

### 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

# REXA

## ACTUATOR CABLES

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