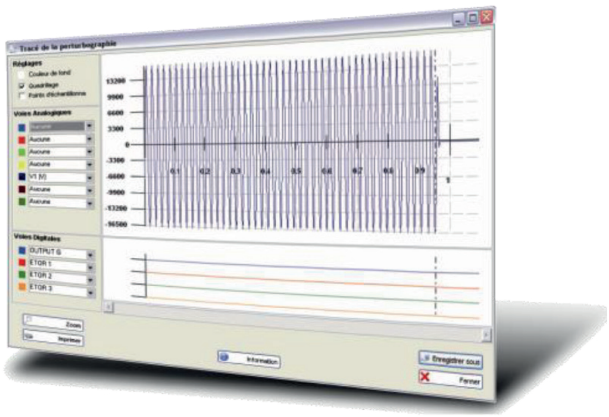
GENERAL CHARACTERISTICS

Presentation	
• Height	4U
• Width	case R2
• Brackets 19" rack mounting	see diagram 9954 (7000 series rack definition table)
Case (see drawing D40037)	
• **EDPAR**	
H, W, D (case & base)	172 x 83 x 222 mm
H, W (front face dimensions)	217 x 98 mm
• **SDPAR**	
H, W, D (case & base)	172 x 83 x 227 mm
H, W (front face dimensions)	172 x 83 mm
• Weight	3.5 kg
Connection - codification	
• NPUH800R	See diagram S39969

SMARTsoft

SMARTsoft, integrated software for the Industry, Railway and Transmission ranges, helps the User get the best from NP800R series relays.





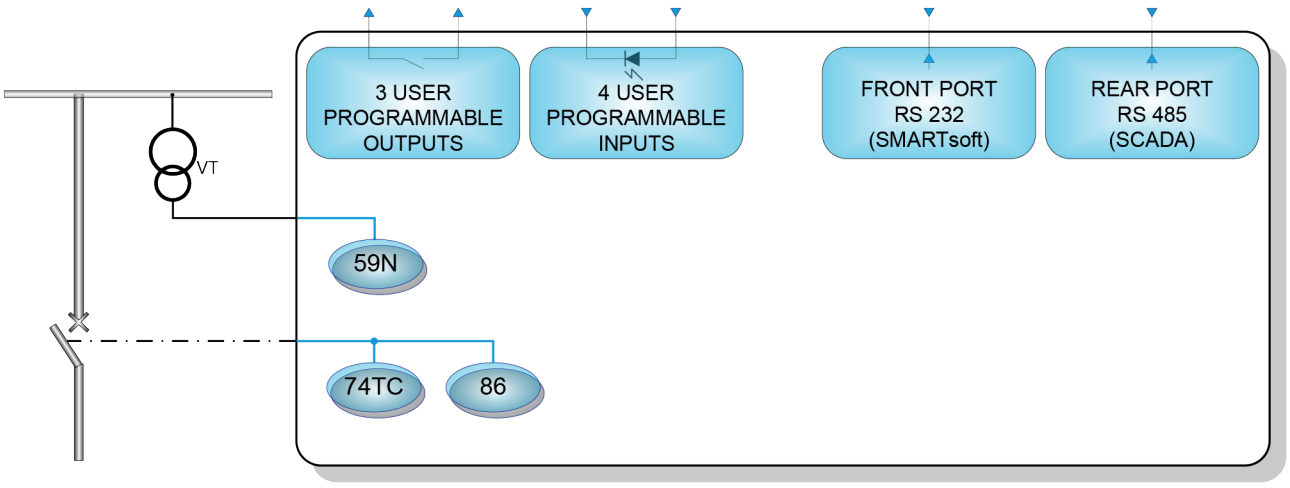
- User friendly
- Diagnosis
- Fault analysis
- Maintenance tools

NPUH800R

FUNCTIONALITIES

- 2 ranges of auxiliary supply
- Storage of the lack and the restoration of the auxiliary voltage (time stamped events)
- Configuration and parameter setting by local MMI or off-line / on-line PC
- Measurement of electrical quantities:
  - Display expressed in primary values
  - Residual voltage and maximum values
- Instantaneous alarm threshold
- Definite time tripping for thresholds
- 2 setting groups, locally or remotely selectable
- CB Monitoring: interlocks discrepancy, local or remote control of reclosing / tripping
- Remote control by communication channel: tripping or closing, load shedding with priority levels and load restoration
- Setting software compatible with Windows® 2000, XP, Vista and 7
- User interface with access to all protection functions
- Time stamping of internal events with 10ms resolution
- Time stamping of digital inputs with 10ms resolution
- Event recording: 250 locally recorded events, 200 saved in case of loss of auxiliary supply
- Recording of logical states of digital I/O, of measures, of current setting group
- Local / remote events acknowledgment
- Disturbance recording according to Comtrade® format: storage of 4 recordings of 52 periods
- Disturbance recording forced by digital input, setting software or communication channel
- Remote setting, remote reading of measurements, counters, alarms and parameters settings
- Remote reading of disturbance recording and event log
- Self-diagnosis: Memories, output relays, A/D converters, auxiliary supply, cycles of execution of software, hardware failure

FUNCTIONAL DIAGRAM



Protection & Control ice
INDUSTRIELLE DE CONTRÔLE ET D'ÉQUIPEMENT - 11 rue Marcel Sembat F-94146 Alfortville cedex
+33 (0)1 41 79 76 00 www.icelec.com contact@icelec.com -
• ISO 19443 : 2018 • ISO 9001 : 2015 • ISO 14001 : 2015 certified •