



Bulletin MSG11-40983307/UK

Operation Manual Series EX-M05



ValveMaster[®] Test Unit

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The test unit ValveMaster® is suitable for testing and commissioning of all proportional and servo proportional valves with onboard electronics.

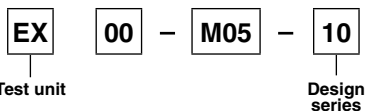
For easy on-site service all necessary cables are securely located inside of the rugged case. The test unit provides all command signal sources and measuring ports for concerted and time saving control and diagnosis of the valves.

Features

- Control of valves incorporating integrated electronics and central plug acc. EN 175201-804 (6p.+PE)
- Built-in fuses and safety appliances
- Cable set included
- lockable rugged box
- DC valve output (24VDC/40W)
- Internal U/I-commands
- External command values pluggable



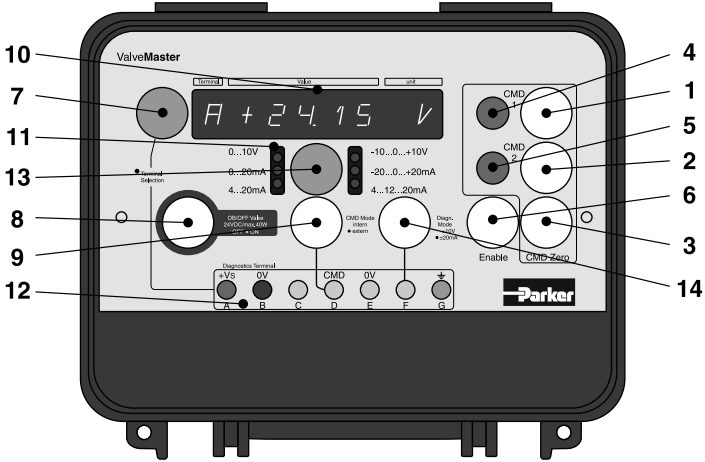
Ordering code



Technical data

| | | | |
|---------------------------|-------------------|--|--|
| Design | | Lockable rugged box, polypropylene (break proof) | |
| Supply voltage | | [V] | 85...260, 50...60 Hz |
| Power consumption | | [VA] | max. 160 |
| Current consumption max. | | [A] | 1.3 at 230 V |
| Main input fuse | | [A] | 3.15 time lag |
| Required main supply fuse | | [A] | 16 |
| Protection class | | | IP40 |
| EMC | | | EN 61000-6-2 |
| Valve central connection | Valve supply | [V] | 24 (±5 %) |
| | Command voltage | [V] | 0...±10 (±1 %), 0...10, 0...±20 mA, 0...20 mA, 4...12...20 mA, 4...20 mA |
| | Diagnostic output | | 0...±24 V / 0...±20 mA |
| | Enable signal | [V] | 7.5 (±10 %) |
| Measurement terminals | | For multimeter with Ri min = 10 kOhm | |
| Display | Display digits | | 4 |
| | Resolution | | 10 mV / 10 mA ; 1 digit |
| Main cord | Unit site | | Cable inlet connector IEC320 |
| | Main site | | CEE 7/7 plug |
| | Cable length | [m] | 2 |
| Valve cords | Unit site | | A - control valves |
| | | | B - DC valves |
| | Valve site | | Connector Amphenol SV70 DIN 40040 |
| | | | Connector M12x1 as per IEC61076-2-101 |
| Cable length | | Female connector 6+PE acc. EN175201-804 | |
| | | Female connector acc. EN175301-803 | |
| Ambient temperature | | [°C] | 0...40 |
| Weight | | [kg] | 3.9 |
| Dimensions | | [mm] | L 305 x B 270 x H 144 |

Overview control panel



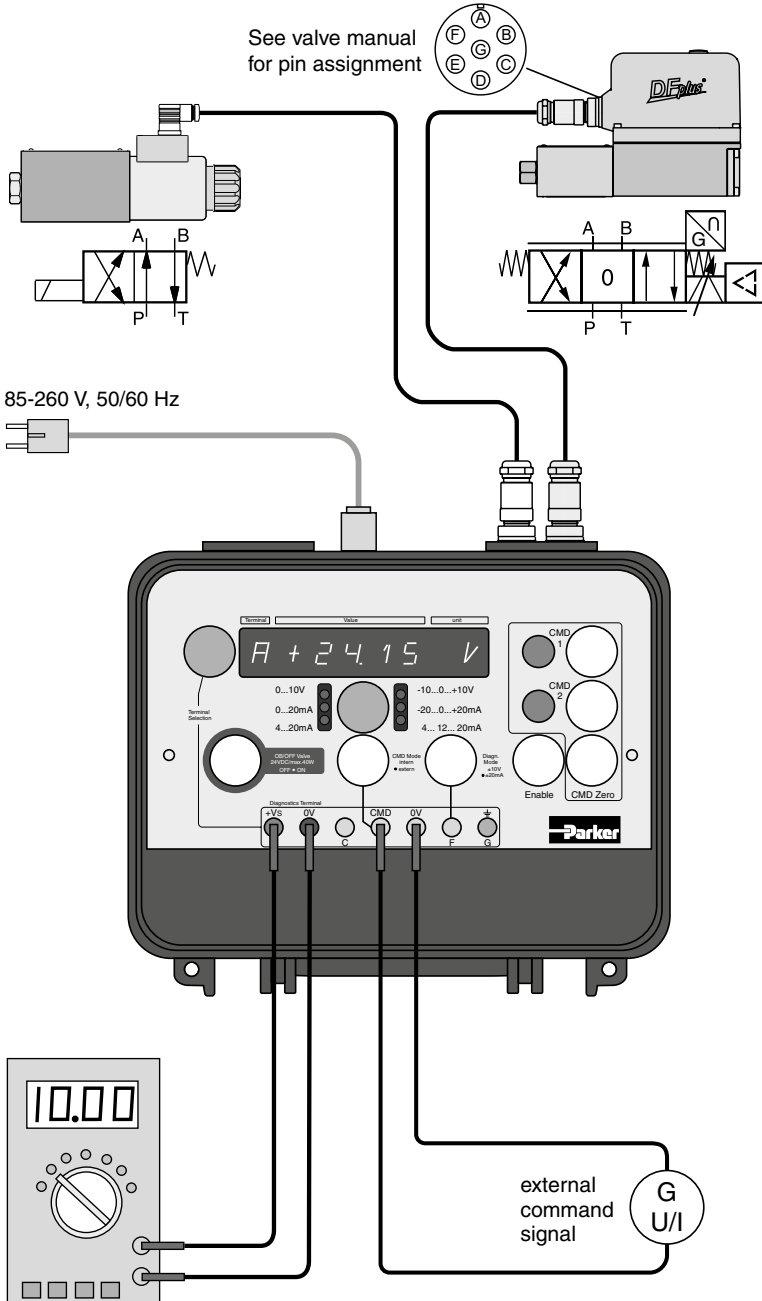
- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Command value 1 2. Command value 2 3. Zero position / failure acknowledgement 4. Potentiometer command value 1 5. Potentiometer command value 2 6. Enable 7. Diagnostics pin selection (A, C, D, F) 8. DC valve (on/off) | <ol style="list-style-type: none"> 9. Command mode (internal/external) <ul style="list-style-type: none"> • int. command value 1. - 5. • ext. command value sockets D & E, 12. 10. Measurement display 11. Command range indicator 12. Diagnostics terminal 13. Command range selector 14. Diagnostic mode selector pin F (V/mA) |
|--|---|

Overview backside



15. Valve connector (7-pin, 24 VDC)
16. DC valve connector (5-pin, 24 VDC, limited to 40 W)
17. Main switch
18. Main fuse
19. Power connection (85-260 VAC, 50/60 Hz)


Connection configuration




Function description

Setting an internal command output

Before a valve is connected to the ValveMaster, the internal command value should be disabled to minimize risks. This operating condition is indicated by a flashing command range LED (11) and the lit CMD Mode button (9) and can be achieved by turning on the ValveMaster (17) or by pushing the corresponding button (9).

 The deactivation of the internal command value is equal to the activation of the external command reference mode!

If the internal command value is disabled, you can use the select button (13) to select all available command ranges sequentially.

 The correct command range for the valve can be found in the operation manual depending on the valve's product code!

By selecting measuring channel D and pressing the command button (1)(2) you can preset two command values via the potentiometers (4)(5).


If you have found the correct command range to the valve and selected it, you can activate the internal set point by pressing the CMD Mode button (9). The background lighting of the CMD Mode button (9) extinguishes and the command range LED (11) is lit permanently.

By default, the test unit now returns the value for the zero position of the valve. In the command range 4...12...20 mA it is 12 mA, in the command range -10...0...+10 V it is 0 V and in the command range 4...20 mA it is 4 mA.

By pressing a corresponding command button (1) (2), the previously set command value is available on Pin D&E of the valve plug. It is still possible to change both command values via the potentiometers (4)(5). Pressing the CMD Zero button (3) brings the valve back to zero position.

External command source

The ValveMaster is also able to use command values from an external source. These external signals are looped through to the valve and must be in a range of ± 10 V (for voltage) or ± 20 mA (for current).

 Pay attention to the current flow direction by current signals referring to the Pin D&E (12)!

Before you connect an external source, ensure that the ValveMaster is in external mode. The external mode is indicated by a lit CMD Mode button (9) and a flashing command range LED (11). Now you can connect the external source to sockets D&E (12).

The supplied signal value can't be shown on the display (10) because the measurement channel D is only for the internal command values.

Operation of a DC(On/Off)-valve (max. 40 W)

The DC-valve will be connected via the enclosed DC-cable to the ValveMaster connector (16). You can operate the DC-valve by pushing the DC-valve button (8). The operating status is indicated by the DC-valve button lighting (8).

DC-valve on: LED on

DC-valve off: LED off

With a power drain greater than 40 W at the Valve connector (16), the test unit triggers an error and enters the fault condition mode.

Measurement selection (Pin A, C, D, F)

The pins A, C, D and F of the valve plug can be selected sequentially as measuring point via the selection button (7). The measured value is displayed on the measurement display (10).

Diagnostic signal selection (Pin F)

Diagnostic signals that are sent by valves on the pin F of the valve connector can be displayed on the measurement display (10). A distinction is made between voltage signals (up to ± 24 V) and current signals (up to ± 20 mA). The signal selection is made with the Diagnostic Mode button (14) and will be displayed by the button lighting (14).

Voltage measurement: LED off (default)

Current measurement: LED on

Enable signal (Pin C)

Some valves need an "enable" signal for operation which is switched on or off by pushing the Enable button (6). The button lighting indicates the status.

Enable active: LED on

Enable off: LED off

If there is a faulty connection to the C pin the enable signal will be automatically switched off, blocked or the current flow will be limited to 5mA depending on the type of signal. This will prevent damage to the electronics of valve and/or testing unit.

Acknowledgement on fault condition

If the unit detects an operating error the ValveMaster enters an error state. This is indicated by sequential flashing of the measurement display digits (10) and the CMD Zero lighting (3).

Before you acknowledge and quit the error state, the fault must be localized and remedied.

After the fault has been remedied, you can press the CMD Zero button (3) to quit the error state and release the ValveMaster to further operation.

Measurement with an external measuring device

By connecting an external measuring device to the test jacks (12), the measurement accuracy can be increased.