the iReact solution

iReact-EXT-1

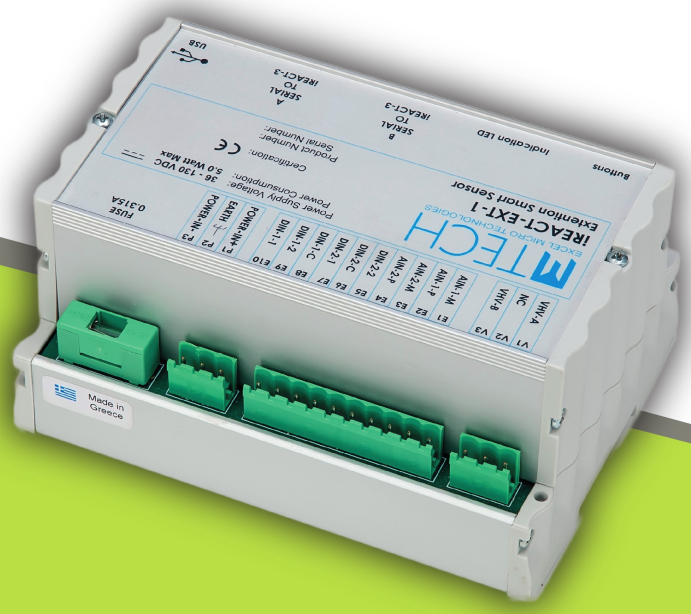
Smart-Sensor for extended measurements

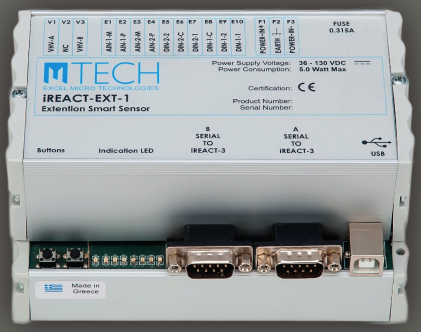
EMTECH
SMART GRIDS

The iReact-EXT-1 unit is a smart sensor, providing extension of analog and digital measurements of the iReact-3 automation controllers. The iReact-EXT-1 provides an analog input suitable for interfacing the voltage measurement coil of the primary high-voltage of the substation's transformer, as well as the frequency of the power network. In addition, it measures the substation's battery. It provides two independent 4...20mA analog inputs, as well as four (4) digital inputs, both useful for interfacing extra signals and substation's systems. The sensor is able to digitally configure and independently calibrate all analog inputs, using a host computer interfaced via USB. The iReact-EXT-1 has built-in power supply, supporting 36-115VDC power input.

Operations & Features

- Measurement of primary high voltage in substation's transformer
- Measurement of power network frequency
- Measurement of substation's battery
- 2 x 4...20mA independent analog inputs for general purpose measurements
- 4 digital inputs for general purpose
- Direct interfacing with the iReact-3 automation controllers
- 8 led indications
- Independent configuration and calibration of the analog inputs using a host computer
- Web Server for easy access to parameter setup
- Several communication protocols (Modbus, FIWARE, etc.) for transmission of acquired measurements
- Supports firmware upgrades





Extent iReact capabilities
by supporting measurement
of extra critical quantities
in your substation's systems

The iReact-3 automation controller uses the iReact-EXT-1 measurements for enabling monitoring of extra quantities and substation's systems. For instance, knowledge of the voltage of both the primary (acquired by iReact-EXT-1) and secondary (acquired by iReact-3) part of the substation's transformer is very useful for performing accurate simulations and estimations of the transformer's operational conditions. In addition, knowledge of the substation battery voltage could be critical in cases of battery charging system malfunction thus preventing total failure of substation's electronic equipment.

www.ireact.gr

*Specifications**

Analog Input 1

Input Signal Range	80-130VAC Transformer's Primary High Voltage
Sampling Frequency	max 100 sample/sec
Accuracy	10-bit (16-bit software processing)
Error	0.1 % Full Scale
Linearity	< 0.01 % Full Scale
Isolation	Optical Isolation
Configurable	Yes

Analog Input 2

Number	2
Input Signal Range	4-20mA
Load Impedance	approx. 135Ω at 10mA, 270Ω at 20mA
Sampling Frequency	max 100 sample/sec
Accuracy	10-bit (16-bit software processing)
Error	0.1 % Full Scale
Linearity	< 0.01 % Full Scale
Isolation	Optical Isolation
Configurable	Yes

Digital Inputs

Number	4
Range	23VDC – 140VDC
Dielectric Insulation	2.5kV peak at 50Hz
Isolation	Optical Isolation

Communication Interfaces

USB	Laptop/PC Interface
RS-232	Serial port
Ethernet	RJ45 Web Server for parameters setup FIWARE protocol Modbus/ModbusTCP (optional)

Power Supply

Input Voltage Range	36VDC – 120VDC or 9VDC-40VDC (optional)
I/O isolation voltage	3000VACrms
Leakage current	2μA (at 240VAC, 60 Hz)
Isolation capacity	7pF typ. (at 100kHz, 1V)
Isolation resistance	>1000MOhm (at 500VDC)
External Fuse	0.3125 A Slow Blow Type

User Interface

LED	8
Button	2

Operating Conditions

Temperature	-20°C to 70°C
Relative Humidity	5 to 90%, non-condensing

Housing

Mounting	DIN Rail
Material	Polystyrene
Color	Light Grey
Protection	IP 50
Connections	Removable Screw Type Terminals
Dimensions	175 x 105 x 75 mm
Weight	<1.0Kgr

Approvals

Safety	EN 61010-1
EMC	EN 61326
Impulse Voltage	IEC 60255-5 (5kV crest, 1.2/50μs, 0.5J)
High Frequency	IEC 60255-22-1 (2.5kV, 1MHz)
EFT	EN 61000-4-4, IEC 60255-22-4 (2kV, 5/50ns, 5KHz)
Power Frequency Voltage	2kVrms, 50Hz
ESD	8kV contact discharge, 15kV air Discharge
Mechanical Vibration	IEC 60255-21-1,60068-2-6

* Version 1610. Specifications are subject to change without prior notice

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