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FDM511: Frequency Deviation Monitor for 50/60Hz power line networks

The module FDM511 was designed to calculate and monitor the frequency and its deviation in 50/60Hz power line networks.

Important Note

This product is no longer available and may have been replaced by a newer product. We will, of course, continue to provide support for units that have already been purchased and are still in use. Please contact our [1]Sales Department for further details.

This product has been discontinued and has been replaced with: [2]

Key Features

- Monitoring of Mains Frequency
- Pre-connected GPS, GLN or PZF Receiver as Reference
- 2 analog outputs (time deviation and/or frequency deviation)
- 5mm LED Display (optional)
- Serial RS232 Interface
- Calculation of Time based on the Local Frequency

Description

A preconnected reference is necessary that provides a high accuracy 10MHz clock, a serial time string and a PPS (pulse per second). The accuracy of the measurements is derived from these signals.

The module calculates the frequency as well as the time, based on the mains frequency. The time deviation (TD) is the difference of this calculated time (PLT) to the reference time (REF). This time deviation as well as the frequency itself is sent out via serial interface or is beeing converted to an analog voltage output provided by a DAC.

The board is equipped with a flash memory and a bootstrap loader which allows to update the systems firmware via serial port.

Please note: the shown variant of the FDM511 is equipped with an optional LED display, the standard version of the FDM511 comes without this display!

Characteristics

Display	8-digit alphanumeric dot matrix display, digit size 5 mm
Input signal	10MHz, serial time string (via COM1), PPS mains frequency, 70 - 270VAC, 50Hz or 60Hz
Interface	Two asynchronous serial RS232 ports, COM0 and COM1 Baudrate: 600, 1200, 2400, 4800, 9600, 19200 Baud Framing: 7N2, 7E1, 7E2, 8N1, 8N2, 8E1, 7O2, 8O1 output and average: once per second Output string: The frequency, frequency deviation, reference time, power line time and the time deviation are send out in one of three available formats. The formats are: STANDARD FDM String: **F:49.984 FD:-00.016 REF:15:03:30 PLT:15:03:30.368 TD:+00.368[CR][LF]** SHORT FDM String: **FD:-00.016 TD:+00.368[CR][LF]** AREVA FDM String: **[STX]** **02049.984[CR][LF]** **021-00.016[CR][LF]** **022+00.378[CR][LF]** **02315 03 30.368[CR][LF]** **024068 15 03 30 [CR][LF]** **[ETX]**
Resolution of Measurement	frequency: accuracy of reference (10MHz) ±1mHz time deviation: accuracy of reference (PPS) ±1ms
Analog outputs	2 analog outputs for longtime-recording (time deviation and/or frequency deviation), range: -2.5V ... +2.5V, resolution: 16Bit

Dimensions of the front panel	without display: 8HP/3U (40mm x 128mm) with display: 12HP/3U (60mm x 128mm)
Electrical Connectors	rear VG edge connector, mixed F/H, DIN 41612, Type F: 24 pin, type H: 7 pin optional mains socket in the front panel
Operating Voltage	+5 V DC
Current Draw	180 mA
Board type	Eurocard
Board Dimensions	160 mm x 100 mm, 1,5 mm Epoxy
Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
Supported Humidity	Max. 85 % (non-condensing) at 40 °C
Warranty	Three-year warranty
Options	Eight character, 5mm height, dot matrix LED display for showing the measurements and configuration 10/100 BaseT Ethernet connection (RJ45) for measurement monitoring via the network power line input via mains socket in the front panel external large display for showing the measurements of a FDM511: [3] DU35K/FDM
RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

Manual

The English manual is available as a PDF file: [4]Download (PDF)

Links:

[1] mailto:sales@meinberg.de
[2] https://www.meinbergglobal.com/english/products/fdm180m.htm
[3] https://www.meinbergglobal.com/english/products/du35k.htm
[4] https://www.meinbergglobal.com/download/docs/manuals/english/fdm511.pdf