

## AQ-V211 Voltage protection IED



The AQ-V211 voltage protection IED offers a modular voltage protection solution for substations. The relay includes both voltage and frequency protections as well as powerful logic programming, and you can add up to five (5) I/O or communication cards. All this makes AQ-V211 optimal for demanding load shedding and automatic transfer applications. AQ-V211 communicates using various protocols, including the IEC 61850 substation communication standard.

### Highlights

- Eight (8) frequency stages and eight (8) setting groups for load shedding
- Synchrocheck for up to three (3) circuit breakers
- Optional synchronizer function
- Anti-islanding protection.

## Technical Data

### PROTECTION

Overvoltage ( $U >$ ; 59) - 4 stages (INST, DT or IDMT)

Undervoltage ( $U <$ ; 27) - 4 stages (INST, DT or IDMT)

Neutral overvoltage ( $U0 >$ ; 59N) - 4 stages (INST, DT or IDMT)

Sequence voltage ( $U1/U2 >/<$ ; 47/27P/59PN) - 4 stages (INST, DT or IDMT)

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

Overfrequency and underfrequency ( $f >/<$ ; 810/81U) - 8 stages (INST or DT)

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

Voltage memory

Programmable stage ( $PGx >/<$ ; 99)

## CONTROL

Number of objects to control and monitor: 5

Number of indicators to monitor: 5

Number of setting groups: 8

Switch-on-to-fault

Vector jump ( $\Delta\phi$ ; 78)

Synchrocheck ( $\Delta V/\Delta a/\Delta f$ ; 25)

Synchronizer ( $\Delta V/\Delta a/\Delta f$ ; 25) (optional)

## MEASURING AND MONITORING

Phase, sequence and residual voltages (UL1, UL2, UL3, U12, U23, U31, U0)

Voltage transformer supervision (60)

Disturbance recorder (max. 15 000 permanent event records)

Measurement recorder

Measurement value recorder

## HARDWARE

Voltage inputs: 4

Digital inputs (fixed): 3

Digital outputs (fixed): 5

### Options (5 slots)

Digital inputs: +8/16/24/32/40

Digital outputs: +5/10

RTD & mA input module (8 RTD inputs OR 4 RTD inputs + 2 mA inputs)

Milliampere I/O module (4 mA outputs + 1 mA input)

Communication media (specified in the "Communication" tab)

## COMMUNICATION

RJ-45 100 Mbps Ethernet (front panel, fixed)

RJ-45 100 Mbps Ethernet and RS-485 (rear panel, fixed)

Double LC 100 Mbps Ethernet (PRP/HSR) (optional)

RS-232 & serial fibre (PP/PG/GP/GG) (optional)

Communication protocols

IEC 61850

IEC 60870-5-101/104

IEC 60870-5-103

Modbus/RTU and Modbus/TCP

DNP3

SPA

Application Drawing

