



## TESLA 4000

### Firmware v2.0

#### Release Description

##### FEATURE ENHANCEMENTS

- Cyber Security enhancements:
  - Added Role Based Access Control (RBAC) for enhanced access management. Support is provided for up to 32 users.
  - Added configurable password complexity and change frequency rules.
  - Added configurable user account validity periods.
  - Added automatic disconnection from an IED if no activity detected for a programmable period of time.
  - Added audit trail for security events monitoring.
  - Modified FTP server to restrict access to specific folders according to assigned roles.
  - Disabled all unused open TCP ports.
  - Added resource locking of critical resources (settings, configurations, etc.) to prevent multiple users from overwriting the each other's changes.
- General enhancements:
  - Added support for IEEE C37.118.1-2011 (amended by IEEE C37.118.1a-2014) including the addition of P and M class filters.
  - Added support for IEEE C37.118.2:2011.
  - Increased the number of PMU Analog channels to 24.
  - Added frequency and THD support in PMU Analog.
  - Moved all maintenance features previously available via terminal port access (Telnet) to TESLA Control Panel with access from any communications port.
  - Added support for remote firmware update.
  - Increased the number of supported frequency triggers to 12.
  - Added support for an enhanced Time screen and settings to add auto and manual modes with more flexibility in connecting to different IRIG time modes. Added support for B000 and B001 modes.
  - Added support for adding a Force Hardware Reset button to the Identification screen.

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[support@erlphase.com](mailto:support@erlphase.com)

+1 (204) 477-0591 Option 1

[www.erlphase.com](http://www.erlphase.com)



## CORRECTIONS TO ISSUES

- **Major:** Fixed issue with receiving time when connected to IRIG sources generating modes without year information (B002, B003).
- **Major:** Forced each PMU dataframe to be sent as a separate message instead of packing multiple dataframes into a single message.
- **Major:** Fixed issue where the delay of a logic function is greater than the setting when it depends on the output of a 2<sup>nd</sup> logic function.
- **Minor:** Fixed issue where a PMU configuration change is not reported to the PDC when the rate of data transmission changes.
- **Minor:** Fixed issue where time is displayed incorrectly under some circumstances after manually setting it through TESLA Control Panel without an external time source connected.
- **Minor:** Fixed issue where time is displayed incorrectly when set to SNTP time source and a setting change is made to the Time screen. Time is displayed incorrectly until the unit is power cycled.

## COMPATIBILITY

|                                      |                |
|--------------------------------------|----------------|
| TESLA Control Panel Software:        | v3.0 and above |
| RecordBase Central Station Software: | v4.0 and above |
| Record Base View Software:           | v4.2 and above |
| RecordGraph Software:                | v5.2 and above |
| ERL 61850 Configurator:              | v2.1 and above |
| ICD File Version:                    | v3.0 Rev 1     |

Minor releases, designated with a revision or letter (e.g. v3.4 Rev 1 or v3.4a), maintain the same compatibility as their base version (e.g. v3.4 Rev 0 or v3.4).

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## REVISION HISTORY

### v1.9a – 2017-08-29

- **Major** – Correct issue where continuous disturbance recording (CDR) stopped a fixed period of time after being started. The worst case is 168 days after starting with the maximum number of channels monitored at the maximum rate.
- **Minor** – Corrected issue where the delay module in a logic function will assert/de-assert 1/2 cycle earlier than expected in some conditions.
- **Minor** – Corrected issue with a logic function asserting/de-asserting 1/2 cycle later than expected when it uses another logic function as an input.

### v1.9 – 2016-12-18

- **Enhancement:** Add support for leap second.
- **Minor** – correct issue where trend view shows negative value on harmonic and THD views under certain conditions.

### v1.8a - 2015-09-28

- **Major** –The DNP3 Binary Input (Object Group 1, 2) states all changed to default after a unit power cycle or reboot.

### v1.8 - 2015-09-15

- **Enhancement:** Change minimum harmonic threshold from 3% to 1% to allow triggering and recording below 3%.
- **Enhancement:** Increase the high speed recording pre-fault maximum setting to 8 seconds.
- **Enhancement:** Add an alarm output trigger for time sync loss.
- **Enhancement:** Add an alarm output trigger for IEC 61850 communication failure.
- **Enhancement:** Add IEEE C37.118-2011 compatibility on the IRIG input.
- **Enhancement:** Add support for the model 401025 AC Current Input Module (CE compliant model to be released soon).
- **Enhancement:** Add support for the model 401026 AC Voltage Input Module (CE compliant model to be released soon).
- **Major** -Corrected issue with date not incrementing correctly on some units when no IRIG or SNTP reference is available.
- **Major**-Corrected issue with PMU inconsistently rounding fractions of a second.
- **Minor** - Corrected issue with Sequence of Events reporting conditionally suspended for masters 2 and 3 in multiple DNP3 master applications.
- **Minor** - Improve system diagnostic file retrieval via network ports.

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## CLASSIFICATION OF CHANGES MADE

The issues fixed in software / firmware upgrades are classified as defined below. While it is always the user's decision to upgrade installed products, these classifications provide a guideline for the need and priority of the upgrade.

**Critical:** Critical changes fix issues/problems that prevent the basic operation of the device and have no workaround. Critical changes merit a product upgrade as soon as possible, if that function is being used under the conditions causing the issue

**Major:** Major changes fix problems that prevent the basic operation of the device but do have a workaround. Any major changes merit a product upgrade as soon as possible if the function is being used under the conditions causing the issue and a workaround is not acceptable.

**Minor:** Minor changes fix non vital issues that do not prevent the basic operation of the device and may or may not have a workaround. Product upgrades for such changes are not necessary unless they apply to and are needed by the user.

**Feature Enhancement:** Feature enhancements add a capability or extend existing capabilities of the product. Upgrades for such changes need be made only if and when that feature enhancement is desired.

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