# Product data sheet

## Characteristics

**M8650A4C0H6E1B0A**  
ION8650 meter 128MB, FT21 panel, 120VAC/160VDC 60Hz, Ethernet 3I+4O

### Main

<table>
<thead>
<tr>
<th>Range</th>
<th>PowerLogic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device short name</td>
<td>ION8650A</td>
</tr>
<tr>
<td>Product or component type</td>
<td>Energy and power quality meter</td>
</tr>
</tbody>
</table>

### Complementary

**Power quality analysis**
- conforming to IEC 61000-4-15 flicker
- magnitude harmonic up to the 50th
- transient capture
- conforming to EN 50160: ed. 4 compliance report
- harmonic distortion
- voltage sag and swell detection
- waveform capture
- programmability (logic and math functions)
- up to the 63rd harmonic
- conforming to IEC 61000-4-30: class A power quality measurement

**Device application**
- Co-generation and IPP monitoring
- Instrument transformer correction
- Tariff metering
- Energy pulsing and totalisation
- Load curtailment
- Equipment monitoring and control
- Demand and power factor control

**Type of measurement**
- Current
- Voltage
- Frequency
- Apparent power total
- Power factor total
- Apparent power per phase
- Power factor per phase
- Active power total
- Active power per phase
- Reactive power total
- Reactive power per phase

**Supply voltage**
- 120...277 V AC 47...63 Hz
- 120...480 V AC 47...63 Hz
- 65...120 V AC 47...63 Hz

*Disclaimer:* This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network frequency</td>
<td>80...160 V DC</td>
</tr>
<tr>
<td>Outlet standard</td>
<td>60 Hz</td>
</tr>
<tr>
<td>[In] rated current</td>
<td>2 A, 1 A, 5 A</td>
</tr>
<tr>
<td>Type of network</td>
<td>3P, 1P + N, 3P + N</td>
</tr>
<tr>
<td>Power consumption in VA</td>
<td>24 VA</td>
</tr>
<tr>
<td>Maximum power consumption in VA</td>
<td>33 VA</td>
</tr>
<tr>
<td>Display type</td>
<td>FSTN transflective LCD</td>
</tr>
<tr>
<td>Form designation</td>
<td>36S 2½-element 4, 9 3-element 4, 35 2-element 3, 29 2½-element 4</td>
</tr>
<tr>
<td>Sampling rate</td>
<td>1024 samples/cycle</td>
</tr>
<tr>
<td>Measurement current</td>
<td>0.001...24 A</td>
</tr>
<tr>
<td>Input type</td>
<td>Current 0.01...20 A (impedance 0.05 Ohm)</td>
</tr>
<tr>
<td>Measurement voltage</td>
<td>57...277 V AC phase to neutral, 100...480 V AC phase to phase</td>
</tr>
<tr>
<td>Number of inputs</td>
<td>3 digital 0.001...100 mA 30 V DC</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>Current 0.1 %, Voltage 0.1 %, Power 0.1 %, Power factor 0.1 %, Frequency 0.001 Hz, Energy 0.1 %</td>
</tr>
<tr>
<td>Accuracy class</td>
<td>Class 0.2S energy conforming to IEC 62053-23, Class 0.2 energy conforming to ANSI C12.20, Class 0.2S energy conforming to IEC 62053-22</td>
</tr>
<tr>
<td>Number of outputs</td>
<td>2 pulse, 4 form C relay output</td>
</tr>
<tr>
<td>Communication port protocol</td>
<td>DNP3 at 300...115200 bauds, ION at 300...115200 bauds, Ansi C12.18 at &lt;= 19200 bauds, IEC 61850 ed. 2 at 10/100 Mbit/s, TCP/IP at 10/100 Mbit/s, DLMS at 300...115200 bauds, Modbus at 57600 bauds, DNP3 at 10/100 Mbit/s, ION at 10/100 Mbit/s, Modbus RTU, master/slave at 300...115200 bauds, Modbus TCP, master/slave at 10/100 Mbit/s, EtherGate</td>
</tr>
<tr>
<td>Time synchronisation protocol</td>
<td>IRIG-B, GPS: Truetime/Datum</td>
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<tr>
<td>Data recording</td>
<td>Time stamping</td>
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<tr>
<td></td>
<td>Transient logs</td>
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<tr>
<td></td>
<td>Alarms</td>
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<td>Data logs</td>
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<td>Sag and swell logs</td>
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<td>GPS synchronisation</td>
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<td>Historical logs</td>
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<td>Revenue logs</td>
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<td>Harmonics logs</td>
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<tr>
<td></td>
<td>Event logs</td>
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<tr>
<td>Transmission rate</td>
<td>&lt;= 19200 bauds, 300...115200 bauds, 57600 bauds, 10/100 Mbit/s</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>128 MB</td>
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</tbody>
</table>
Web services
- Port addressing user designed
- Robust security logs
- Web server
- Alarm notification by e-mail

Ethernet service
- Enable/disable serial ports
- Enable/disable Ethernet protocols
- SNMP-Traps and SYSLOG

Tamperproof of settings
- Protected by access code

Provided equipment
- Break out panel

Compatibility code
- ION8650A

Environment

Electromagnetic compatibility
- Electrostatic discharge immunity test conforming to IEC 61000-4-2
- Conducted RF disturbances conforming to IEC 61000-4-6
- Immunity to impulse waves conforming to IEC 61000-4-4
- Electrical fast transient/burst immunity test conforming to IEC 61000-4-4
- Susceptibility to electromagnetic fields conforming to IEC 61000-4-3
- 1.2/50 μs shock waves immunity test conforming to IEC 61000-4-5
- Conducted and radiated emissions B conforming to CISPR 22

Mounting mode
- Flush-mounted

Enclosure type
- FT21 switchboard

Type of installation
- Indoor installation

Overvoltage category
- III

IP degree of protection
- IP50 front face:
- IP30 back:

Relative humidity
- 5…95 %

Pollution degree
- 2

Ambient air temperature for operation
- -40…85 °C

Ambient air temperature for storage
- -40…85 °C

Operating altitude
- 0…3000 m

Standards
- ANSI C12.1
- IEC 62052-11

Width
- 163 mm

Depth
- 228 mm

Height
- 285 mm

Net weight
- 7 kg

Offer Sustainability

Sustainable offer status
- Green Premium product

REACh Regulation
- REACh Declaration

EU RoHS Directive
- Compliant
- EU RoHS Declaration

Toxic heavy metal free
- Yes

Mercury free
- Yes

RoHS exemption information
- Yes

China RoHS Regulation
- China RoHS declaration
- Pro-active China RoHS declaration (out of China RoHS legal scope)

Environmental Disclosure
- Product Environmental Profile

Circularity Profile
- End of Life Information

WEEE
- The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Contractual warranty

Warranty
- 18 months