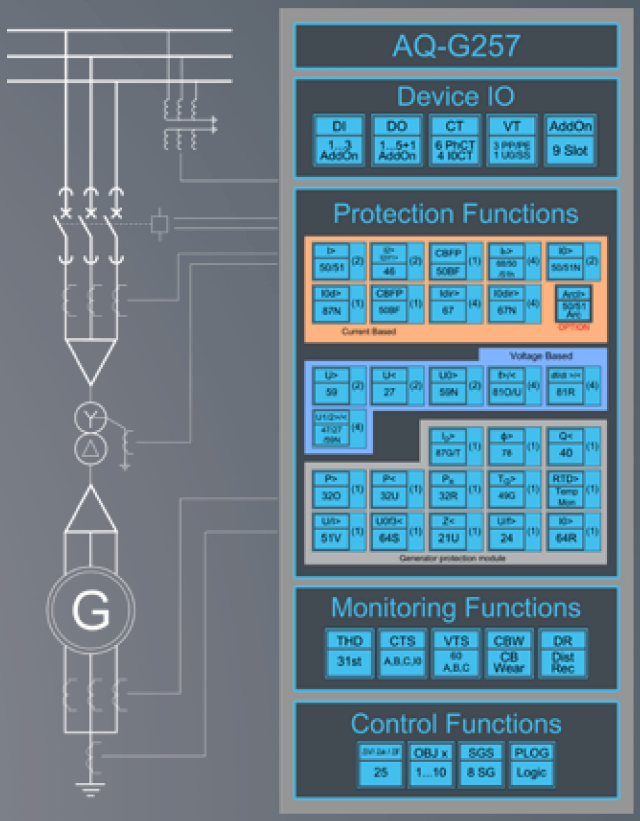
AQ-G257 Generator protection IED

The AQ-G257 generator protection IED is well suited for large machines requiring complete generator protection and differential protection. Up to 9 optional I/O or communication cards are available for extensive monitoring and control applications. Up to 16 RTD signals can be connected for thermal alarming and tripping. The AQ-G257 communicates using various protocols including IEC 61850 substation communication standard.



- **Complete synchronous machine protection**
- **Power measurements up to class 0.2S**
- **Synchronizer and synchro-check for safe power grid connection**

PROTECTION FUNCTIONS

- Generator/transformer differential (87G/T)
- Three-phase overcurrent, 2 stages INST, DT or IDMT (50/51)
- Earth-fault (sensitive), 2 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 stages INST, DT or IDMT (46/46R/46L)
- High/low impedance restricted earth fault / cable end differential * (87N)
- 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 over voltage, 2 stages INST, DT or IDMT (59N/47)
- Over/under frequency, 4 stages INST or DT (81O/81U)
- Rate of change of frequency, 4 stages INST or DT or IDMT (81R)
- Loss of field (40)
- Voltage restrained overcurrent (51V)
- Field ground / 100% stator earth-fault (64S)
- Rotor earth-fault protection (64R)
- Over/Under/Reverse power (32/37/32R)
- Generator thermal overload (49G/49RTD)
- Under impedance (21U)
- Volts per hertz (24)
- Power factor protection (55)
- Out of step / pole slip (78)
- Breaker failure protection (50BF/52BF)
- Inadvertant energizing (50/27)
- 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)
- 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)

CONTROL

- Controllable objects: 10
- Synchro-check (25)
- 8 setting groups
- Synchronizer (option)

HARDWARE

- Current inputs: 10
- Voltage inputs: 4
- Digital inputs: 3 (standard)
- Output relays: 5+1 (standard)

OPTIONS (9 SLOTS)

- Digital inputs optional: +8/16/24/32/40/48/56/64/72
- Digital outputs optional: +5/10/15/20/25
- Arc protection (12 sensors+2xHSO+BI)
- 2xmA in + 4xRTD in OR 8xRTD in
- 4xmA out+1xmA in
- Communication media (specified below)

EVENT RECORDING

- Non-volatile disturbance records: 100
- Non-volatile event records: 15000

COMMUNICATION MEDIA

- 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 STANDARD

- IEC 61850
- IEC 60870-5-103/101/104
- Modbus RTU, Modbus TCP/IP
- DNP 3.0, DNP 3.0 over TCP/IP
- SPA