

MOOG

G040-123 Valve Checker

The G040-123 is derived from the M040-120 P/Q Valve Tester. It provides field checking of the complete range of Moog electrical feedback (e.f.b.) valves, both proportional and servo, that have spool position control (Q) only. For valves with spool position (Q) and pressure control (P), use M040-120.

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 signal is monitored on the checker. The "Plant" command is disconnected and the spool signal is connected back to the plant electronics.

In "Plant" mode, the checker is a monitor with the plant electronics commanding the valve and the spool signal 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, 4-20 mA and
Plant Command

Q Command Test Point:
0 to ±10 V

**Max. Command
Output Swing:**
±10 V, ±20 mA

Spool Inputs:
2.5 to 13.5 V, ±10 V differential,
±10 V single ended, ±10 mA,
4-20 mA

Spool Test Point:
0 to ±10 V

Test Point Size:
2.0 mm

±15V Supply:
±9 to ±18 V, ±65 mA at ±15 V

24V Supply:
18 to 36 V, 90 mA at 24 V

Weight:
2.6 lbs [1.2 kg]

Dimensions:
8.1 W x 5.4 H x 2.7 D in
[205 W x 138 H x 70 D mm]

Cable Length:
9.8 ft [3.0 m]

**Enable and Valve
OK Threshold:**
on at 8.5 V off at 6.5 V

Checker Current Load:
100 Ohm

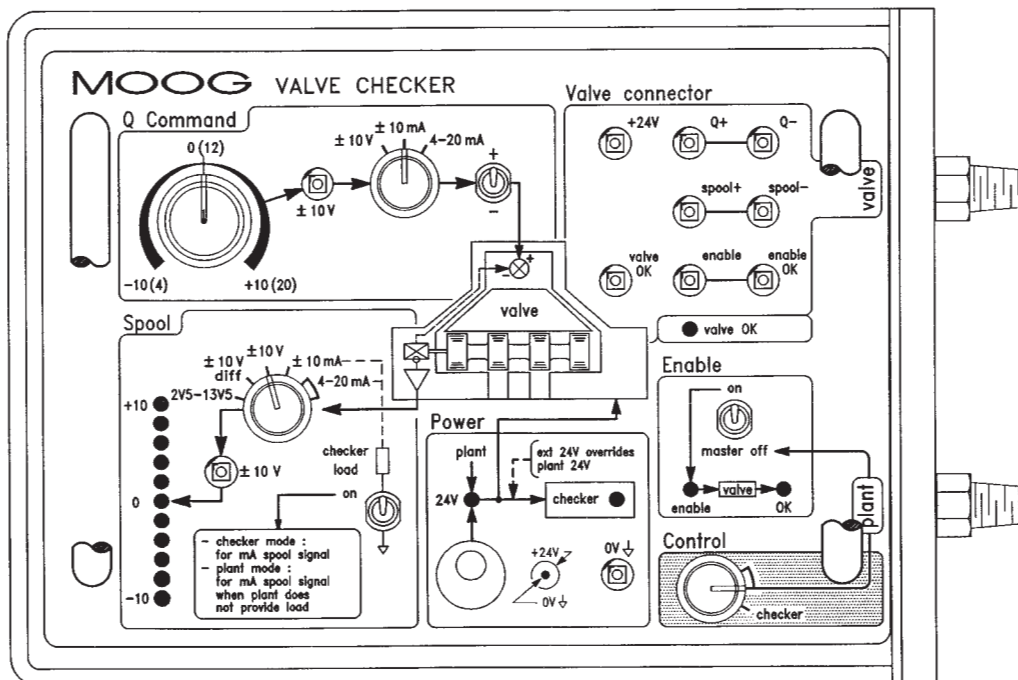
EMC:
EN 50081-1
EN 50082-2

Protective Earth:
EN 60204-1 equal-potential

FEATURES

- Provides testing hydraulics independent of electronics
- Caters for most Moog EFB valves
- In-line operation
- Lightweight and portable
- Inbuilt LED spool read-out
- Fixed cables and connectors
- Models available for specific connector/supply combinations
- Test points to monitor command and spool signals
- Standardized 10 V representation of command and spool, regardless of actual signal type
- CE mark and EN 60204-1 compliant

OPERATING DETAILS



- Control:**
 Selects "Plant" or "Checker" mode. In plant mode the valve command comes from the plant electronics and the valve checker command section is inoperative. The spool signal is connected back to the plant electronics and is available on the spool test point for monitoring.
 In checker mode the valve command comes from the checker. The spool signal is still passed on to the plant and is available on the spool test point for monitoring.
- 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. The enable OK LED has on/off thresholds of 8.5/6.5 V.
- Command:**
 This section is active when checker is selected by the control switch. The $\pm 10\text{V}$ test point beside the command pot provides a standardized 0 to $\pm 10\text{V}$ monitoring signal, regardless of the signal type selected to drive the valve. The +/- switch reverses the valve flow by electrically interchanging the valve input pins.
- Spool:**
 The spool test point has the same signal range as the command test point. This signal is also displayed on the LED read-out.
 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 on to enable monitoring of the signal.
- Valve Connector:**
 Test points in this section are wired directly to the valve connector pins. This enables a direct measurement of all signals that the valve receives and sends. This is a very useful fault finding tool.

- Power:**
 The checker is normally powered from the plant supply. When the external 24 V supply is connected to a $\pm 15\text{V}$ checker, the valve is powered from the checker internal regulators, which in turn are powered from the external 24 V. For 24 V checkers the external supply powers both the checker and valve, over-riding the plant supply.
 The checker LED illuminates when the internal $\pm 15\text{V}$ is above $\pm 12\text{V}$. The 24 V LED illuminates when 24 V is supplied from either the plant connector or the front panel 24 V connector.

ORDERING INFORMATION

Model Dash No.	Supply	Connector	Spool Signal
-001	24 V	6 + PE	Single Ended
-002	24 V	11 + PE	Differential
-003	$\pm 15\text{V}$	12 pin	Single Ended
-004	$\pm 15\text{V}$	6 + PE	Single Ended
-005	$\pm 15\text{V}$	6 pin	Single Ended

Adaptors:

Consult a Moog sales office for details.
 Carry case: B96839

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