

AQ-T352 Two-winding transformer protection IED



AQ-T352 is a transformer protection IED for two-winding transformer applications. It integrates a full range of protection functions as well as a variety of additional functions for control, measurement, monitoring and communications.

Highlights:

- Low-impedance restricted earth fault protection
- Second and fifth harmonic restrain
- An integrated automatic voltage regulator (AVR)
- Overexcitation protection

Technical Data

PROTECTION

Three-phase instantaneous/time overcurrent (I_>; 50/51)

Residual instantaneous/time overcurrent (I_{0>}; 50N/51N)

Inrush detection and blocking

Negative sequence overcurrent/ Current unbalance (I_{2>}; 46)

Thermal overload (T_>; 49)

Transformer differential, two windings (87T)

Restricted earth fault

Circuit breaker failure protection (CBFP; 50BF/52BF)

Optional functions

Over- and undervoltage (U_{>/<}; 59/27)

Residual overvoltage (U_{0>}; 59N)

Over- and underfrequency (f_{>/<}; 81O/81U)

Rate-of-change of frequency (df/dt; 81R)

Volts-per-hertz overexcitation (V/Hz>; 24)

Distributed busbar protection (sub-unit)

CONTROL

Common function

Trip logic (94)

Switch-on-to-fault

Automatic voltage regulator / Tap change control (optional)

MEASURING & MONITORING

Number of supervised trip contacts: 4

Current (IL1, IL2, IL3, I0)

Current measurement module

Trip circuit supervision

Switching device status monitoring

Event recorder

Event recorder (max. 10 000 permanent event records)

Circuit breaker wear monitoring

Optional measurements and monitoring functions

Voltage (U1, U2, U3, U12, U23, U31, U0) and frequency

Power (P, Q, S, pf) and Energy (E+, E-, Eq+, Eq-)

Voltage transformer supervision (60)

HARDWARE

Number of empty slots: 6

CPU module (MM/ST + RJ-45)

Power supply module (PS + fault relay + 2 trips)

Current measurement module (2 instances)

Options

6 digital inputs (1x6) + 5 digital outputs

8 digital inputs (1x8)

12 digital inputs (3x4)

16 digital inputs (2x8)

9 digital inputs (3x3) with IRIG-B (BNC)

8 digital outputs (1x8)

12 digital outputs (4x3)

16 digital outputs (2x8)

4-channel RTD module

4-channel analogue input module (2-wire)

COMMUNICATION

RJ-45 100 Mbps Ethernet + MM/ST fiber optic Ethernet

IEC 60870-5-101/104/103

Modbus/RTU and Modbus/TCP

DNP3.0

Options

2 x ST/MM redundant fiber optic Ethernet

ST/MM fiber optic Ethernet and RS-485

PRP/HSR

SOFTWARE

IEC 61850

Transformer automatic voltage regulator (AVR) function

Application Drawing

