AQ-F255A Feeder protection device

Description

The AQ-F255A feeder protection device offers a modular feeder protection and control solution for applications that require a large I/O capacity. You can add up to eleven (11) I/O or communication modules into the device for extensive monitoring and control applications. The AQ-F255A feeder protection device communicates using various protocols, including the IEC 61850 substation communication standard.

Highlights:

- Double busbar control.
- A large I/O capacity.
- Current-based and voltage-based protections.
- Cable-end differential protection.
- Low-impedance restricted earth fault protection.
- Harmonics protection and control.
- A 5-shot scheme-controlled auto-recloser.
- Power and energy measurement accuracy of up to 0.2 %.

See all AQ-F255 variants

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Technical data

PROTECTION

- Non-directional overcurrent (I>; 50/51) - 4 stages (INST, DT or IDMT)
- Non-directional earth fault (I0>; 50N/51N) - 4 stages (INST, DT or IDMT)
- Directional overcurrent (Idir>; 67) - 4 stages (INST, DT or IDMT)
- Directional earth fault (I0dir>; 67N/32N) - 4 stages (INST, DT or IDMT)
- Intermittent earth fault (I0int>; 67NT)
- Negative sequence overcurrent/ Phase current reversal/ Current unbalance (I2>; 46/46R/46L) - 4 stages (INST, DT or IDMT)
- Harmonic overcurrent (Ih>; 50H/51H/68H) - 4 stages (INST, DT or IDMT)
- Circuit breaker failure protection (CBFP; 50BF/52BF)
- High-impedance or low-impedance restricted earth fault/ Cable end differential (I0d>; 87N)
- Voltage-restrained overcurrent (Iv>; 51V)
- 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)
- Overpower (P>; 32O)
- Underpower (P<; 32U)
- Reverse power (Pr; 32R)
- Overfrequency and underfrequency (f>/<; 81O/81U) - 8 stages (INST or DT)
- Rate-of-change of frequency (df/dt>/<; 81R) - 8 stages (INST, DT or IDMT)
- Line thermal overload (TF>; 49F)
- Resistance temperature detectors (RTD)
- Voltage memory
- Programmable stage (PGx>/<; 99)
- Arc protection (IArc>/I0Arc>; 50Arc/50NArc) (optional)

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CONTROL

- Number of objects to control and monitor: 10
- Number of indicators to monitor: 10
- Number of setting groups: 8
- Cold load pick-up
- Switch-on-to-fault
- Auto-recloser (0 → 1; 79)
- Zero sequence recloser
- Vector jump (Δφ; 78)
- Synchrocheck (ΔV/Δa/Δf; 25)

MEASURING AND MONITORING

- Phase, sequence and residual currents (IL1, IL2, IL3, I01, I02)
- Phase, sequence and residual voltages (UL1, UL2, UL3, U12, U23, U31, U0)
- Frequency (f)
- Power (P, Q, S, pf) and Energy (E+, E-, Eq+, Eq-)
- Power and energy class 0.5
- Power and energy measurement accuracy of up to 0.2 % (optional)
- Current transformer supervision
- Voltage transformer supervision (60)
- Circuit breaker wear monitoring
- Total harmonic distortion (current)
- Total harmonic distortion (voltage)
- Fault locator (21FL)
- Measurement recorder
- Measurement value recorder
- Event recorder (max. 15 000 permanent event records)
- Disturbance recorder (max. 100 records á 5 seconds at 3.2 kHz sampling)

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HARDWARE

- Current inputs: 5
- Voltage inputs: 4
- Digital inputs (fixed): 3
- Digital outputs (fixed): 5
- Number of empty slots: 11
- Digital inputs: +8/16/24/32/40/48/56/64/72/80/88 (optional)
- Digital outputs: +5/10/15/20/25/30 (optional)
- Milliampere I/O module (4 mA outputs + 1 mA input)
- Arc protection module (4 sensors + 2 HSO + 1 BI)
- Communication media (see "Communication" below)
- External I/O modules (see "Accessories" below)

COMMUNICATION

Communication inputs

- RJ-45 100 Mbps Ethernet (front panel, fixed)
- RJ-45 100 Mbps Ethernet and RS-485 (rear panel, fixed)
- 2 x RJ-45 100 Mbps Ethernet with an IRIG-B input (optional)
- 2 x ST 100 Mbps Ethernet with an IRIG-B input (optional)
- 2 x LC 100 Mbps Ethernet (PRP/HSR) (optional)
- RS-232 serial fiber (PP/PG/GP/GG) (optional)

Communication protocols

- IEC 61850 (edition 1)
- IEC 61850 (edition 2)
- IEC 60870-5-101/104
- IEC 60870-5-103
- Modbus/RTU and Modbus/TCP
- DNP3
- SPA

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ACCESSORIES

- AX007 External 6-channel 2-/3-wire RTD input module (pre-configured)
- AX008 External 8-channel thermocouple and mA input module (pre-configured)
- AX013 Raising frame (120 mm)
- AX014 Raising frame (40 mm)
- AX015 Wall mounting bracket

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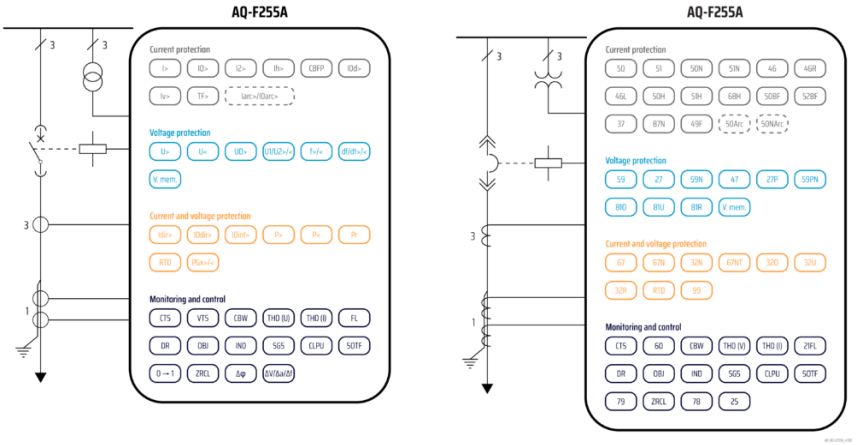
Application Drawing



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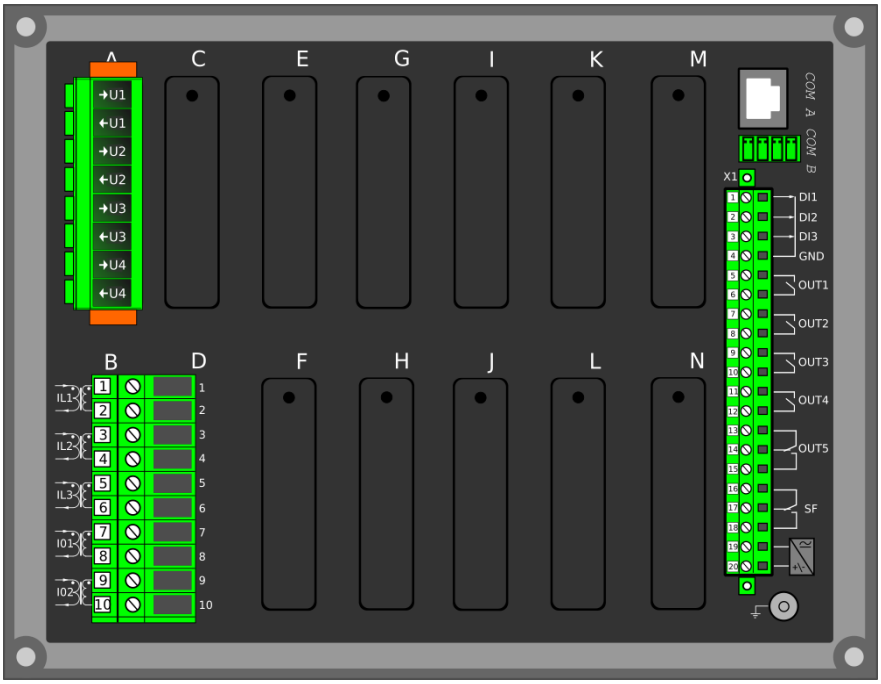
Device Rear Image



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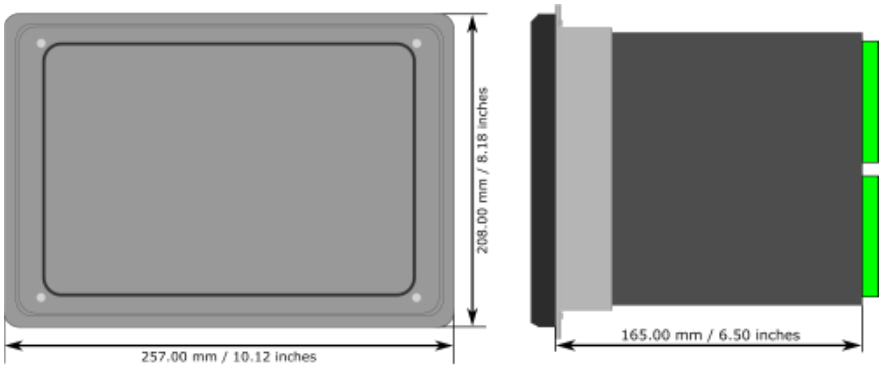
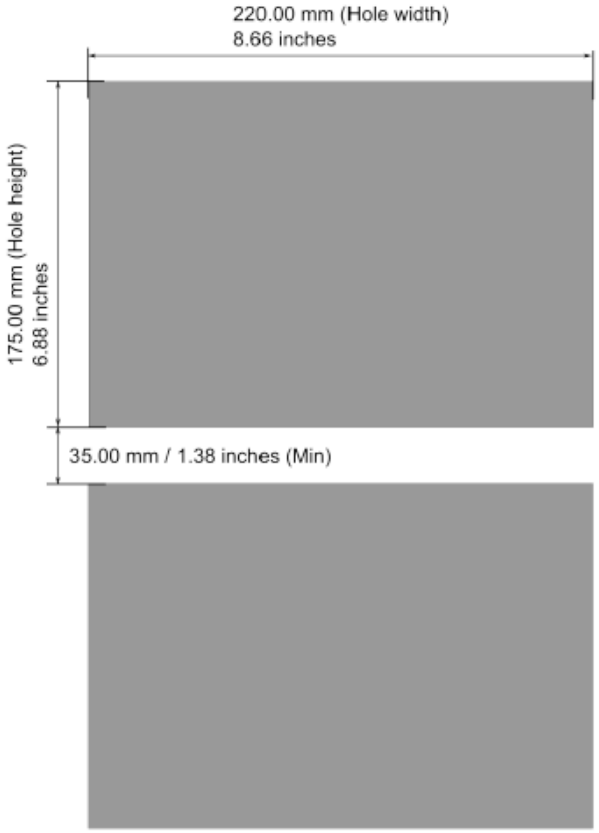
Device and Cut-out Image





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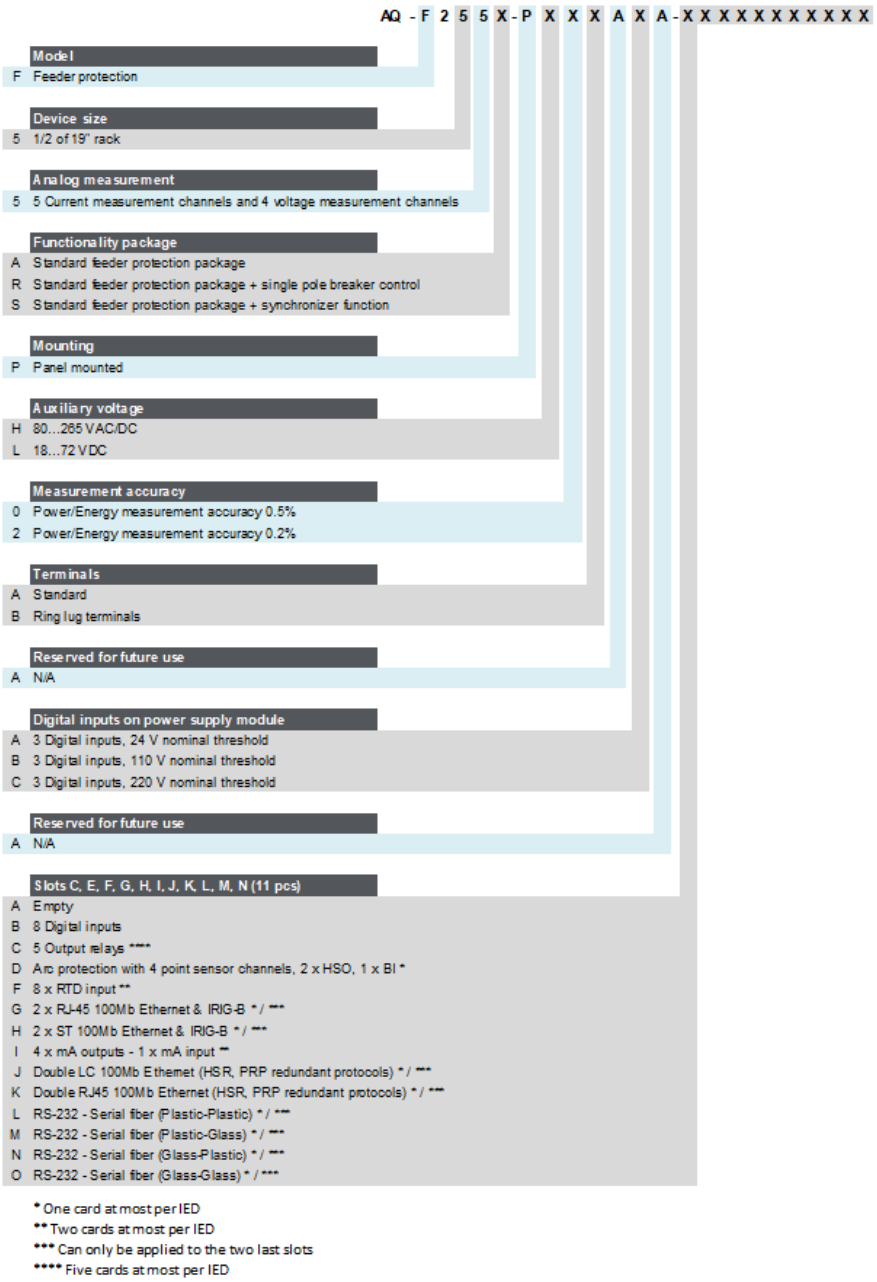
Order Code



* One card at most per IED
** Two cards at most per IED
*** Can only be applied to the two last slots
**** Five cards at most per IED

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