

# NOVEL POWER MONITORING IED FOR ANY DEMANDING METERING AND POWER MONITORING APPLICATION

## AQ P215 – Power monitoring IED

- Accuracy class 0.2S according to IEC 62053-22
- Frequency independent measurement – patented frequency tracking algorithm guarantees measurement accuracy at 6-75Hz
- Power quality analysis – harmonics, THD and disturbance recording
- Powerful disturbance recorder with up to 64 samples per cycle sampling rate
- Dynamic measuring range up to 250A secondary – effective disturbance recording when coupled to protection CT
- Permanent flash memory – no battery or capacitor back-up needed
- Calendar feature with automatic day-light saving and leap year adjustment
- Programmable logic functions
- Modular construction – expandable I/O configurations
- Seamless communication – SNMP, FTP, IEC 61850, IEC 103/101/104, Modbus RTU, Modbus TCP, DNP 3, DNP 3 over TCP and SPA protocols.
- Superior usability – large intuitive HMI and easy to use freeware for setting and configuration
- Total immunity – EMC tested according to IEC 60255 protection relay standards
- Freely configurable data logging for metering values and load profiling



### Data logging memory examples

Number of recorded parameters	3	6	9
Recording interval	5 min	5 min	5 min
Total recorded data	300 days	150 days	100 days
Number of events	15.000	15.000	15.000
Disturbance records	100	100	100

**ARCTEQ**

RELAYABLE POWER

## Measurements

ILx ILx TRMS ILx peak	Phase currents RMS, TRMS and Peak-to-Peak values
Phase angle ILx	Current phase angle
I01, I02	Residual currents
Phase angle I01,I02	Residual current angle
Sequence currents	Positive, negative and zero sequence currents
U1, U2, U3, U12, U23, U31 Ux TRMS	Phase-to-neutral voltages Phase-to-phase voltages Voltage TRMS values
U0	Residual voltage
Sequence voltages	Positive, negative and zero-sequence voltages
f	Frequency
S	Total 3 phase and per phase apparent power
P	Total 3 phase and per phase active power
Q	Total 3 phase and per phase reactive power
Tan(phi)	3 phase and per phase active power direction
Cos(phi)	3 phase and per phase reactive power direction
E+ E Eq+ Eq-	Total and per phase exported active energy Total and per phase imported active energy Total and per phase exported reactive capacitive energy Total and per phase imported reactive capacitive energy Total and per phase exported reactive inductive energy Total and per phase imported reactive inductive energy
E+/E Eq+/Eq-	Sum of imported and exported active energy Sum of imported and exported reactive capacitive energy Sum of imported and exported reactive inductive energy

## Power quality and data logging

U Fund -31.harm. Ix Fund.-31.harm.	Voltage and current harmonics up to 31st
THD	Total harmonic distortion
DR	Disturbance Recorder
Memory	30 MB permanent flash memory for data logging
Events	15.000 non-volatile events in flash memory

## Hardware

Phase current inputs (1/5A settable)	3
Residual current inputs (0.2/15A settable)	2
Voltage inputs (0-480V settable)	4
Digital inputs standard (5-240V settable)	3
Output relays standard	6
Digital inputs optional (5-240V settable)	up to 24
Output relays optional	up to 15
Power supply (85-265Vac/dc or 18-72Vdc)	<input checked="" type="checkbox"/>

## Communications

RJ 45 Ethernet 100M (Front)	<input checked="" type="checkbox"/>
RJ 45 Ethernet 100M (rear)	<input checked="" type="checkbox"/>
RS 485 (rear)	<input checked="" type="checkbox"/>
2 x Fiber optic Ethernet 100M (rear)	option
Serial fiber & RS 232 (rear)	option

## Communication protocols

FTP, SNMP	<input checked="" type="checkbox"/>
IEC 61850	<input checked="" type="checkbox"/>
IEC 60870-5-103	<input checked="" type="checkbox"/>
IEC 60870-5-101	<input checked="" type="checkbox"/>
IEC 60870-5-104	<input checked="" type="checkbox"/>
Modbus RTU	<input checked="" type="checkbox"/>
Modbus TCP/IP	<input checked="" type="checkbox"/>
DNP 3.0	<input checked="" type="checkbox"/>
DNP 3.0 over TCP/IP	<input checked="" type="checkbox"/>
SPA	<input checked="" type="checkbox"/>

## Inaccuracies

Current measurement 0.05xIn...In...4xIn	<0.2% or < ±10mA
Voltage measurement 0.01...480V	<0.2% or < ±10mV
Angle measurement	< ±0.5 degrees
Power factor	<0.2%
Power (P, Q, S)	Class 0.2S
Energy (E, Eq)	Class 0.2S

## Electrical environment compatibility

CE approved	EN 50081-2, EN 50082-2
Emission (conducted, emitted)	EN 55011 Class A
Electrostatic discharge (ESD)	IEC 244-22-2 and EN61000-4-2, class III
Burst immunity	IEC 60255-22-1
Electrical Fast Transients (EFT)	EN 61000-4-4, class III and IEC801-4, level 4
Surge	EN61000-4-5, level 4
RF electromagnetic field test	EN 61000-4-3, class III
Conducted RF field	EN 61000-4-6, class III
Power frequency magnetic field	EN 61000-4-8
Insulation test voltage	IEC 60255-5
Impulse test voltage	IEC 60255-5

## Physical environment compatibility

Vibration test	IEC 60255-21-1
Shock/Bump test acc. to	IEC 60255-21-2
Damp heat	IEC 60068-2-30
Dry heat	IEC 60068-2-2
Cold test	IEC 60068-2-1
Casing protection degree	IP54 front IP21 rear
Ambient service temperature range	-35...+70°C
Transport and storage temperature range	-40...+70°C

## Casing and package

Device dimensions (W x H x D mm)	Casing height 4U, width ¼ rack, depth 210 mm
Package dimensions (W x H x D mm)	230(w) x 120(h) x 210(d) mm
Weight	Device 1.5kg In package 2kg