

Open hole Cased hole

# Continuous Monitoring System of Geophysical and Technological Parameters of Well Operation-ESP Installed

## SCOPE OF APPLICATION

Oil wells with deviation of up to 25°, flow rate of 30-40 m<sup>3</sup> per day

## CONNECTION AS PER THE PATTERN:

1) Plast-85-ETsN gauges (one to three) connected to each other by a submersible telemetry unit with a three-core logging cable. Each gauge measures temperature, pressure, flow rate of well fluid over perforation interval(s).



2) Submersible Telemetry Unit (TMS2-V-D-400-103-T-M2) - measures external pressure, external temperature and the temperature of windings of electrical submersible motor (ESP overheating monitoring), insulation resistance of ESP power cable (ESP current leakage), ESP vibration level; provides power and data acquisition from Plast-85-ETsN gauges, transfers ready data package through ESP power cable to surface.



3) ESP pump (installed by the Client) - midpoint output to the bottom of the submersible electrical motor. Based on the technical characteristics of the electrical motor, it is possible to produce its own bearing support for subsequent connection with submersible telemetry.



4) The ESP switchboard is selected by the Client. The switchboard is equipped with TMSN (surface telemetry unit) which is, in turn, connected to the control panel of the switchboard and provides control of ESP operation. The Arlan system is compatible with the switchboards of all leading domestic manufacturers, supports the transfer v1 protocol.



5) Recording unit RGS-102. Data storage in the internal memory (up to 1 year with a recording period of 1 month), display and transfer of data via GPRS/3G. Availability of backup power supply.



## ADVANTAGES

- Real-time measurement of temperature and formation pressure in the bottomhole, percentage calculations of each process facility contribution to the well flow rate;
- Evaluation of porosity&permeability properties of formation while well operating in at least three steady-state modes (availability of software for data processing)
- Monitoring of ESP technical condition (vibration and resistance of ESP power cable, temperature and pressure of oil in ESP motor, temperature and pressure at pump intake).

## SPECIFICATIONS

	TMS2-V-D-400 Telemetry (Downhole section)	Plast-85-ETsN Logging system
Measurement range/ accuracy/ pressure sensors resolution	0–40,53 MPa / 0,5% / 1 kPa	0–40 MPa / 0,2% / 1 kPa
Measurement range/ accuracy/ temperature sensors resolution of borehole fluid	0–150 °C / 1,5 °C (relative) / 0,1 °C	0–120 °C / 1,5 °C (absolute) / 0,003 °C
Measurement range/ relative accuracy/ temperature sensors resolution of electrical motor windings	0–200 °C / 1,5 °C / 0,1°C	No
Measurement range/ accuracy/ insulation tester resolution of ESP power cable	10–9999 KOhm / 10% / 1 KOhm	No
Measurement range/ accuracy/ resolution of vibration acceleration sensor	10–30 m/sec <sup>2</sup> / 5% / 1 m/sec <sup>2</sup>	No
Measurement range/ basic accuracy of flow meter	No	1,5–100 m <sup>3</sup> /hour / 4%
Measurement range of water content	No	0–100 standard units
Temperature, °C	150	120
Pressure, MPa	40	40
ESP pump diameter		
Tool length, mm	1320	2084
Tool diameter, mm	117	85
Tool weight, kg	8	7