

# NPF915

## Feeder protection IED



The optimal management of electrical power systems is based in particular on the reliability, availability and communication skills of protection, measurement and automation devices.

The NPF915 offers a modular feeder protection and control solution for applications requiring both current and voltage based protections along with complete measurements. Optional cards (I/O, communication...) are available for more comprehensive monitoring and control applications.

The NPF915 communicates using various protocols including IEC 61850 substation communication standard.



- Double busbar control
- Directional and voltage protection
- Cable end differential protection
- Low-impedance REF protection
- Harmonics protection and control
- 5-shot scheme controlled autorecloser
- Energy and Power measurement accuracy better than Class 0.5 S

### ANSI CODES

50/51	50N /51N	67	67N	67NT	50H/51H /68H	46/46R /46L	87N	49F	59
27	59N	47/27P /59NP	81O/81U	81R	51V	78	32/37 /32R	50BF /52BF	99
21FL	60	74TC	25	79	79N	68	86		

#### OUR TRADEMARKS



## CHARACTERISTICS

### Protection functions

- Three-phase overcurrent, 4 stages INST, DT or IDMT [50/51]
- Earth-fault (sensitive), 4 stages INST, DT or IDMT [50N/51N]
- Directional overcurrent, 4 stages INST, DT or IDMT [67]
- Directional earth-fault, 4 stages INST, DT or IDMT [67N]
- Intermittent earth fault [67NT]
- Harmonic overcurrent, 4 stages INST, DT or IDMT [50H/51H/68H]
- Current unbalance, 4 stages INST, DT or IDMT [46/46R/46L]
- Low impedance restricted earth fault / cable end differential [87N]
- Cable thermal protection [49F]
- Overvoltage, 4 stages INST, DT or IDMT [59]
- Undervoltage, 4 stages INST, DT or IDMT [27]
- Zero sequence overvoltage, 4 stages INST, DT or IDMT [59N]
- Positive sequence under/overvoltage, negative sequence overvoltage, 4 stages INST, DT or IDMT [47/27P/59NP]
- Over/under frequency, 8 stages INST or DT [810/81U]
- Rate of change of frequency, 8 stages INST or DT or IDMT [81R]
- Voltage restrained overcurrent [51V]
- Vector jump [78]
- Over/Under/Reverse power [32/37/32R]
- Breaker failure protection [50BF/52BF]
- Programmable functions [99]
- Arc protection (option) [50Arc/50NArc]

### Measuring and monitoring

- Phase and residual currents (IL1, IL2, IL3, I01, I02)
- Voltage measurements (UL1-UL3, U12-U31, U0, SS)
- Fault locator [21FL]
- Current and voltage harmonics (up to 31st)
- Current THD
- Frequency (f)
- Power (P, Q, S, pf)
- Energy (E+, E-, Eeq+, Eeq-)
- Circuit breaker wear (CBW)
- Disturbance recorder: from 400 Hz to 3.2 kHz (8 to 64 samples per cycle)
- Current transformer supervision (CTS)
- Fuse failure (VTS)
- Trip circuit supervision [74TC]

### Control

- Controllable objects: 5
- Synchrocheck [25]
- Autorecloser [79]
- Zero sequence recloser [79N]
- Cold-load pick-up block [68]
- Switch onto fault logic
- Lock out relay [86]
- 8 setting groups

### Hardware

- Current inputs: 5
- Voltage inputs: 4
- Digital inputs: 2 or 3 (standard)
- Output relays: 5+1 (standard)

### Options (3 slots)

- Digital inputs optional: +8 per card
- Digital outputs optional: +5 per card (2 cards max.)
- Arc protection (12 sensors +2xHSO +BI)
- RTD inputs: +8 per card
- mA analog measures (1 input + 4 outputs)
- Communication medias (specified below)

### Event recording

- Non-volatile disturbance records: 100
- Non-volatile event records: 10,000

### Communication medias

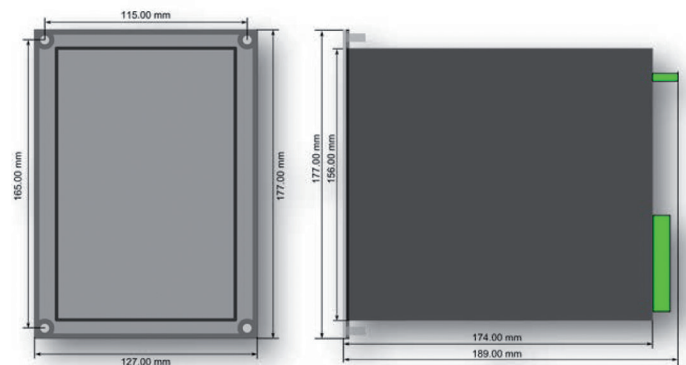
- RJ45 Ethernet 100Mb (rear port) + RS485
- Double LC fibre Ethernet 100Mb HSR/PRP (rear port)
- Double Ethernet RJ45 – 100Mb HSR/PRP (rear port)
- RS232 + serial fibre PP/PG/GP/GG (option)
- Double RJ45 Ethernet 100Mb (rear port)
- Double ST fibre Ethernet 100Mb (rear port)

### Communication protocols standard

- IEC 61850 (including HSR & PRP)
- IEC 60870-5-103/101/104
- Modbus RTU, Modbus TCP/IP
- DNP 3.0, DNP 3.0 over TCP/IP
- SPA

### Case (dimensions without protection gasket)

- H, W, D without terminal 177x127x174 mm
- H, W, D with terminal 177x127x189 mm (casing height 4U, width 1/4 rack, depth 210 mm)
- H, W of front plate 177x127 mm
- H, W of cut out 160x106 mm
- Removable protection gasket width 3 mm



### SMART9 - integrated software

Our user friendly SMART9 (Setting, Measurement, Analysis, Recording, Time-saving) configuration software helps the user get the best from NP900 series relays (connection from RJ45 Ethernet 100Mb front and rear port).

