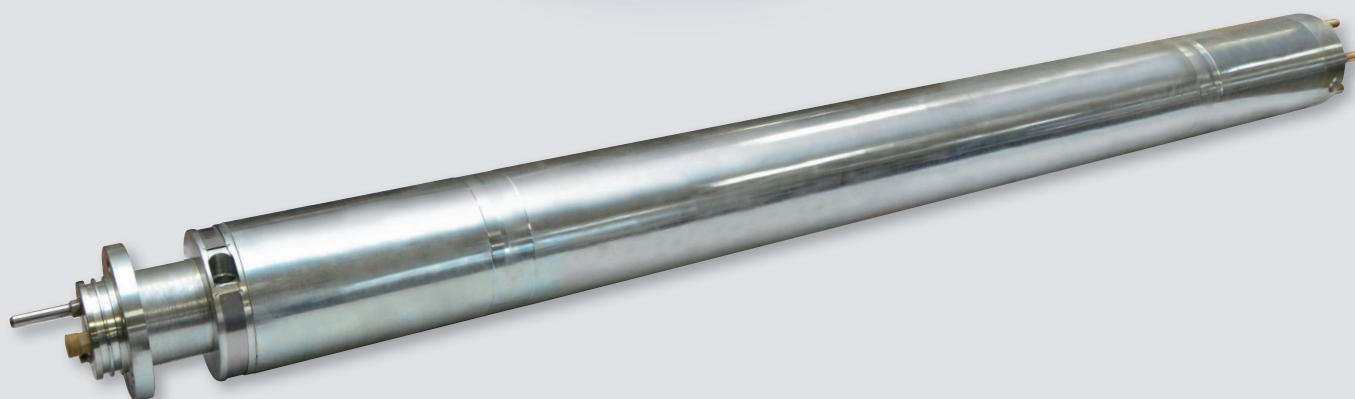


SHORT CIRCUIT RESILIENT (SCR)

DOWNHOLE MONITORING SYSTEM



- Keeps transmitting operation parameters of downhole equipment even when short circuit occurs
- Able to operate without step-up-transformer
- Locates fault and determines its type enabling operators to make reliable data-based decisions



SCR DOWNHOLE MONITORING SYSTEM that permits to transmit data under short circuit is Russia first system maintaining operation and data transmission if motor cable is damaged, ensuring monitoring of all main ESP parameters. Besides, the system is able to locate and determine fault type providing operator with sufficient time to plan overhaul

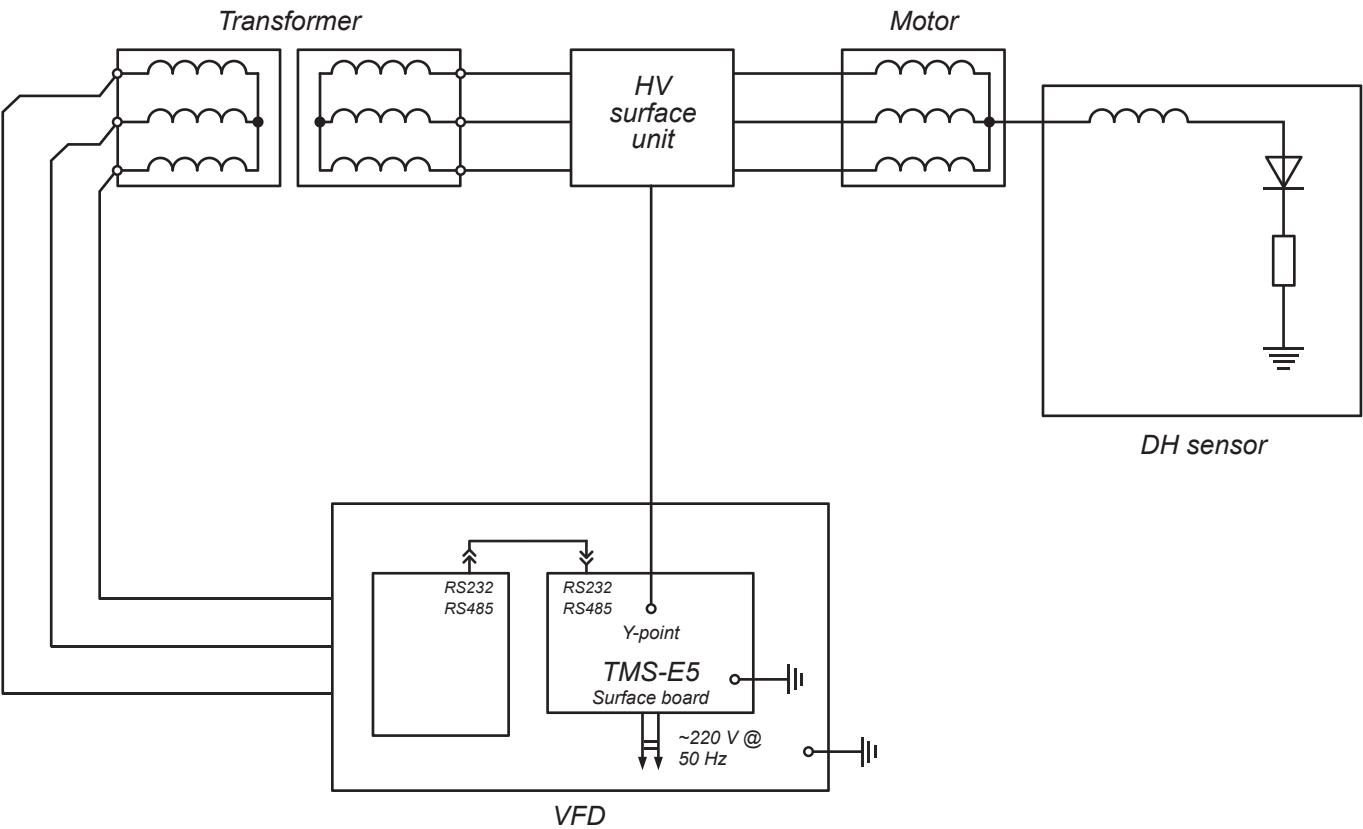
SPECIFICATION

MONITORED PARAMETERS

Parameter	Range	Resolution	Accuracy	Update time
Intake pressure	0-5800 psi	0.1 psi	0.5%	≤ 5 sec
Pump discharge pressure	0-5800 psi	0.1 psi	0.5%	≤ 25 sec
Intake temperature	0-150 °C	0.01 °C	1.5%	≤ 25 sec
Motor oil/winding temperature	0-200 °C	0.01 °C	1.5%	≤ 25 sec
Motor vibrations (X, Y)	0-5g	0.1g	5%	≤ 25 sec
Insulation resistance (current leakage)	0-10 MOhm	1 kOhm	2-5%	≤ 25 sec
Distance to cable fault*	100 m... 10 km	1 m	10 m	

* Option

WIRING DIAGRAM



SURFACE EQUIPMENT



Surface panel

Surface equipment specification

Supply voltage	85... 400 V, 50 Hz / 60 Hz
Interfaces	85... 400 V, 50 Hz / 60 Hz 2 ports RS485 (or 2 universal RS232/RS485 ports) 1 port USB-host Up to 8 analogue inputs 4-20 mA, 0-10 V Up to 8 analogue outputs 4-20 mA, 0-10 V
Enclosure	IP43, IP65
Temperature range	-60... +70 °C
Display and keyboard	6"
GPRS channel	Option
Data storage	10Mb, 25 days

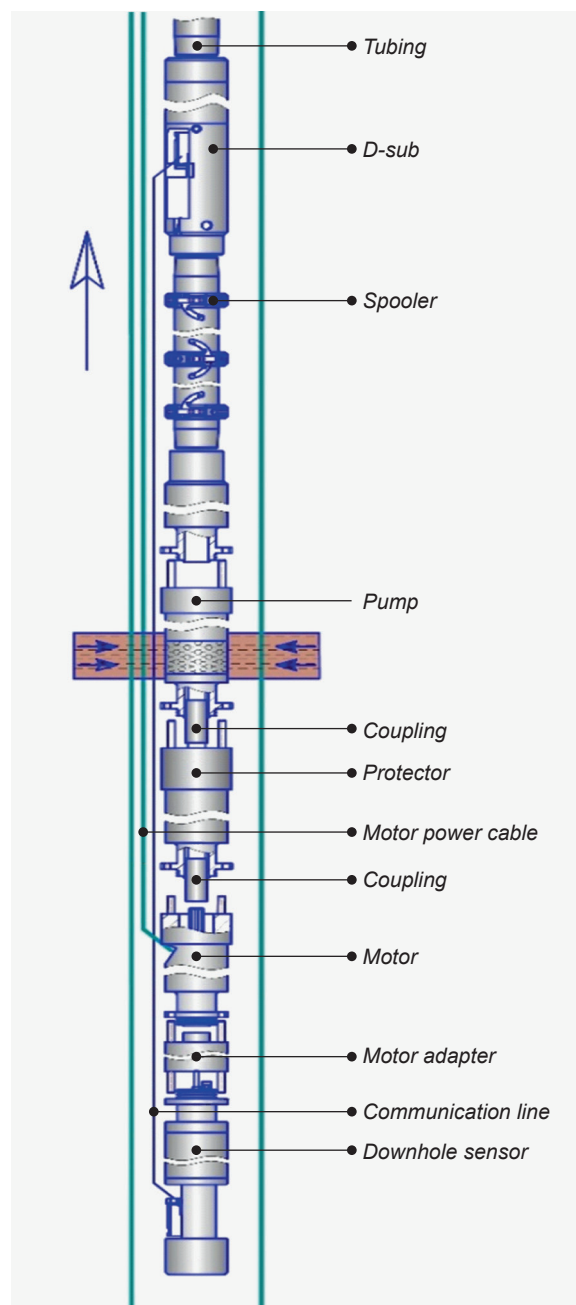
Choke

Enclosure	IP54
Temperature range	-60... +80 °C
Motor line voltage	5000 V

MEASURED PARAMETERS

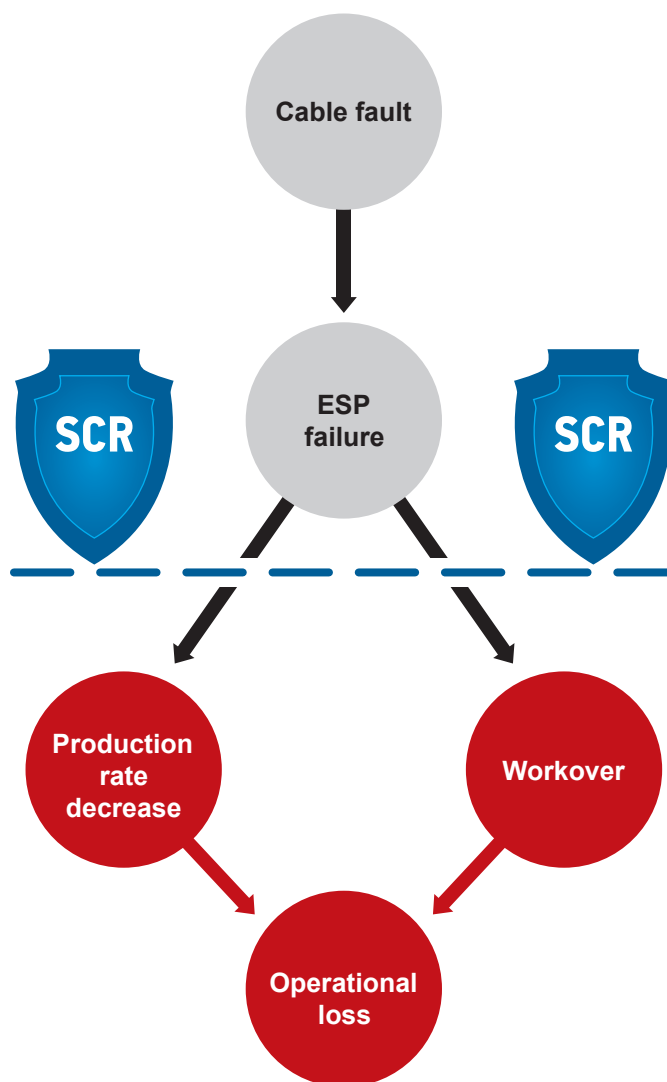
- Insulation resistance
- Current leakage
- Cable damage type:
 - Ground fault
 - Short circuit between phases
 - Shorted motor Y-point
- Distance to cable fault

SYSTEM FEATURES



SHORT CIRCUIT RESILIENT MONITORING SYSTEM

Applying SCR system will allow oil companies to minimize failure's impact on operations



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