

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

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 .25 inch. 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 *
16 (std)	.5 inch	300 ft
14	.75 inch	500 ft
12	1 inch	700 ft

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

SERVO MODULE UNITS

Feedback Cable

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 .25 inch. 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 (1/2D, D and 2D modules only)

The motor power cable consists of four 16 AWG wires, a tinned copper drain wire and overall foil shield. The approximate cable diameter is .5 inch. Standard voltages of 180 Vdc for 1/2D 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 (1/2D, D and 2D modules only)

The resolver cable provides velocity and temperature information from servo motors to the servo motor driver. It consists of eight 20 AWG wires, a tinned copper drain wire and overall foil shield. The approximate cable diameter is .35 inch. 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 by-pass solenoid. The standard cable consists of 5 five 16 AWG conductors. The overall diameter is approximately 0.45 inches. 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	1/2D, D, 2D*
16 (std)	.5 inch	700 ft

* 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. The approximate cable diameter is 0.65 inch. 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 0.8 inch. Standfard voltage of 360 Vdc is carried on this cable

Power Modules	AWG	Diameter	Distance
P9	10	0.65 inch	700 ft
P40	8	0.8 inch	600 ft

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 same conduit or tray.
- The Module and Motor Cables can be run together in the same conduit or tray.
- Motor/Module cables **CANNOT** be run in the same conduit or tray as Feedback and Resolver cables.
- Motor and Module cables must remain separate from sensitive equipment and associated wiring.

Adhering to good cable run practice will ensure proper operation of the actuator.