EDGE TECHNOLOGIES LTD

EDGE EHS SENSORS

High Speed Comms for a long life ESP

SURFACE PANEL

info@EdgeTechnologiesltd.com

EDGE SURFACE READOUT PANEL

The Edge digital surface panel communicates with the downhole sensor through a High Speed communications on power signal (over the ESP power cable) and makes data available to operators via a coloured touch screen and through various communication methods to SCADA systems. The flexible design of the panel allows it to be mounted inside or outside the VSD or switchboard.

The advanced digital panel as shown on the photograph below has a versatile hardware and software design that enables the panel to act as a standard display unit with the functionality to protect the ESP with the alarm and trips, send data to established SCADA system etc. It can also act as a well-site bi-directional data control hub that can perform as a data transmission system if required (optional).

It is designed to communicate with all types of Edge downhole gauges, and equipped with a touchscreen arrangement for the operator to navigate through the short list of menus to setup the panel as per the application.

EDGE SURFACE READOUT PANEL

Technical specifications

Power Requirements	Details
Input Power requirement	110Vac/240Vac (3A Max)
Frequency	50-60Hz +/-10%
Output Voltage to sensor	Up to 150Vdc
Output current to sensor	Up to 150mA
Fuse Rating	5 amp
Construction	
Material	Aluminium
Dimensions	356mm x 305mm x 152mm
Display Screen	LCD touch screen
Location	Installed next to VSD or Switchboard
Temperature Rating	65C continual use
Engineer's port	External engineers' port to access the panel
Number of cable entries	5 Max (Power, Signal, Alarm/Trip, 2XSCADA)
Communications	
Data up time	ALL parameters every 10 seconds
Alarms and Trips signal	2 alarms & trip relays 250Vac/dc. Providing ESP Protection
Communication protocols	TCP/IP, Modbus, FTP and Edge technologies 1
Data transmission	IEEE 802.3 Access, - Ethernet
	IEEE 802.15 Access, - Bluetooth
	IEEE 802.11 Access, - WiFi
Modbus	RS232/RS485 isolated
Modbus Baud Rate	600 – 115200
Data Transfer to SCADA	Designed to seamless interface with SCADA systems
Configurable Serial IOs	which can be configured to RS, SPI, SDI, SDH, I^2C, TTL, CAN.
Data Output	Serial (including USB), TCP/IP (including LW & WiFi) and Bluetooth
Data Storage	32GB allocated data storage memory on PCB
USB	2GB, 4GB up to 256GB
Options	
Analogues inputs/outputs	2 inputs/ 2 outputs
Wireless Radio	Frequency ISM band, 2.4GHz, up to 16 channels and 2 networks.
Multiple GPIO's (General Purpose Input Output)	configurable (but not limited) to any of the above e.g. could be configured for Analog IO Antenna's, Fibre Optics, GSM, Satellite, etc

Environment

High ambient temperature and dust environments were taken into consideration during the design of the surface panel and card. The operating temperature range in high dust environment is -20 C to 65C. The optional panel surface enclosure is rated to IP65 standards.

EDGE SURFACE READOUT PANEL

Technical specifications

The Edge digital surface unit provides several forms of data communications the most commonly used is RS232 or RS 485 modbus RTU to transmit data to the SCADA system. The table below highlights the Edge default modbus map with the chosen registers to transfer the data. The map is fully configurable with a simple drag and drop process to setup inputs and outputs to alternative registers to meet other data gathering system requirements.

MODBUS Map

Description	Modbus Address	Data Type	Units and Scaling
Pump Intake Pressure (Bar)	40001	Signed Integer	Bar * 10
Pump Discharge Pressure (Bar)	40002	Signed Integer	Bar * 10
Intake Temperature (C)	40003	Signed Integer	Degrees C * 10
ESP Motor Temperature (C)	40004	Signed Integer	Degrees C * 10
Vibration X (g)	40005	Signed Integer	g* 1000
Vibration Z (g)	40006	Signed Integer	g * 1000
Sensor Current (mA)	40007	Signed Integer	mA * 10
Sensor Voltage (V)	40008	Signed Integer	Volts * 10
Pump Intake Pressure (psi)	40009	Signed Integer	Psi * 10
Pump Discharge Pressure (psi)	40010	Signed Integer	Psi * 10
Intake Temperature (F)	40011	Signed Integer	Degrees F * 10
ESP Motor Temperature (F)	40012	Signed Integer	Degrees F * 10
Wye Point Voltage	40013	Signed Integer	V * 10
Insulation	40014	Signed Integer	mA * 10
Analogue Input 1	40021	Signed Integer	Units *10
Analogue Input 2	40022	Signed Integer	Units *10
Analogue Input 3	40023	Signed Integer	Units *10
Analogue output 1	40024	Signed Integer	Units *10
Analogue output 2	40025	Signed Integer	Units *10
Analogue output 3	40026	Signed Integer	Units *10

EDGE
TECHNOLOGIES LTD

info@EdgeTechnologiesltd.com