

PR012018

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New Beckhoff EL3783 power monitoring oversampling terminal for high-resolution diagnostics of alternating voltages up to 690 V AC

High-precision grid analysis within the EtherCAT Terminal system

Conventional automation and power measurement technology are increasingly converging. With the integration of the new Beckhoff EL3783 oversampling terminal for power monitoring into standard control systems, high-precision grid analysis becomes available for power-generating systems. Most importantly, 3-phase AC voltage systems up to 690 V can be analysed simultaneously on six channels and with 20 ksamples/s directly in the PLC.

For each of the three phases, the EL3783 EtherCAT Terminal from Beckhoff samples voltages up to 400/690 V_{rms} and currents up to 1 or 5 A_{rms} as instantaneous values with 16 bit resolution. The six terminal channels are evaluated simultaneously based on the EtherCAT oversampling principle, with a temporal resolution of 50 µs, i.e. significantly faster than the cycle time of the controller. Using the EtherCAT distributed clocks functionality, it is also possible to measure synchronously (<< 1 µs) with other EtherCAT devices in systems of virtually any size and precisely detect propagating grid faults, for example.

Extensive data with relevant details are available in the control system if true RMS and performance calculations or complex user-specific algorithms are used to analyse the voltage and current curves, for instance. In addition, the EL3783 EtherCAT Terminal achieves 650 % of the nominal 1-ampere measuring range through automatic

Beckhoff Automation GmbH & Co. KG
Huelshorstweg 20
33415 Verl, Germany
Phone: +49 5246 963-0
Fax: +49 5246 963-198
E-Mail: info@beckhoff.com
www.beckhoff.com

Press contact
Martina Fallmann
Jana Hägerich
Phone: +49 5246 963-140
Fax: +49 5246 963-199
E-Mail: press@beckhoff.com
www.beckhoff.com/press

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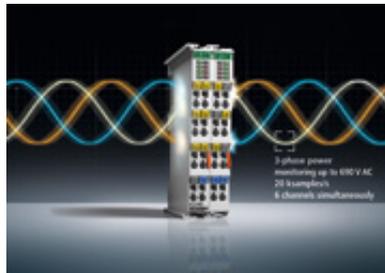
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current range switching, offering high accuracy with a maximum measurement error of only 0.2 % (of the full scale value).

In conjunction with TF3650, the TwinCAT 3 Power Monitoring library, the EL3783 Terminal represents a highly dynamic measurement system for detailed network analysis that is seamlessly integrated into standard PC-based control technology. In this way, requirements for network supporting measures in the event of voltage drops (LVRT, Low Voltage Ride Through) can be identified, for example, or harmonics analysis can be used to implement condition monitoring without additional costs for acceleration sensors.

➔ www.beckhoff.com/el3783

Press picture:



Picture caption:

The EL3783 power monitoring oversampling terminal from Beckhoff provides detailed current and voltage values for 3-phase power grids up to 690 V AC, while meeting demanding requirements in wind turbine applications.

Text and picture:

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Jana Hägerich
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Fax: +49 5246 963-199
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www.beckhoff.com/press