ValveExpert Checker

Portable Service Set with Universal Control Unit for Servo and Proportional Valves with Integrated Electronics

CE

Features of the unit:

- The control unit ValveExpert Checker is used to control and carry out functional tests on servo and proportional valves with integral electronics and operating voltages of ±15V or +24V.
- Simplifies commissioning and troubleshooting in hydraulic systems with servo and proportional valves.
- All standard servo- and proportional valves with 6+PE connectors are supported (MOOG, Parker-Hannifin, Bosch-Rexroth, Eaton, and many others).
- Additional control for ON/OFF pilot valve.
- Intuitively simple and comfortable interface.
- Built in digital multimeters for control and feedback signals.
- Comfortable bright LED indications.
- Supports external and internal control modes.
- Three internal control modes are supported: -10V…+10V, -10mA…+10mA, 4mA…20mA.
- Support current (mA) and voltage (V) feedback signals.
- The service case comprises a test unit as well as an optional power supply unit (+24V, 3A), connecting cables, and adapter cables.
- Overload and short circuit protections.
- Compact and robust construction.

Technical data:

Degree of protection:	IP03 (use in dry area)
Servovalve connector:	6+PE pole, EN 175201 Part 804
Pilot valve connector:	DIN EN 175301-803, form A
Operating voltage (Pin A and B):	18…36 VDC (full functionality) 6.5…36 VDC (measurement only) Pin C used as 0V for ±15V power supply
Charging rate of the test unit:	0.2A
Max. load capacity (Pin A and B):	3A
Control signal (Pin D and E):	-10V…+10V -10mA…+10mA 4mA…20mA
Enable input (Pin C):	Disable: 0V…4V Enable: 8V...30V
Feedback signal (Pin F):	-30V…+30V -30mA…+30mA
Max. load for pilot valve:	1.6A (overload protected)
Dimensions:	470mm x 380mm x 95mm
Weight:	3.750kg
CE Test:	EN 50 081-1 EN 50 082-2 EN 60 742

Function description and operating instructions:

Figure 1. Test unit ValveExpert Checker.

The test unit may only be used by persons who are familiar with the unit, the valve and the hydraulic system. When set accordingly, the unit ignores control signals that come from the system. If safety features are provided on the control side, these are deactivated. We assume no responsibility for damage caused by misuse!

Functional element	Label	Position
Input plug “ES”: Connection on the control side (CM02E14S-61P)		1
Output socket “PL”: Connection for the pilot valve (Binder 09-0404-00-02)		2
Output socket “AB”: Connection on the valve side (TR1208RFS1NB)		3
LED indicator for control of the power supply voltage	V Supply	4
LED indicator for voltage mode feedback signal	V Feed.	5
LED indicator for current mode feedback signal	mA Feed.	6
Digital LED indicator for feedback value		7
Switch of feedback mode (mA/V) and power supply test	Supply / Feedback	8
LED indicator of enable signal for input plug	Enable In	9
LED indicator of enable signal for output socket	Enable Out	10
LED indicator for +4mA...+20mA control signal	4-20mA	11
LED indicator for -10V...+10V control signal	±10V	12
LED indicator for -10mA...+10mA control signal	±10mA	13
Digital LED indicator for control value		14
Switch of control mode (4-20mA, ±10V, ±10mA)	Control	15
Switch for pilot valve	Pilot ON / Pilot OFF	16
Potentiometer for adjusting the internal command value signal (4-20mA, ±10V, ±10mA)	-100%...+100%	17
Switch for Internal / External mode of control	Internal / External	18
Power supply switch ±15V / +24V	±15V / +24V	19
Enable / Disable switch for the generation of an eneble signal for the valve	Enable / Disable	20
Functional switch for pin C (Enable or Reference potential for actual valve value)	C-Ref. / C-En./0	21

Table 1. Functional elements of the test unit ValveExpert Checker.

Switch	Switch position	Function
Power selector (19)	+24V	Internal reference potential is connected to Pin B. Power supply is +24V (Pin A). The enable signal can be generated using switch "Enable" or switched off (20).
	±15V	Internal reference potential is connected to Pin C. Power supply is ±15V (+15V – Pin A, -15V – Pin B. The switch "Enable" (20) is deactivated.
Enable/Disable (20) +24V operation only	Enable	Set point switch (18) in External mode -> an external enable signal applied to the valve (Pin C). Set point switch (18) in Internal mode -> enable signal for the valve is set (Pin C).
	Disable	Enable signal output (Pin C) is connected with reference potential (0V).
Set point (18)	External	External command value applied to the valve via pin D and pin E.
	Internal	Command value from potentiometer (17) is applied to the valve.
Control mode (15)	4-20mA	-100%...+100% of the command from potentiometer (17) corresponds to +4mA...+20mA of the control signal. LED (11) is active.
	±10V	-100%...+100% of the command from potentiometer (17) corresponds to -10V...+10V of the control signal. LED (12) is active.
	±10mA	-100%...+100% of the command from potentiometer (17) corresponds to -10mA...+10mA of the control signal. LED (13) is active.
Feedback mode (8)	V Supply	Test of the power supply voltage (V). LED (4) is active.
	V Feed.	Feedback signal is voltage (V). LED (5) is active.
	mA Feed.	Feedback signal is current (mA). LED (6) is active.
Mode of pin C (21)	C – Ref.	Pin C is a reference for the feedback value of the valve.
	C – En./0	Pin C is unused or used for enable signal.
Pilot ON/OFF (16)	Pilot ON	Activates the pilot valve over connector (2). 24VDC (for +24V operation) or 30VDC (for ±15V operation) applies to the pilot valve connected to the DIN connector. LED on the DIN connector is active. Maximal current 1.6A.
	Pilot OFF	Deactivates the pilot valve over the connector (2).

Table 2. Functions of the control switches.

Pin	Valve version with operating voltage +24V	Valve version with operating voltage ± 15 V
A	Supply +24V	Supply +15V
B	Supply ground 0V	Supply -15V
C	Enable or Reference potential for actual value e.g. with 4WRSE (Rexroth)	Supply ground 0V
D	Positive command value	Positive command value
E	Negative command value	Negative command value
F	Actual value	Actual value
PE	Protective earth	Protective earth

Table 3. Pin assignment of the servo- or proportional valve connector (6+PE pole, EN 175201 Part 804).

Pin	Valve version with operating voltage +24V	Valve version with operating voltage ± 15 V
1	Supply +24V	Supply +15V
2	Supply ground 0V	Supply -15V
PE	Protective earth	Protective earth

Table 4. Pin assignment of the pilot valve connector (DIN EN 175301-803, form A).

Power supply and cables:

Figure 2. Cable to connect the test unit with a servo- or proportional valve.

Figure 3. Cable to connect the test unit with a pilot valve (24V…30VDC, 1.6A max).

Figure 4. Power supply unit (Input: 100 240VAC, Output: 24VDC, 3A).

Figure 5. Connector view of the test unit ValveExpert Checker.

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