

M040-120 Valve Checker

The Moog Valve Checker is a portable test instrument intended for in field checking of the complete range of Moog proportional and servovalves.

It is connected "in line" between the plant electronics and the valve so checking of the valve is made without removing it from the plant, so that hydraulic and electronic problems can be isolated. The checker operates in two modes: "Checker" and "Plant".

In "Checker" mode, commands to the valve come from the checker and the valve spool and pressure signals are monitored on

the checker. The "Plant" command is disconnected and the spool and/or pressure signals are not connected back to the plant electronics.

In "Plant" mode, the checker is a monitor with the plant electronics commanding the valve and the spool and/or pressure signals passing back to the plant, and also available for monitoring on the checker. Internal power is derived from the plant supply line to the valve, or from an external 24 V supply that connects to a front panel connector on the checker.



SPECIFICATIONS

Q Command Outputs:

±10 V, ±10 mA, ±100 mA,
4-20 mA, Plant command

Q Command Test Point: ±10 V

P Command Outputs:

0 to +10 V 0 to +10 mA,
4-20 mA, Plant command

P Command Test Point:

0 to +10 V

P & Q Commands

Output Swing: 10 V

Q (Spool) Feedback:

2.5 to 13.5 V, ± 10 V differential,
±10 V single ended, ±10 mA,
4 to 20 mA

Q (Spool) Feedback

Test Point: ±10 V

P Feedback:

0 to +10 V, 0 to +10 mA,
4 to 20 mA

P Feedback Test Point:

0 to +10 V

±15 V Supply:

±9 to ±18 V
±79 mA at ±15 V, no load

24 V Supply:

18 to 36 V
96 mA at 24 V, no load

Weight: 1.63 lbs.

Dimensions:

8.07 in. x 5.43 in. x 2.76 in.

Enable and Valve OK Threshold:

on 8.5 V off 6.5 V

Checker Current Loads:

200 ohm
EMC: EN 50082-1
EN 55011 1A
IEC 801-2
IEC 801-3

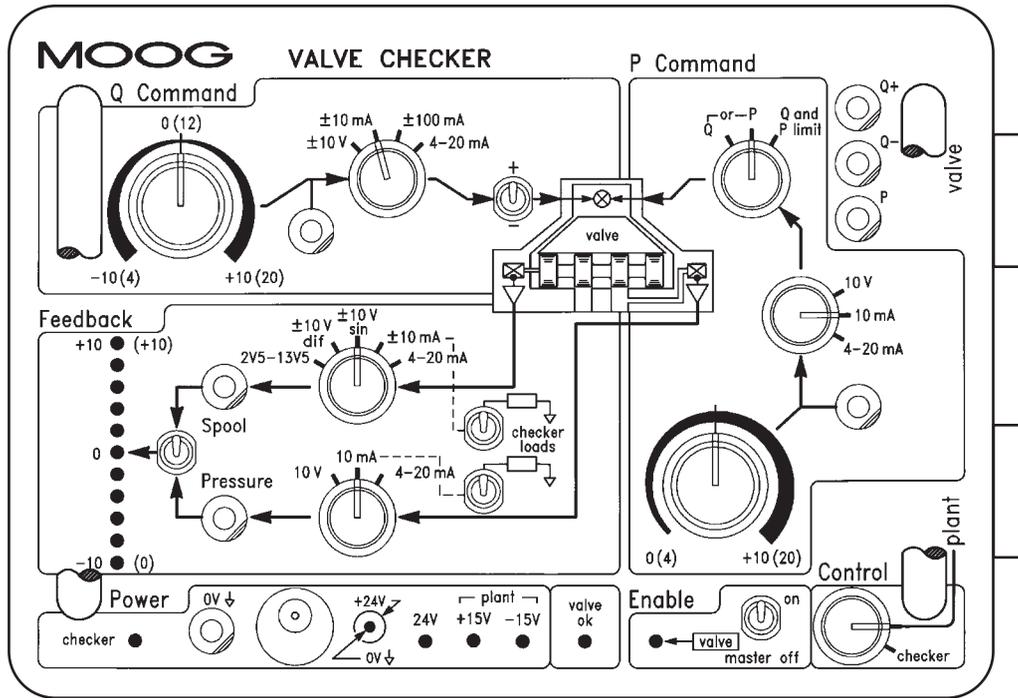
Protective Earth:

EN 60204-1 equal-potential
Q = Flow
(proportional to spool position)
P = Pressure
MFB = Mechanical feedback
EFB = Electrical feedback

FEATURES

- Provides hydraulic test independent of electronics.
- Caters for all Moog EFB and MFB valves.
- Line operation.
- Lightweight and portable.
- Inbuilt LED spool/pressure meter. Cables available for each family of valves.
- Test points to monitor command and feedback signals.
- Standardized 10 V representation of command and feedback, regardless of actual signal type.
- Inbuilt LED spool/pressure meter.
- CE mark and EN 60204-1 compliant.

OPERATING DETAILS



1. Control:

Selects "Plant" or "Checker" mode. In plant mode, the valve command comes from the plant electronics and the two command sections are inoperative. Q (spool) and P signals are connected back to the plant electronics and are available on the feedback test points for monitoring.

In checker mode, no connections to the plant electronics are made and valve commands come from the checker. Q (spool) and P signals are available on the feedback test points for monitoring.

2. Enable:

On EFB valves with an "Enable" input, the source of the enable command to the valve is selected by the control switch. However, the enable can be turned off by the enable on/off switch regardless of the selection of the control switch. This is to ensure the user can disable the valve at any time, during the checking process.

3. Q Command:

This section is active when checker is selected by the control switch. As well as the $\pm 10\text{V}$ test point beside the command pot, the Q + and Q - test points in the valve area enable monitoring of the true voltage on the valve Q command pins. The +/- switch reverses the valve flow by electrically interchanging the valve input pins.

4. P Command:

This command applies only to PQ valves. The test point beside the command pot has a 0 to +10V signal, and the true voltage on the P command pin is available on the P test point in the valve area.

The uppermost Q/P selector enables both "P only" and "P limit" valves to be tested by making the appropriate connections between the pressure and flow electronics in the valve.

5. Feedback:

This section applies only to EFB valves that output spool position and/or pressure signals. The spool and pressure test points have the same signal range as the command test points. The selector switch to the left of the test points selects which signal is displayed on the LED indicator. When any "mA" signal is selected, the "Checker Load" switch is enabled. It is necessary to provide a load for current feedback signals when in checker mode. If the plant electronics does not provide a load for these current signals, then the checker load can be switched in to enable monitoring of the signal.

6. Power:

The checker LED illuminates when the internal $\pm 15\text{V}$ is above $\pm 12\text{V}$. The 24V LED illuminates when 24V is supplied from either the plant connector or the front panel 24V connector. The valve OK and enable LEDs illuminate when the signal is above 8.5V and extinguish below 6.5V.

Ordering Information:

Valve Checker P & Q	M040-120-001
Valve Checker Q only	M040-120-002
Plant Cable (1.5 m)	B96837-XXX
Valve Cable (1.5 m)	B96838-XXX
Carry Case	B96839

XXX for a specific valve family.

Consult Moog sales office for the required designation.

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