

REXA Actuator Cables CSA approved

Severe services and harsh environments can be found in every industry including; power generation, oil & gas transmission, water treatment or mining & metals. So what's the one thing all these industries have in common? They rely on REXA Electraulic™ actuation to solve their problems.

If you need the stability and precision that allows today's power plants to operate at peak performance... REXA has the solution. Our self-contained electro-hydraulic actuators and drives improve control and extend the life of severe service trims from feed water control and recirculation and throughout the steam system. REXA offers configurations for valves and dampers as well as turbine control applications.

ShawFlex has partnered with REXA to manufacture cables that meet the electrical requirements of it's devices.

Applications

- Utility power
- Pipeline
- Pulp and paper
- Water and waste
- Additional process
- Automation

Features

- Short runs/custom lengths
- Custom configurations
- Sunlight resistant
- FT4 rated

Ordering Information

| ShawFlex Part # | ShawFlex Description | REXA Product Type |
|-----------------|---|---|
| 69231M1801187RX | 1TR 18/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL | REXA Actuator Feedback |
| 69231M1605107RX | 4PR +1TR 16/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL | REXA Stepper Motor BC, up to 300ft |
| 69231M1405107RX | 4PR+1TR 14/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL | REXA Stepper Motor BC, up to 500ft |
| 69231M1205107RX | 4PR + 1TR 12/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL | REXA Stepper Motor BC, up to 700ft |
| 64222M1804187RX | 4 PR 18/7T IS/OS XLPE AIA PVC 300V CSA instrumentation cable HL | REXA Servo Motor Resolver |
| 69211M1404507RX | 4C 14/19T OS XLPE AIA PVC 600V CSA control cable HL | REXA Servo Motor Power (1/2D, D & 2D Modules) |
| 8021DM1004507RX | 4C 10/19T OS/BS XLPE AIA PVC 1KV CSA TECK cable HL | REXA P9 Booster Motor Power |
| 8021DM0804507RX | 4C 8/19T OS/BS XLPE AIA PVC 1000V CSA TECK 90 cable HL | REXA P40 Booster Motor Power |
| 8021DM0604507RX | 4C 6/19T OS/BS XLPE AIA PVC 1000V CSA TECK 90 cable HL | REXA P40 Booster Motor Power, de-rated |
| 69211M1605107RX | 5C 16/7T OS XLPE AIA PVC 600V CSA control cable HL | REXA Module Cable |
| 69231M1601187RX | 1TR 16/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL | REXA Solenoid |



Field wiring is terminated inside the control enclosure

Constructions

- Aluminum interlocked armour (AIA)
- Steel interlocked armour (SIA)
- Verlok® (for mineshaft applications)

Approvals

- CSA C22.2 NO. 131, Teck 90 cable (Type Teck 90)
- CSA C22.2 NO. 239, Armoured Instrumentation
- CSA C22.2 NO. 174, Cables & Cable Glands for Use in Hazardous Locations
- CSA C22.2 NO. 38, Thermoset Insulated Wires & Cables (XLPE)
- XLPE (RW90 rated), 90°C wet/105°C dry
- -40°C cold bend/impact
- HL rated for use in hazardous locations:
 - Class I Zone 1 & 2
 - Class II Zone 20, 21 (Div 1)
 - Class II Zone 22 (Div 2)

Recommended Cable Lengths

The X2 consists of two major components, the Mechanical Sub-Assembly (MSA) and the Electrical Sub-Assembly (ESA). The MSA is installed on the driven device, while the ESA is remotely mounted. Connecting them are the module cable and the feedback cable.

Two additional cables, a motor and a resolver cable, are required for servo power modules.

Stepper Module Units

Feedback Cable: ShawFlex 69231M1801187RX - 1TR 18/7T OS XLPE AIA PVC 600V CSA Instrumentation Cable HLBCD

The feedback cable carries the actuator position to the control enclosure. The maximum current is 20 mA and the maximum voltage is 15 Vdc.

The standard cable consists of three conductors, a tinned copper drain wire and overall foil shielding. Each individual wire is 18 AWG with an approximate cable diameter of 0.691". The feedback cable is not restricted by distance. The feedback cable is a signal level cable and must remain separated from high voltage cables by at least one meter (40 inches).

Module Cable

The B and C size power module cable is used to power the motor, heater and optional by-pass solenoid. The standard cable consists of 4 twisted pairs, a twisted triad, a 16 AWG drain wire and overall foil shield. Voltages as high as 240 Vac can be carried on this cable. The module cable is considered a high voltage cable and must remain separate from signal level cables and sensitive equipment by at least one meter (40 inches).

For proper operation the following distances are not to be exceeded:

| AWG | Diameter | B, C, 2C* | ShawFlex Part # (Description) |
|----------|----------|-----------|--|
| 16 (std) | 1.078" | 300 ft | 69231M1605107RX (4PR + 1TR 16/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL) |
| 14 | 1.150" | 500 ft | 69231M1405107RX (4PR + 1TR 14/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL) |
| 12 | 1.284" | 700 ft | 69231M1205107RX (4PR + 1TR 12/7T OS XLPE AIA PVC 600V CSA instrumentation cable HL) |

* Quantities of two module cables are used for the 2C actuators.

Servo Module Units

Feedback Cable: ShawFlex 69231M1801187RX - 1TR 18/7T OS XLPE AIA PVC 600V CSA Instrumentation Cable HLBCD

The feedback cable carries the actuator position to the control enclosure. The maximum current is 20 mA and the maximum voltage is 15 Vdc.

The standard cable consists of three conductors, a tinned copper drain wire and overall foil shielding. Each individual wire is 18 AWG with an approximate cable diameter of 0.691". The feedback cable is not restricted by distance. The feedback cable is a signal level cable and must remain separated from high voltage cables by at least one meter (40 inches).

Motor Power Cable (½D, D and 2D modules only): ShawFlex 69211M1404507RX - 4C 14/19T OS XLPE AIA PVC 600V CSA Control Cable HL

The motor power cable consists of four 14 AWG wires, a tinned copper drain wire and overall foil shield.

The approximate cable diameter is 0.781". Standard voltages of 180 Vdc for ½D modules and 360 Vdc for D modules are carried on this cable. The motor power cable is considered a high voltage cable and must remain separate from signal level cables and sensitive equipment by at least one meter (40 inches).

Two cables are required for 2D power modules.

Resolver Cable (½D, D and 2D modules only): ShawFlex 64222M1804187RX 4PR 18/7T IS/OS XLPE AIA PVC 300V CSA Instrumentation Cable HLBCD

The resolver cable provides velocity and temperature information from servo motors to the servo motor driver. It consists four twisted shielded pairs of 18 AWG wires, a tinned copper drain wire and overall foil shield. The approximate cable diameter is 0.866". Only signal level voltages and currents are carried by this cable. The resolver cable is a signal level cable and must remain separated from high voltage cables by at least one meter (40 inches).

Two cables are required for 2D power modules.

ACTUATOR CABLES

Servo Module Units

Feedback Cable: ShawFlex 69231M1801187RX - 1TR 18/7T OS XLPE AIA PVC 600V CSA Instrumentation Cable HLBCD

The feedback cable carries the actuator position to the control enclosure. The maximum current is 20 mA and the maximum voltage is 15 Vdc.

The standard cable consists of three conductors, a tinned copper drain wire and overall foil shielding. Each individual wire is 18 AWG with an approximate cable diameter of 0.691". The feedback cable is not restricted by distance. The feedback cable is a signal level cable and must remain separated from high voltage cables by at least one meter (40 inches).

Motor Power Cable (½D, D and 2D modules only): ShawFlex 69211M1404507RX - 4C 14/19T OS XLPE AIA PVC 600V CSA Control Cable HL

The motor power cable consists of four 14 AWG wires, a tinned copper drain wire and overall foil shield.

The approximate cable diameter is 0.781". Standard voltages of 180 Vdc for ½D modules and 360 Vdc for D modules are carried on this cable. The motor power cable is considered a high voltage cable and must remain separate from signal level cables and sensitive equipment by at least one meter (40 inches).

Two cables are required for 2D power modules.

Resolver Cable (½D, D and 2D modules only): ShawFlex 64222M1804187RX 4PR 18/7T IS/OS XLPE AIA PVC 300V CSA Instrumentation Cable HLBCD

The resolver cable provides velocity and temperature information from servo motors to the servo motor driver. It consists four twisted shielded pairs of 18 AWG wires, a tinned copper drain wire and overall foil shield. The approximate cable diameter is 0.866". Only signal level voltages and currents are carried by this cable. The resolver cable is a signal level cable and must remain separated from high voltage cables by at least one meter (40 inches).

Two cables are required for 2D power modules.

Module Cable

The power module cable is used to power the heater and optional bypass solenoid. The standard cable consists of 5 five 16 AWG conductors. The overall diameter is approximately 0.787". Voltages as high as 240 Vac can be carried on this cable. The module cable is considered a high voltage cable and must remain separate from signal level cables and sensitive equipment by at least one meter (40 inches).

For proper operation, the following distance is not to be exceeded:

| AWG | Diameter | B, C, 2C* | ShawFlex Part # (Description) |
|----------|----------|-----------|--|
| 16 (std) | 0.787" | 300 ft | 69211M1605107RX (5C 16 /7T OS XLPE AIA PVC 600V CSA Control Cable HL) |

* Quantities of two motor and resolver cables are used for the 2D actuators.

Booster Cable

The P9 servo motor cable consists of four 10 AWG wires, a tinned copper drain wire and overall foil shield and overall braid shield. The approximate cable diameter is 1.005". Standard voltage of 360 Vdc is carried on this cable. The P40 servo motor cable consists of four 8 AWG wires, a tinned copper drain wire, overall foil shield and overall braid shield. The approximate cable diameter is 1.086". Standard voltage of 360 Vdc is carried on this cable.

| Power Modules | AWG | Diameter | Distance | ShawFlex Part # (Description) |
|---------------|-----|----------|----------|---|
| P9 | 10 | 1.005" | 700 ft | 8021DM1004507RX (4C 10/19T OS/BS XLPE AIA PVC 1000V CSA TECK 90 cable) |
| P40 | 8 | 1.086" | 600 ft | 8021DM0804507RX (4C 8/19T OS/BS XLPE AIA PVC 1000V CSA TECK 90 cable) |

The P9 and P40 servo motor cables are considered high voltage cables and must remain separate from signal level cables or sensitive equipment by at least one meter (40 inches).

Cable Separation

Proper actuator operation is dependent on signal cables being kept separate from high power cables.

Signal Cables

- Actuator feedback
- Servo motor resolver

As well as:

- Incoming control signal
- Position transmitter feedback

High Power Cables

- Motor power
- Module

As well as:

- Incoming AC power
- The actuator feedback and resolver cables can be run together in the