

POWER LINE CARRIER PRODUCTS

UPLC3 Universal Power Line Carrier



Third Generation Power Line Carrier for Protective Relay Applications

The UPLC3 is the next leap in the evolution of Power Line Carriers in the industry. It includes a completely reimagined transceiver board with a robust pluggable processor with significantly increased capacity for future feature expansions. We've specifically designed the UPLC3 with you in mind to be more user friendly with a completely redesigned web browser interface and front panel to access more TX and RX level information. Cybersecurity capabilities have been enhanced with the addition of HTTPS. The UPLC3 also has the ability to easily reset passwords to the default if the password is forgotten.

Ease of Use

We've added several features to enhance the ease of use. For DCB mode, there is now an RX auto calibration mode that turns on the remote TX for you, eliminating the need for a person to be on the opposite end of the line. This one-person auto-calibration is compatible with legacy UPLC-II's at the opposite end of the line. We have simplified the retrieval of the distant unit's settings report file via the power line utilizing the DCB mode.

For SOEs, the nuisance events that occur during a short burst of events have been greatly reduced while allowing for greater data capture with increased storage capacity. This additional data will be easier to analyze due to the events having keyword search ability.

To enhance user confidence, the recording of RX levels accuracy has been significantly increased for events. Additional ease of analysis is possible due to the TX reflected power being recorded along with the RX levels during checkback tests.

FEATURES AND BENEFITS

- 1 New, faster user friendly interface via web browser
- 2 Fully "over the line" compatible with all older AMETEK PLCs
- 3 Updated interface for cybersecurity with HTTPS
- 4 Pluggable processor for future flexibility
- 5 Simplified one-person RX auto-calibration
- 6 Improved SOE handling with more than double the events of previous models
- 7 More TX/RX information on front display, web page and report file
- 8 Substation automation ready with IEC61850 edition 2.1

Compatibility

Utilizing current infrastructure while adding new capabilities is important to AMETEK Power Instruments, that is why we have maintained end-to-end compatibility with all previous generation power line carrier sets. This enables you to have a UPLC-II, UPLC or TC/TCF-10B at the opposite end of the line, even for checkback testing. For easy upgrades and retrofitting, the UPLC3 is still housed in the same chassis as the UPLC-II. The physical design changes from the UPLC-II to UPLC3 include a new front door, transceiver board and front display board.

Example of the New and Improved Web Browser Interface

AMETEK POWER INSTRUMENTS **Universal Power Line Carrier** Mon, 09 Dec 2024 13:30:49 NO IRIG Company X ON-OFF DCB Standard Substation Y, Line X Logout

US1NFM9AF53 Home Settings Calibrate SOE Log Checkback DNP3 Admin Download super [Super User]

Home

Watts/Volts dBm

Status

| Transmitter (TX) | | Receiver (RX) | |
|--------------------|-------------|----------------|--------|
| TX Level | 40 dBm | RX Level | 39 dBm |
| TX Keyed State | Start Keyed | RX State | Block |
| TX Reflected Power | 2% | RX Fade Margin | 15 dB |

Alarms

- Healthy, - Fail/Alarm, - Module Not Present

| General Alarm | Power Supply | | Power Amp | | Checkback Test | |
|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| | Main | Redundant | Main | Redundant | Major Alarm | Minor Alarm |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

TX/RX Settings

| Transmitter (TX) | | Receiver (RX) | |
|--|---------------|----------------|------------|
| TX Frequency | 250.00 kHz | RX Frequency | 250.00 kHz |
| | | RX Bandwidth | 1200 Hz |
| TX Power Per Amp (LL Test / Carrier Start) | 30.0/40.0 dBm | RX Sensitivity | 11.2 dBm |
| TX Reflected Power Alarm | 15 % | RX Fade Alarm | 10 dB |
| | | RX Fade Margin | 15 dB |

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PROTOCOLS AVAILABLE

Allow remote communications and control of the UPLC3 through the use of either of two protocols. DNP3 is the workhorse of the RTU sector of the industry and allows binary and analog quantities to be remotely accessed. IEC61850 is the all inclusive protocol that allows high-speed interface over Ethernet-based local area networks for data transfer via a peer-to-peer communication network.

DNP3

With the use of DNP3 the user can eliminate alarm wiring by utilizing the RS232, RS485 or Ethernet communications for data retrieval via SCADA. Data includes TX/RX levels, percent reflected power, RX margin and I/O status.

IEC61850

The user can eliminate almost all copper wiring with the use of IEC61850. All inputs and outputs can be implemented with the use of the Generic Object Oriented Substation Event messages (GOOSE). Digital and Analog events are available at speeds consistent with protection functions.

UPLC3 Features and Specifications Compared to UPLC-II

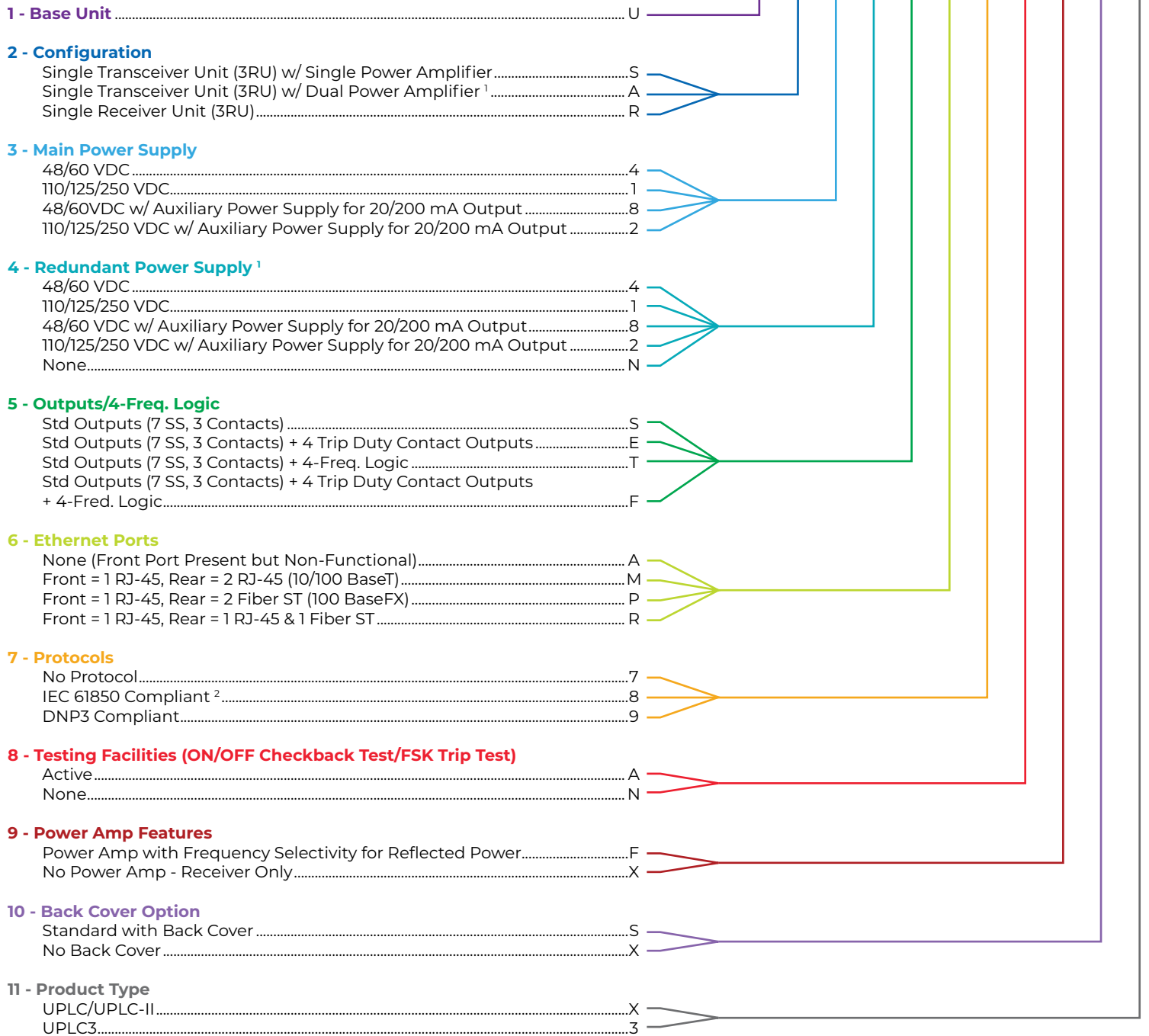
| Feature/Specification | UPLC-II | UPLC3 |
|--|--|---|
| Ability to have future features added | No ability | Processor speed & memory significantly increased to handle future feature expansion |
| Front display response time | Several seconds depending on actions | Near real-time updates of signal levels & status |
| Computer user interface response time via Ethernet | 1X | 10X faster for defined time-consuming tasks (setting changes, view SOEs, etc.) |
| User interface ease of use | User friendly | Enhanced for improved clarity & user experience |
| Applying settings | Red bar at top of screen shows some changes have been made | New review screen shows exact differences between old & new settings before submitting |
| Settings page | Each tab has a change settings button resulting in additional clicks when modifying settings in multiple tabs | One master SUBMIT button, which eliminates the need to click the "change settings" button on each tab when modifying multiple tabs |
| On-Off DCB mode - RX calibration | Requires each end of the line to be manned | After the distant end(s) of the line has been calibrated, the local RX auto calibration can be performed by one person & this also works when the other end responding is a UPLC/UPLC-II running 4.06 or later firmware |
| Internet protocol | HTTP only | HTTPS with the ability to add a HTTPS certificate or enable/disable HTTP |
| Responds to PING command | No | Selectable through front keypad SET button menu |
| Hardware password reset capability | Only with version 6.0x firmware release | Standard feature |
| IEC61850 option | Edition 1 only | Edition 1 or 2.1 compatibility |
| Information displayed on front panel | TX state information not available. Reflected power information is only in TEST button menu | View on main screen by pressing key #2 for TX state & reflected power, and key #1 for RX state & margin. Reorganized menus for TEST & SET buttons to simplify use |
| TX/RX levels, RX margin, TX reflected power | Limited information shown during menu-driven or auto tests | All values shown during menu-driven or auto tests |
| Checkback test - TX/RX level recording | Limited information shown during menu-driven or auto tests | Shows TX & RX level information on the web page & front display during test. This is also captured in the SOEs & Report files |
| SOEs | 4096 max-events | 10K max events with better resistance to repeated short-duration (1-2 msec) nuisance events & added search capability |
| On-Off mode feature - Obtaining distant end settings over the power line | Uses web page to see remote settings with multiple page/tab clicks to pull information for each one. Feature only available when facility is enabled in the catalog number | All the settings on the remote device are downloaded as a report file in a single click. This feature is available for all the UPLC3 catalog numbers |

ORDERING

Ordering Notes:

1. Dual Power Amps requires 2nd power supply
2. Must also select an ethernet option

Catalog Number Position: 1 2 3 4 5 6 7 8 9 10 11
Typical Catalog Number: U S 1 N E M 9 A F S 3



WORLD HEADQUARTERS
 255 North Union Street
 Rochester, NY 14605
 Toll Free: +1.800.950.6686
 Tel: +585.263.7700
 Fax: +585.454.7805

EUROPEAN HEADQUARTERS
 UK
 +44.770.280.9377
 power.sales@ametek.com

ASIA PACIFIC HEADQUARTERS
 Singapore
 +65.6484.2388
 sales@ametekasia.com

AMETEK INSTRUMENTS INDIA PVT. LTD.
 Bengaluru
 +91.80.6782.3252
 power.sales@ametek.com

WEBSITE
 www.ametekpower.com
EMAIL
 pi.marketing@ametek.com



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