

## AQ-T259 Transformer protection IED



AQ-T259 is a 3-winding transformer protection IED with differential protection function and integrated AVR function. The AQ-T259 communicates using various protocols including IEC 61850 substation communication standard.

### Highlights

- 3-winding transformer protection
- Freely programmable harmonic restraint function
- Integrated AVR

## Technical Data

### PROTECTION

3-winding transformer differential (87T)

High/low impedance restricted earth fault / cable end differential \* (87N1, 87N2)

Transformer thermal overload (49T/49RTD)

Three-phase overcurrent, 2+2 stages INST, DT or IDMT (50/51)

Earth-fault (sensitive), 3 stages INST, DT or IDMT (50/51N)

Harmonic overcurrent / inrush blocking, 4 stages INST, DT or IDMT (50/51H, 68)

Current unbalance / broken conductor, 2+2 stages INST, DT or IDMT (46/46R/46L)

Directional overcurrent, 4 stages INST, DT or IDMT (67)

Directional (sensitive) earth-fault, 4 stages INST, DT or IDMT (67N)

Overvoltage, 2 stages INST, DT or IDMT (59)

Undervoltage, 2 stages INST, DT or IDMT (27)

Zero sequence overvoltage, 2 stages INST, DT or IDMT (59N)

Positive/Negative sequence overvoltage, 2 stages INST, DT or IDMT (59N/47)

Over/under frequency, 4 stages INST or DT (81O/81U)

AQ-T259 Transformer protection IED

Rate of change of frequency, 4 stages INST or DT or IDMT (81R)

Volts per hertz (24)

Breaker failure protection (50BF/52BF)

Arc protection (option) (50ARC/50NARC)

## CONTROL

Controllable objects: 10

Synchro-check (25)

8 setting groups

## MEASURING & MONITORING

Phase and residual currents (IL1, IL2, IL3, I01, I02)

Voltage measurements (UL1-UL3, U12-U31, U0, SS)

Current and voltage THD and harmonics (up to 31st)

Frequency (f)

Power (P, Q, S, pf)

Energy (E+, E-, Eq+, Eq-)

Circuit breaker wear (CBW)

Disturbance recorder (3.2 kHz)

Current transformer supervision (CTS)

Fuse failure (VTS)

Trip circuit supervision (TCS)

### Event recording

Non-volatile disturbance records: 100

Non-volatile event records: 15000

## I/O

Current inputs: 15

Voltage inputs: 4

Digital inputs: 3 (standard)

Output relays: 5+1 (standard)

AQ-T259 Transformer protection IED

#### Options (7 slots)

Digital inputs optional: +8/16/24/32/40/48/56

Digital outputs optional: +5/10/15/20/25

Arc protection (12 sensors +2xHSO +BI)

2 x mA input + 68 x RTD input

Communication media (specified below)

## COMMUNICATION

RJ 45 Ethernet 100Mb (front standard)

RJ 45 Ethernet 100Mb and RS 485 (rear standard)

Double LC Ethernet 100Mb (option)

RS232 + serial fibre PP/PG/GP/GG (option)

#### Communication protocols

IEC 61850

IEC 608705103/101/104

Modbus RTU, Modbus TCP/IP

DNP 3.0, DNP 3.0 over TCP/IP

SPA

AQ-T259 Transformer protection IED

Application Drawing

