Communications

ION7550 RTU
Functions and characteristics

The PowerLogic ION7550 RTU (remote terminal unit) is an intelligent web-enabled device ideal for combined utilities metering of water, air, gas, electricity and steam (WAGES). When combined with PowerLogic software, the ION7550 RTU offers a seamless, end-to-end WAGES metering solution. Featuring a large, high-visibility display and overall versatility of the PowerLogic system, the ION7550 RTU provides extensive analog and digital I/O choices and is a cost-effective dedicated WAGES solution when compared to a traditional meter. The device automatically collects, scales and logs readings from a large number of connected meters or transducers and delivers information to one or more head-end systems through a unique combination of integrated Ethernet, modem or serial gateways. As part of a complete enterprise energy management solution, the ION7550 RTU can be integrated with PowerLogic ION Enterprise software, or other SCADA, information and automation systems.

Applications
WAGES metering.
Data concentration through multi-port, multi-protocol communications.
Equipment status monitoring and control.
Programmable setpoints for out-of-limit triggers or alarm conditions.
Integrated utility metering with advanced programmable math functions.

Main characteristics
Increase efficiency
Reduce waste and optimise equipment operation to increase efficiency.

Easy to operate
Screen-based menu system to configure meter settings. Bright LCD display with adjustable contrast.

Integrate with software
Easily integrated with PowerLogic or other energy management enterprises, including SCADA systems.

Transducer and equipment condition monitoring
Versatile communications, extensive I/O points, clock synchronization, event logging and sequence of events recording capabilities for transducer and equipment condition and status monitoring at utility substations.

Set automatic alarms
Alarm setpoint learning feature for optimum threshold settings.

Up to 10 Mbytes of memory
For archiving of data and waveforms.

Notify alarms via email
High-priority alarms sent directly to the user’s PC. Instant notification of power quality events by email.

Modbus Master functionality
Aggregate and store data from downstream Modbus devices using serial or Ethernet connections.

Part numbers

| ION7550 RTU | ION7550 | M7550 |

See page 6 for order code explanations.
Communications

ION7550 RTU
Functions and characteristics (cont.)

Selection guide

<table>
<thead>
<tr>
<th>ION7550 RTU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data recording</strong></td>
</tr>
<tr>
<td>Min/max of instantaneous values</td>
</tr>
<tr>
<td>Data logs</td>
</tr>
<tr>
<td>Event logs</td>
</tr>
<tr>
<td>Trending</td>
</tr>
<tr>
<td>SER (Sequence of event recording)</td>
</tr>
<tr>
<td>Time stamping</td>
</tr>
<tr>
<td>GPS synchronisation (1 ms)</td>
</tr>
<tr>
<td>Memory (in Mbytes)</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td><strong>Display and I/O</strong></td>
</tr>
<tr>
<td>Front panel display</td>
</tr>
<tr>
<td>Pulse output</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Digital or analogue inputs (max)</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>Digital or analogue outputs (max, including pulse output)</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
</tr>
<tr>
<td>RS 485 port</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>RS 485 / RS 232 port</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Optical port</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Modbus TCP Master / Slave (Ethernet port)</td>
</tr>
<tr>
<td>/</td>
</tr>
<tr>
<td>Modbus RTU Master / Slave (Serial port)</td>
</tr>
<tr>
<td>/</td>
</tr>
<tr>
<td>Ethernet port (Modbus/TCP/IP protocol)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Ethernet gateway (EtherGate)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Alarms (optional automatic alarm setting)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Alarm notification via email (Meterm@il)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>HTML web page server (WebMeter)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Internal modem</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Modern gateway (ModemGate)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DNP 3.0 through serial, modem, and I/R ports</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

PowerLogic® ION7550 RTU.

1 I/O expansion card.
2 Digital inputs.
3 Analog inputs.
4 Analog outputs.
5 Communications card.
6 Power supply.
7 Form C digital outputs.
8 Digital inputs.
9 Form A digital outputs.
**ION7550 RTU**

**Functions and characteristics (cont.)**

### Electrical characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data update rate</strong></td>
<td>1/2 cycle or 1 second</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>AC 85-240 V AC ±10% (47-63 Hz)</td>
</tr>
<tr>
<td></td>
<td>DC 110-300 V DC ±10%</td>
</tr>
<tr>
<td><strong>DC low voltage (optional)</strong></td>
<td>20-60 V DC ±10%</td>
</tr>
<tr>
<td><strong>Ride-through time</strong></td>
<td>100 ms (6 cycles at 60 Hz) min. at 120 V DC</td>
</tr>
<tr>
<td><strong>Burden</strong></td>
<td>Standard: typical 15 VA, max 35 VA</td>
</tr>
<tr>
<td></td>
<td>Low voltage DC: typical 12 VA, max 18 VA</td>
</tr>
<tr>
<td><strong>Input/outputs</strong></td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>8 digital inputs (120 V DC)</td>
</tr>
<tr>
<td></td>
<td>3 relay outputs (250 V AC / 30 V DC)</td>
</tr>
<tr>
<td></td>
<td>4 digital outputs (solid state)</td>
</tr>
<tr>
<td><strong>Optional</strong></td>
<td>8 additional digital inputs</td>
</tr>
<tr>
<td></td>
<td>4 analog outputs, and/or 4 analog inputs</td>
</tr>
</tbody>
</table>

### Mechanical characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td>1.9 kg</td>
</tr>
<tr>
<td><strong>IP degree of protection</strong></td>
<td>IP52</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Standard model: 192 x 192 x 159 mm</td>
</tr>
<tr>
<td></td>
<td>TRAN model: 235.5 x 216.3 x 133.1 mm</td>
</tr>
</tbody>
</table>

### Environmental conditions

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating temperature</strong></td>
<td>Standard power supply: -20 to +70°C</td>
</tr>
<tr>
<td></td>
<td>Low voltage DC supply: -20 to +50°C</td>
</tr>
<tr>
<td></td>
<td>Display operating range: -20 to +70°C</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>Display, TRAN: -40 to +85°C</td>
</tr>
<tr>
<td><strong>Humidity rating</strong></td>
<td>5 to 95% non-condensing</td>
</tr>
<tr>
<td><strong>Installation category</strong></td>
<td>III (2000m above sea level)</td>
</tr>
<tr>
<td><strong>Dielectric withstand</strong></td>
<td>As per EN 61010-1, IEC 62051-22A(1)</td>
</tr>
</tbody>
</table>

### Electromagnetic compatibility

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrostatic discharge</strong></td>
<td>IEC 61000-4-2</td>
</tr>
<tr>
<td><strong>Immunity to radiated fields</strong></td>
<td>IEC 61000-4-3</td>
</tr>
<tr>
<td><strong>Immunity to fast transients</strong></td>
<td>IEC 61000-4-4</td>
</tr>
<tr>
<td><strong>Immunity to surges</strong></td>
<td>IEC 61000-4-5</td>
</tr>
<tr>
<td><strong>Conducted and radiated emissions</strong></td>
<td>CISPR 22</td>
</tr>
</tbody>
</table>

### Safety

<table>
<thead>
<tr>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>IEC 61010-1</td>
</tr>
</tbody>
</table>

(1) Consult the ION7550 / ION7550 installation guide for complete specifications.
(2) IEC 62051-22B with serial ports only.
### Communications

**ION7550 RTU**  
**Functions and characteristics (cont.)**

<table>
<thead>
<tr>
<th>Communication</th>
<th>RS 232/485 port (1)</th>
<th>Up to 115,200 bauds (57,600 bauds for RS 485), ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS 485 port (2)</td>
<td>Up to 115,200 bauds, ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master</td>
</tr>
<tr>
<td></td>
<td>Infrared port (3)</td>
<td>ANSI type 2, up to 19,200 bauds, ION, Modbus, DNP 3.0</td>
</tr>
<tr>
<td></td>
<td>Ethernet port</td>
<td>10BaseT, 100BaseTX, RJ45 connector, 10/100 m link</td>
</tr>
<tr>
<td></td>
<td>Fibre-optic Ethernet link</td>
<td>100Base FX, SC duplex connector, 1300 nm, FO multimode with gradient index 62.5/125 µm or 50/125 µm, 2000 m link</td>
</tr>
<tr>
<td></td>
<td>Protocol</td>
<td>ION, Modbus, Modbus Master, TCP/IP, DNP 3.0, Telnet</td>
</tr>
<tr>
<td></td>
<td>EtherGate</td>
<td>Communicates directly with up to 62 slave devices via available serial ports</td>
</tr>
<tr>
<td></td>
<td>ModemGate</td>
<td>Communicates directly with up to 31 slave devices</td>
</tr>
<tr>
<td></td>
<td>WebMeter</td>
<td>5 customisable pages, new page creation capabilities, HTML/XML compatible</td>
</tr>
</tbody>
</table>

**Firmware characteristics**

<table>
<thead>
<tr>
<th>High-speed data recording</th>
<th>Down to 5ms interval burst recording, stores detailed characteristics of disturbances or outages. Trigger recording by a user-defined setpoint, or from external equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load profiling</td>
<td>Channel assignments (800 channels via 50 data recorders) are configurable for any measurable parameter. Trigger recorders based on time interval, calendar schedule, alarm/event condition, or manually.</td>
</tr>
<tr>
<td>Trend curves</td>
<td>Access historical data at the front panel. Display, trend and continuously update historical data with date and timestamps for up to four parameters simultaneously.</td>
</tr>
<tr>
<td>Alarms</td>
<td>Threshold alarms: adjustable pickup and dropout setpoints and time delays, numerous activation levels possible for a given type of alarm user-defined priority levels boolean combination of alarms is possible using the operators NAND, OR, NOR and XOR</td>
</tr>
<tr>
<td>Advanced security</td>
<td>Up to 16 users with unique access rights. Perform resets, time syncs, or meter configurations based on user privileges</td>
</tr>
<tr>
<td>Memory</td>
<td>5 to 10 Mbytes (specified at time of order)</td>
</tr>
<tr>
<td>Firmware update</td>
<td>Update via the communication ports</td>
</tr>
</tbody>
</table>

**Display characteristics**

<table>
<thead>
<tr>
<th>Integrated display</th>
<th>Back lit LCD, configurable screens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Languages</td>
<td>English</td>
</tr>
</tbody>
</table>

(1) All the communication ports may be used simultaneously.
## ION7550 RTU
### Functions and characteristics (cont.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Model</td>
<td>7550</td>
<td>ION7550 device</td>
</tr>
<tr>
<td>2 Form Factor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A0</td>
<td>Integrated display with front optical port, 5 MB logging memory, and 512 samples/cycle resolution.</td>
</tr>
<tr>
<td></td>
<td>B0</td>
<td>Integrated display with front optical port, 10 MB logging memory, and 512 samples/cycle resolution.</td>
</tr>
<tr>
<td></td>
<td>T0</td>
<td>Transducer (no display) version, with 5 MB logging memory.</td>
</tr>
<tr>
<td></td>
<td>U0</td>
<td>Transducer (no display) version, with 10 MB logging memory.</td>
</tr>
<tr>
<td>3 RTU option</td>
<td>N9</td>
<td>RTU option</td>
</tr>
<tr>
<td>4 Power Supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Standard power supply (85-240 VAC, ±10%/47-63 Hz / 110-330 VDC, ±10%)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Low voltage DC power supply (20-60 VDC)</td>
</tr>
<tr>
<td>5 Internal use</td>
<td>9</td>
<td>This field for internal use only</td>
</tr>
<tr>
<td>6 Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A0</td>
<td>Standard communications (1 RS-232/RS-485 port, 1 RS-485 port). Integrated display models also include 1 ANSI Type 2 optical communications port.</td>
</tr>
<tr>
<td></td>
<td>C1</td>
<td>Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45), 56k universal internal modem (RJ-11). Ethernet, modem gateway functions each use a serial port.</td>
</tr>
<tr>
<td></td>
<td>D7</td>
<td>Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45) and 100BASE-FX Ethernet Fiber, 56k universal internal modem (RJ-11). Ethernet and modem gateway functions each use a serial communications port.</td>
</tr>
<tr>
<td></td>
<td>E0</td>
<td>Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45). Ethernet gateway function uses serial port.</td>
</tr>
<tr>
<td></td>
<td>F1</td>
<td>Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45) and 100BASE-FX Ethernet Fiber, 56k universal internal modem (RJ-11). Ethernet gateway uses a serial port.</td>
</tr>
<tr>
<td></td>
<td>M1</td>
<td>Standard communications plus 56k universal internal modem (RJ-11). Modem gateway uses serial communications port.</td>
</tr>
<tr>
<td>7 I/O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Standard I/O (8 digital inputs, 3 Form C relays, 4 Form A solid-state outputs)</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four 0 to 1 mA analog inputs)</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four 0 to 20 mA analog inputs)</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four -1 to 1 mA analog outputs)</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four 0 to 20 mA analog inputs)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four 0 to 20 mA analog inputs and four 0 to 20 mA outputs)</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>Standard I/O plus Expansion I/O card (8 additional digital inputs &amp; four 0 to 1 analog inputs and four -1 to 1 mA analog outputs)</td>
</tr>
<tr>
<td>8 Security</td>
<td>0</td>
<td>Password protected, no hardware lock</td>
</tr>
<tr>
<td>9 Special Order</td>
<td>A</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Tropicalisation treatment applied</td>
</tr>
</tbody>
</table>
Communications Card

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Comm card</td>
<td>P765C ION7550 RTU communication card for field retrofit installations</td>
</tr>
<tr>
<td>2</td>
<td>Type</td>
<td>A0 Standard communications (1 RS-232/RS-485 port, 1 RS-485 port). Front optical port support for meters with integrated display.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C1 Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45), 56k universal internal modem (RJ-11; the modem port is shared with the front optical port). Ethernet and modem gateway functions each use a serial communications port.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D7 Standard communications plus 10BASE-T/100BASE-TX Ethernet, 100BASE-FX Ethernet Fiber, 56k universal internal modem (RJ-11; the modem port is shared with the front optical port). Ethernet and modem gateway functions each use a serial communications port.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E0 Standard communications plus 10BASE-T/100BASE-TX Ethernet. Ethernet gateway function uses a serial communications port.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F1 Standard communications plus 10BASE-T/100BASE-TX Ethernet, 100BASE-FX Ethernet Fiber (SC fiber optic connection). Ethernet gateway function uses a serial communications port.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1 Standard communications plus 56k universal internal modem (RJ-11; the modem port is shared with the front optical port). Modem gateway function uses a serial communications port.</td>
</tr>
<tr>
<td>3</td>
<td>Special order</td>
<td>A None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C Tropicalization treatment applied</td>
</tr>
</tbody>
</table>

Example order code. Use this group of codes when ordering the PowerLogic ION7550 RTU communication or I/O card.

1 Communications or I/O card.
2 Type.
3 Special order.
## Communications

### ION7550 RTU

#### Functions and characteristics (cont.)

<table>
<thead>
<tr>
<th>Input/Output expansion card</th>
<th>Item</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/O card</td>
<td>P760A</td>
<td></td>
<td>Expansion I/O for field retrofit installations.</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>EXP</td>
<td>Expansion I/O card with eight digital inputs, four 0 to 1 mA analog inputs</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td>Expansion I/O card with eight digital inputs, four 0 to 20 mA analog inputs</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
<td>Expansion I/O card with eight digital inputs, four -1 to 1 mA analog outputs</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
<td>Expansion I/O card with eight digital inputs, four 0 to 20 mA analog outputs</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td>Expansion I/O card with eight digital inputs, four 0 to 20 mA analog inputs &amp; four 0 to 20 mA outputs</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td>Expansion I/O card with eight digital inputs, four 0 to 1 analog inputs and four -1 to 1 mA analog outputs</td>
</tr>
</tbody>
</table>

| Special Order               |      |      |             |
| A                           |      | None |             |
| C                           |      |      | Tropicalization treatment applied |

### OpenDAC rack, controllers, power supply

| 70LRCK16-48                  | OpenDAC rack. Holds up to 8 OpenLine modules to provide up to 16 I/O points. Requires communications controller |
| 72-MOD-4000                  | OpenDAC OpenDAC RS-485 serial module. Communications controller for use in a Modbus RTU network. Supports up to 2 70LRCK16-48 OpenDAC racks |
| 72-ETH-T000                  | OpenDAC Ethernet network module for use on an Modbus/TCP Ethernet network. Supports up to 2 OpenDAC racks |
| PS-240-15W                   | 85-264VAC/110-370VDC 15 Watt power supply. Required for applying power to the racks and controllers |

### OpenLine digital I/O modules

| 70L-IAC                      | digital input, 120VAC |
| 70L-IACA                     | digital input, 220VAC |
| 70L-IDC                      | digital input, 3-32VDC |
| 70L-IDCB                     | digital input, fast switching |
| 70L-IDCNP                    | digital input, 15-32VAC/10-32VDC |
| 70L-IDCSS                    | dry contact closure-sensing DC input |
| 70L-ISW                      | input test module |
| 70L-OAC                      | digital output, 120VAC |
| 70L-OACL                     | digital output, 120VAC inductive loads |
| 70L-OACA                     | digital output, 220VAC |
| 70L-OACAL                    | digital output, 220VAC inductive loads |
| 70L-ODC                      | digital output, 3-60VDC fast |
| 70L-ODCA                     | digital output, 4-200 VDC |
| 70L-ODCB                     | digital output, fast switching |
| 70L-ODCSR                    | digital output, dry contact |

### OpenLine analog I/O modules

| 73L-IIO20                    | analog input, current, 0-20mA |
| 73L-I420                     | analog input, current, 4-20mA |
| 73L-ITCJ                     | analog input, temperature, J-type TC |
| 73L-ITCK                     | analog input, temperature, K-type TC |
| 73L-ITCT                     | analog input, temperature, T-type TC |
| 73L-ITR100                   | analog input, temperature, RTD |
| 73L-ITR3100                  | analog input, temperature, 3wire RTD |
| 73L-ITR4100                  | analog input, temperature, 4wire RTD |
| 73L-IV10                     | analog input, voltage, 0-1VDC |
| 73L-IV10B                    | analog input, voltage, -10 to 10VDC |
| 73L-IV100M                   | analog input, voltage, 0-100VDC |
| 73L-IV5                      | analog input, voltage, 0-5VDC |
| 73L-IV5B                     | analog input, voltage, -5 to 5VDC |
| 73L-IV50M                    | analog input, voltage, 0-50mV |
| 73L-OI20                     | analog output, current, 0-20mA |
| 73L-OI420                    | analog output, current, 4-20mA |
| 73L-OV10                     | analog output, voltage, 0-10VDC |
| 73L-OV10B                    | analog output, voltage, -10 to 10VDC |
| 73L-OV5                      | analog output, voltage, 0-5VDC |
| 73L-OV5B                     | analog output, voltage, -5 to 5VDC |
Communications

**ION7550 RTU**

Installation and connection

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**ION7550 RTU dimensions**

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**Front-panel mounting**

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**Power supply**

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*Note:* the current and voltage terminal strip (I52, I51, I42, I41, I32, I31, I22, I21, I12, I11, V4, V3, V2, V1, Vref) is not present on the RTU.
**Communications**

**ION7550 RTU**

Installation and connection (cont.)

**Form C digital outputs: mechanical relays R1 - R3**

ION7550 RTU

![Diagram of Form C digital outputs](image1)

Note: Mechanical relays should always be protected by external fuses

**Form A digital outputs: solid state relays D1 - D4**

ION7550 RTU

![Diagram of Form A digital outputs](image2)

Note: D4 output is factory-configured to pulse once every 1.8 Wh for Class 20 meters, or once every 0.18 Wh for Class 2 meters (for calibration testing purposes).

**Digital inputs: S1 - S8**

Internal Excitation

ION7550 RTU

![Diagram of Digital inputs: S1 - S8 (internal)](image3)

Note: External Supply = 30 VDC max

External Excitation

ION7550 RTU

![Diagram of Digital inputs: S1 - S8 (external)](image4)

Note: External Supply = 130 VDC max

**Digital inputs: DI1 - DI8 (option)**

Internal Excitation

ION7550 RTU

![Diagram of Digital inputs: DI1 - DI8 (internal)](image5)

Note: External Supply = 30 VDC max

External Excitation

ION7550 RTU

![Diagram of Digital inputs: DI1 - DI8 (external)](image6)

Note: External Supply = 50 VDC max
Communications

ION7550 RTU
Installation and connection (cont.)

Analog inputs: Al1 to Al4 (option)

Note: do not connect the analog inputs of the I/O card to the analog outputs on the same I/O card.

Analog outputs: AO1 to AO4 (option)

Note: do not connect the analog inputs of the I/O card to the analog outputs on the same I/O card.