



## MX/QX Set-up & Commissioning

Rev 20 Sept 2016

### Prerequisite:

It is assumed that students taking this course are mechanically inclined and have a working knowledge of the mechanical aspects of valves and actuation.

### Personal Protective Equipment:

This class takes place in an industrial environment. Attending students should wear long pants, steel toed shoes, and safety glasses.

### Outline:

Upon completion of this course, students should be able to perform the following basic actions:

- a. Identify the differences between an MX, MX(a) and QX actuators.
- b. Disassemble, identify parts, reassemble and mechanically troubleshoot the MX, MX(a) and QX actuators.
- c. Enter the Setup Menu and change the operating parameters of the actuator
- d. Set position limits both electrically and manually
- e. Be able to set the actuator for all (2-wire, 3-wire and 4-wire) modes
- f. Be able to configure the status and alarm contacts
- g. Be able to configure the 2-speed timer
- h. Be able to configure the User Inputs
- i. Be able to configure and calibrate the analog output (APT and ATT) option
- j. Be able to configure and calibrate the Modutronic option
- k. Be able to read and interpret wiring diagrams and schematics
- l. Be able to determine the current firmware loaded
- m. Be able to flash firmware.
- n. Perform troubleshooting procedures.

### Student Skills:

- a. Students must have basic computer skills
- b. Transfer, download and save files
- c. Configure communications ports via the control panel and device manager
- d. Students should be able to use the following equipment;
  - i. Digital multimeter
  - ii. Loop calibrator (example – Altek 334 or equivalent)
  - iii. Loop calibrator (example Fluke 789 of equivalent)



## Pre Class Study:

The students learning experience will be enhanced with a prior review of the following documents:

### Current firmware and instructions

<https://www.flowserve.com/en/more/support-resources/software-downloads?category=14306>

### MX/QX Protection, Control and Monitoring Features

<https://www.flowserve.com/sites/default/files/2016-07/lmentb2300-ea4.pdf>

### How to verify the firmware version on an MX/QX actuator

<http://www.flowserve.com/Services-and-Solutions/Aftermarket-Parts-and-Services/Actuator-Maintenance%2C-Repair-%26-Inspection/Limitorque-Blue-Ribbon-Service#FAQS>

### MX(a) User instructions

<https://www.flowserve.com/sites/default/files/2016-07/lmenim2306-ea4.pdf>

### Maintenance and Spare parts manual

<http://www.flowserve.com/files/Files/Literature/ProductLiterature/FlowControl/Limitorque/LMENIM2314-00.pdf>

### MX(a) quick set-up guide

<http://www.flowserve.com/files/Files/Literature/ProductLiterature/FlowControl/Limitorque/LMENIM2310-00.pdf>

### QX User instructions manual

<http://www.flowserve.com/files/www/Literature/ProductLiterature/FlowControl/Limitorque/LMENIM3306.pdf>

### QX Quick mount and start up guide

<http://www.flowserve.com/files/Files/Literature/ProductLiterature/FlowControl/Limitorque/LMENIM3313-001.pdf>

### Protection, Control and Monitoring features

<http://www.flowserve.com/files/Files/Literature/ProductLiterature/FlowControl/Limitorque/LMENTB2300-02.pdf>

Other documents sent separately