iReact-TAP-3

Resistance potentiometer converter & Digital Encoder

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SMART GRIDS

The iReact-TAP-3 unit is a smart sensor, providing position information of the substation's transformer On-Load Tap Changer (OLTC). It is suitable for direct interconnection with the iReact automation controllers. The iReact-TAP-3 provides a pot-position transducer that converts input potentiometer position to 4...20mA analog output signals. In addition, the device provides 20 digital outputs that indicate the current position of the OLTC. The sensor is able to digitally configure and independently calibrate the two analog outputs, using a host computer interfaced via USB. The iReact-TAP-3 has built-in power supply, supporting 36-115VDC power input.

Operations & Features

R Potentiometer input for receiving encoded OLTC position and converted to two 4...20mA analog output signals. Select 1 of 20 digital outputs indicating current TAP position

2 x 4...20mA independent outputs

20 digital outputs to indicate the current OLTC position

Logging of OLTC transitions number
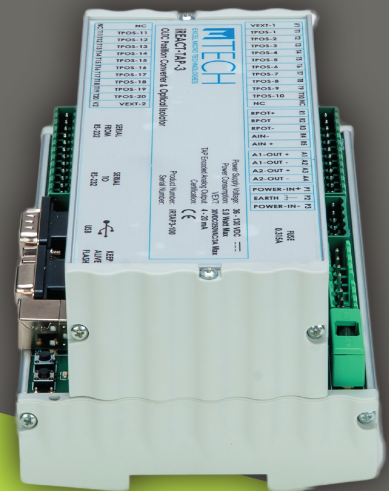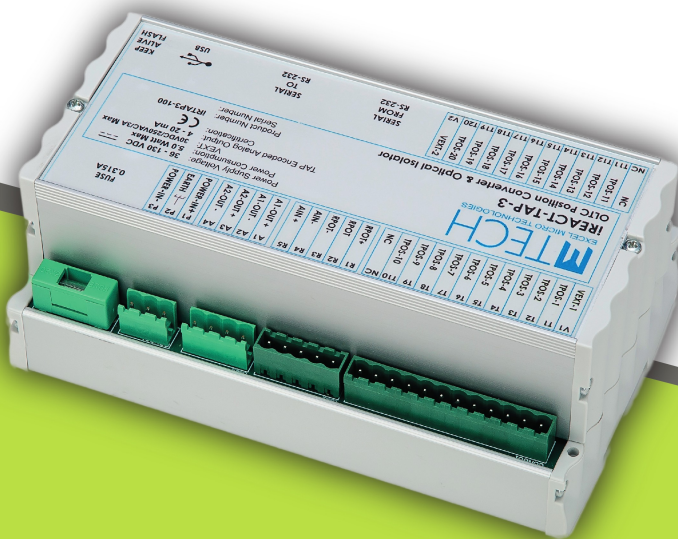
Fault detection of OLTC operations

Direct interfacing with the iReact-3 automation controllers

Independent configuration and calibration of the analog outputs 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

Improve the quality of your power product & maintain your transformer's OLTC efficiently

The iReact-3 automation controller uses the OLTC position information to intervene in the control of the OLTC by decreasing the position and reducing transformer's voltage; thus preventing over-voltage occurrences. Knowledge of the OLTC's transitions is an additional benefit, as it is essential for efficient maintenance.

*Specifications**

Analog Output

Number	2 (independent)
Current Output Signal Range	4-20mA
Max Current Output	24mA
Non Load Voltage	25V
Output Power	1Watt
DA Conversion Frequency	10 samples/sec
Accuracy	8-bit
Error	0.1 % Full Scale
Linearity	< 0.01 % Full Scale
Ripple	< 20mV (at 250Ω)
Isolation	Optical Isolation
Configurable	Yes

Control Outputs

Number	20
Type	Relay Contacts
Contact Rating	30VDC, 250VAC, 3A
Cycles	100 000
Insulation Coil-Contact	4000Vrms
Insulation Open Contact Cir	750Vrms
Approval	EN61810-1
Insulation	IEC 60664-1

Analog Input

Input Signal Range	Potentiometer (100Ω…100kΩ)
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

Communication Interfaces

USB	Laptop/PC Interface
Ethernet	RJ45
	Web Server for parameters setup
	FIWARE protocol
	Modbus/ModbusTCP

Power Supply

Input Voltage Range	36VDC – 120VDC or 9VDC-40VDC (optional)
I/O isolation voltage	4000VACrms
Leakage current	2µA (at 240VAC, 60Hz)
Isolation capacity	7pF typ. (at 100kHz, 1V)
Isolation resistance	>1000MOhm (at 500VDC)
External Fuse	0.3125A Slow Blow Type

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

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