

Fully configurable

FPC 680i

Multifunctional industrial numerical relay

FPC 680i is a multifunctional intelligent electronic device for protection and control of feeders, motors or transformers. It offers comprehensive and cost effective solution for protection, control, measuring and supervision of utility and industrial distribution substations. FPC 680i can be used in applications of any MV networks and also as a back-up protection for HV power lines and transformers. Wide range of parameters enables FPC 680i to be used in solidly earthed, resistor earthed isolated and compensated networks.

FPC 680i is a member of NEO3000® Substation system and can be integrated to any other new or existing substation automation and SCADA system. It supports the IEC 61850 substation automation standard including horizontal GOOSE communication and all common communication protocols enabling connectivity with support for RSTP.

FPC 680i is IEC 61850 certified by KEMA (Level A) independent laboratories.

Feeder, motor or transformer protection functionality

Intuitive graphical user interface

Fault and event recording

Measurements and energy metering

NEO3000 Power System Manager software tool

Disturbance recorder and power quality monitoring

Multiple communication capabilities with RSTP

Fully configurable for solving a variety of scenarios

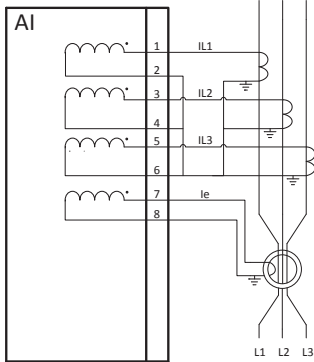
IEC 61850 certified

FPC 680i

Multifunctional industrial numerical relay

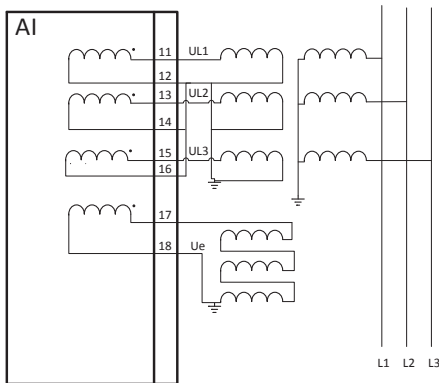
Current application:

- F01 Current protection
- M01 Motor current protection
- T01 Transformer current protection



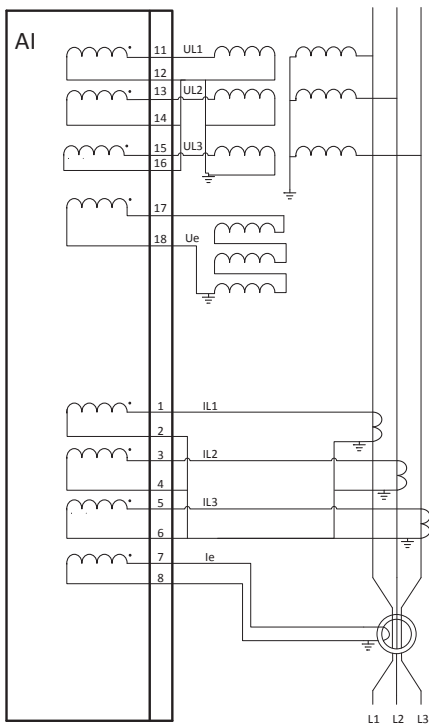
Voltage application

- F02 Voltage protection



Current and voltage application:

- F03 Current and Voltage protection
- F04 Current and Voltage protection with Synchro check
- F05 Current and Voltage protection with Shunt protection
- F06 Current and Voltage protection with IuB protection
- F07 Current and Voltage protection with Differential protection
- T03 Transformer Current and Voltage protection
- M03 Current and Voltage protection for motors



| Product type comparison | | F01 | F02 | F03 | F04 | M01 | M03 | T01 | T03 |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|
| Current protections | | | | | | | | | |
| 50/51 | 3 phase overcurrent / IDMT / Inrush r. / CLPU | 3 | | 4 | 4 | 3 | 4 | 3 | 3 |
| 67 | 3 phase directional overcurrent | opt. | | ✓ | ✓ | opt. | ✓ | opt. | ✓ |
| 50/51 N/G | Earth fault overcurrent / IDMT / Inrush r. / CLPU | 4 | | 6 | 8 | 4 | 6 | 4 | 6 |
| 67N/51N | Earth fault directional overcurrent | opt. | | ✓ | ✓ | opt. | ✓ | opt. | ✓ |
| 67Ns | Earth-fault directional sensitive o.c. | opt. | | ✓ | ✓ | opt. | ✓ | opt. | ✓ |
| 32NQ | Earth fault directional watt-metric | opt. | | ✓ | ✓ | opt. | ✓ | opt. | ✓ |
| 32NP | Earth fault directional VAR-metric | opt. | | ✓ | ✓ | opt. | ✓ | opt. | ✓ |
| 64REF | Restricted earth-fault | | | | 4 | 2 | 4 | 2 | 4 |
| 46 | Negative sequence overcurrent / unbalance | 2 | | 2 | 4 | 2 | 2 | 2 | 2 |
| Voltage protections | | | | | | | | | |
| 27 | Phase-to-phase undervoltage | | 2 | 4 | 4 | | 4 | | 4 |
| 27R | Remanent undervoltage | | 1 | 2 | 2 | | ✓ | | ✓ |
| 27D | Positive sequence undervoltage | | 2 | 2 | 2 | | 2 | | 2 |
| 27S | 3 phase undervoltage | | 1 | 1 | 1 | | ✓ | | ✓ |
| 59 | Phase-to-phase overvoltage | | 2 | 4 | 4 | | 2 | | 2 |
| 59N | Neutral voltage displacement | | 2 | 2 | 2 | | | | |
| 47 | Negative sequence overvoltage | | 2 | 2 | 2 | | 2 | | 2 |
| 59N | Residual overvoltage | | 2 | 2 | 2 | | 2 | | 2 |
| 81H | Overfrequency | | 1 | 2 | 2 | | 2 | | 2 |
| 81L | Underfrequency | | 2 | 4 | 4 | | 2 | | 2 |
| Power and machine protections and diagnostic | | | | | | | | | |
| 49F | 3 phase thermal overload (feeders & cables) | 2 | | 2 | 2 | 2 | 2 | 2 | 2 |
| 49T | 3 phase thermal overload (transformers) | | | | | | | 2 | 2 |
| 49M (RMS) | 3 phase thermal overload (motors) | | | | | 2 | 2 | | |
| 38/49T | Temperature monitoring (up to 8 sensors) | 1 | | 2 | 2 | 1 | 2 | 1 | 2 |
| 48/51LR/14 | Locked rotor, excessive starting time | | | | | 1 | 2 | | |
| 66 | Starts per hour | | | | | 1 | 2 | | |
| 26/63 | Thermostat / Buchholz switch | | | ✓ | ✓ | | | ✓ | ✓ |
| | External trip | 2 | | 2 | 2 | 2 | 2 | 2 | 2 |
| Automation and diagnostic | | | | | | | | | |
| 94/69 | Circuit breaker control and monitoring | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 2 |
| 50BF/62BF | Circuit breaker failure | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Trip circuit supervision (TCS) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 79 | Auto-reclosure | 1 | 1 | 2 | 2 | | | 1 | 2 |
| 25 | Synchro-check | | 1 | | 1 | 1 | 1 | | 1 |
| | Voltage regulator | | 1 | | 1 | | | | 1 |
| 69 | Disconnecter control | 4 | 4 | 6 | 6 | 4 | 6 | 4 | 6 |
| 86LR/94 | Lockout Relay | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 60 | Fuse failure supervision | opt. | opt. | opt. | opt. | opt. | opt. | opt. | opt. |
| 21FL | Fault locator | | | ✓ | ✓ | | ✓ | | ✓ |
| | Running hours | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IEC 6 1131 Function Blocks | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| General device data | | | | | | | | | |
| Power supply | 24 V DC, 48-60 V DC, 110-125 V DC, 220-250 V DC | | | | | | | | |
| Communication | IEC 61850 MMS with GOOSE, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, DNP3, Modbus* | | | | | | | | |
| | Dual fiber optic or RJ45 Ethernet | | | | | | | | |
| Dimensions | 220 x 176 x 187 mm (W x H x D) | | | | | | | | |

Type F05 is based on F03 with Shunt protection. Type F06 is based on F03 with IuB.

*Customer's choice

For more information:
www.iskra.eu/fpc680i/



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