

# + INSTRUCT Drive EFX

## Variable and Fixed Speed System

### APPLICATIONS

- + Electric submersible pump and surface pumping installations

### BENEFITS

- + Fully integrated and self-contained electrical and instrumentation package
- + Package designed for security of equipment and personnel

### OPTIONAL FEATURES

- + Simplified data gathering and remote monitoring and control of ESPs
- + Wide operating range for greater input voltage flexibility
- + Fault and equipment protection from built-in safety features
- + Main disconnect that isolates personnel from the high voltage
- + Separate low- and high-voltage compartments
- + Fused main disconnect switch and vacuum contactor
- + Multitap control potential transformer
- + INSTRUCT Control UAC1
- + RMS three-phase current measurement
- + Three-phase, direct-measured voltage monitoring
- + Backspin and leg ground protection

INSTRUCT Drive<sup>®</sup> EFX variable and fixed speed systems provide electrical system protection for downhole ESP systems in fixed speed applications. Additionally when used in combination with INSTRUCT Accessory<sup>®</sup> expansion cards and SCADA enhancements, the additional benefits of data gathering, remote monitoring and control along with real-time analysis of well and pump performance can be accessed.

The modular INSTRUCT Drive EFX incorporates a fused main disconnect switch and a vacuum contactor that connects ESP systems to the surface power supply. This design provides maximum protection for the ESP system in case of major surface or downhole electrical system faults. Built-in lightning arresters protect the ESP system from spikes in the power supply caused by lightning strikes. A control potential transformer provides power for all instruments housed in the INSTRUCT Drive EFX enclosure.

The INSTRUCT Control<sup>®</sup> UAC1 is located in a separate low-voltage compartment isolated from the high-voltage compartment that houses the drive components. The INSTRUCT UAC1 provides extensive electrical system monitoring and protection against both surface and downhole electrical faults. The current transformer in the INSTRUCT Control UAC1, together with its burden module, provides true RMS three-phase current monitoring. Three instrument-potential transformers provide directly measured three-phase voltages. The HV Interface module provides backspin and leg ground protection.

The INSTRUCT Drive EFX can have a factory-installed Schlumberger Phoenix artificial lift downhole monitoring systems' gauge surface choke housed in the high-voltage compartment. This arrangement results in a simple, compact unit with reduced footprint. Optionally, a field-installed choke can be used. All INSTRUCT Drive EFX, including a pilot light set, can be preassembled at the factory or assembled in the field.

For most applications, the INSTRUCT Drive EFX is compatible with the wellsite surface instruments required to interface with the Schlumberger Phoenix downhole monitoring gauges and the Sensia's Omni Surveillance for Lift real time artificial lift advisor.



**INSTRUCT Drive EFX low voltage compartment equipped with INSTRUCT Control UAC1**

**INSTRUCT Drive EFX technical specifications**

Voltage rating, V	5,000	3,300	1,500
Current rating, A	70; 130; 170; 200	70; 130; 170; 200	70; 130; 170; 200
Frequency, Hz	50/60	50/60	50/60
Dimensions H x W x D, in [mm]	81 x 40 x 31 [2,060 x 1,016 x 787]	81 x 40 x 31 [2,060 x 1,016 x 787]	81 x 40 x 3031 [2,060 x 1,016 x 787]
Weight, lbm [kg]	1,100 [500]	1,100 [500]	1,100 [500]
Operating temperature, degF [degC]	-22 to 131 [-30 to 50 ]	-22 to 131 [-30 to 50 ]	-22 to 131 [-30 to 50 ]
Storage temperature, degF [degC]	-58 to 158 [-50 to 70]	-58 to 158 [-50 to 70]	-58 to 158 [-50 to 70]
Power rating, kVA	606; 1,126; 1,472; 1,732	400; 743; 972; 1,143	182; 338; 442; 520



**INSTRUCT Drive EFX high-voltage compartment**

**INSTRUCT Drive EFX main components**

- Main disconnect switch† - 1
- Power fuses‡ - 3
- Vacuum contactor†‡ - 1
- Multitap control power transformer (1 kVA for all models) - 1
- Lightning arrestors - 3
- INSTRUCT Control UAC1†‡
- Three current transformers (CTs) with CT burden module set
- HV Interface Module (100840441)
- CSA-type 3R enclosure
- Instrument potential transformers - 3

† CSA certification.  
‡ UL certification.  
‡ CE compliant

**INSTRUCT Drive EFX optional components**

- Schlumberger Phoenix system interface kit†  
(Phoenix Interface Card, three-phase choke and wiring)
  - Pilot light kit†
- † Available as field-installed kits.



**INSTRUCT Drive EFX low-voltage compartment**