Guideform Specification

Reason RT431 GPS Precision-Time clock

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Reason RT431 is a compact GPS-based clock designed to be installed on a DIN rail, allowing the equipment to be installed in locations with limited space and reduced panels.

Functional Specifications

GPS Satellite Systems as Time Input

When installed in a fixed position, the clock shall be capable of been in “locked” state even when receiving signals from a single satellite

Interfaces Outputs for Time Synchronization

The device shall have at least two TTL electrical outputs, which can be configured to IRIG-B004, DCF77 PPS or PPM, with a mean accuracy of ±100 ns.

One serial port RS232 shall be available for time synchronization using datagrams.

The device shall have at least one transistorized (open-collector) outputs to provide a voltage-free signal for time synchronization. Signal may be configurable as PPS, IRIG-B004 or PPM.

Ethernet Protocols for Time Synchronization

The device shall support the IEEE 1588v2 PTP protocol, with better than 100 ns accuracy, including both PTP profiles:

- PTP Power Profile, in accordance with IEEE C37.238:2017 standard;
- PTP Profile for Power Utility Automation, in accordance with IEC 61850-9-:2016 standard;
- PTP Power Profile, in accordance with IEEE C37.238:2011 standard;

The device shall act as NTP/SNTP Time Server (v2, v3 and v4)

PTP and NTP/SNTP must be available simultaneously through the Ethernet port

Communication Specifications

The device shall comprise one Ethernet port 10/100BASE-T for communication.

Simple Network Management Protocol (SNMP) v1, v2c and v3 shall be provided to manage the device in an IP network.

Internal Oscillator (holdover) Requirements

In cases where the clock loses the satellites signals, the device shall have a holdover lower than 0.1 ppm.

General Requirements

Design

The device shall be designed to be mounted in a standard DIN-rail.

Remote Access

The equipment shall be accessible remotely, via a Web Interface, for monitoring and configuration of the clock.

Power Supply Specification

The device shall have a 100-240Vac / 110-250Vdc full range power supply, or;

The device shall have a 24-48 Vdc low voltage power supply.

Environmental Conditions

Ambient Temperature Range

Operating temperature range: -40°C to +55°C (or -40°F to +131°F)

Tested as per IEC 60068-2-1: -40°C operation (16 hours)

Tested as per IEC 60068-2-2: +85°C operation (16 hours)

Relative Humidity

From to 5 to 95%, non-condensing.

Standards Compliance / Type Tests

EMC Compliance

As minimum, the equipment shall use the IEC 60255-26 standard to establish EMC conformity.

Product Safety

As minimum, the equipment shall use the IEC 61010-1 standard to ensure product safety.

The device shall meet the IEC 60255-5, ensuring insulation resistance greater than 100MΩ when applying 500 Vdc.

Mechanical Robustness

The device shall comply with vibration, shock and seismic tests as described in IEC 60255-21 standard.

EU Directives

A declaration of conformity shall evidence compliance with EU directives, and the device shall display a

CE mark.