

## WPG1 – Tester for proportional directional-control and throttle valves



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## 1. Technical data and short description

Supply voltage:	Switch <b>S6</b> 90–264V AC; 47–63 Hz
Internal 24V supply voltage:	+24V; 3.2A
Short-circuit protection:	For Magnet A and Magnet B and also for the 24V supply voltage
Internal setpoint:	Fast: +/-100% Slow: +/-50%
End stage:	Pulse-width modulation (PWM) with short-circuit protection
PWM frequency	approx. 200 Hz
Output current:	Three value ranges for output current can be preselected using Selector Switch <b>S4</b> : 0.1A; 0.4A; 1.2A
Black-white valve	Switch <b>S5</b> Current for black-white valve is limited to 2 Ampere
Enable:	Switch <b>S1</b> Enable
Illuminated displays: L1/Enable (green): L2/Fault (red)	End Stages A and B enabled Short-circuit trip
Dimensions:	Enclosure: 160x80x85mm Total: approx. 160x80x110mm
Weight	approx. 0.8 kg

The WPG1 tester is used for actuation of proportional directional-control valves and also of non-position-controlled proportional throttle valves. The device adjusts the setpoint selected proportionally to the magnet current using Potentiometer P1 (see Fig. 1). The rated current is selected using Selector Switch S4, as follows:  
0.1A (Position 1), 0.4A (Position 2) or 1.2A (Position 3).

Switch **S3** is used to optionally display measured data for Setpoint or Current in the coil of the valve on the display. Switch **S2** is used for Fast (+/-100%) or Slow (+/-50%) movement. Switch **S1** (Enable) is used to enable the end stages; instantaneous state is indicated by means of LED **L1** (green). Switch **S5** switches the output for a black-white valve.

The end stages of the WPG1 are equipped with a two-channel PWM (Pulse Width Modulation) current source. This permits precise current control of the output magnets, irrespective of any changes in the coil resistance. The two outputs are protected against ground fault and short-circuit in the coil. In addition, the end stages are also protected by means of self-resetting PTC

fuses. If a short-circuit occurs, the supply voltage is switched off and the short-circuit is signalised as a fault by LED L2 (red).

The device can be returned to use once the short-circuit has been eliminated and the PTC fuses have cooled down.

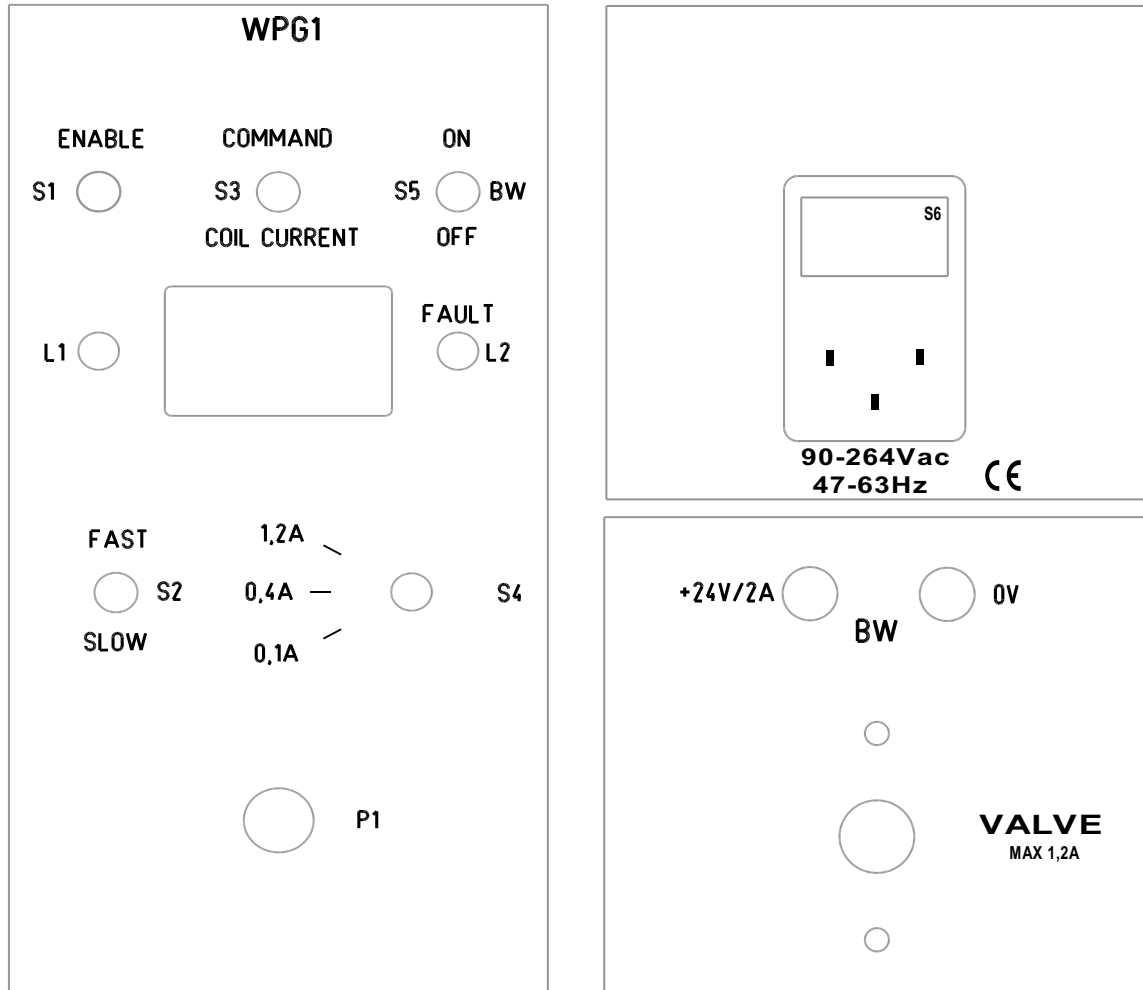


Fig. 1. The upper and lower sections of the WPG1

## 2. Block circuit diagrams

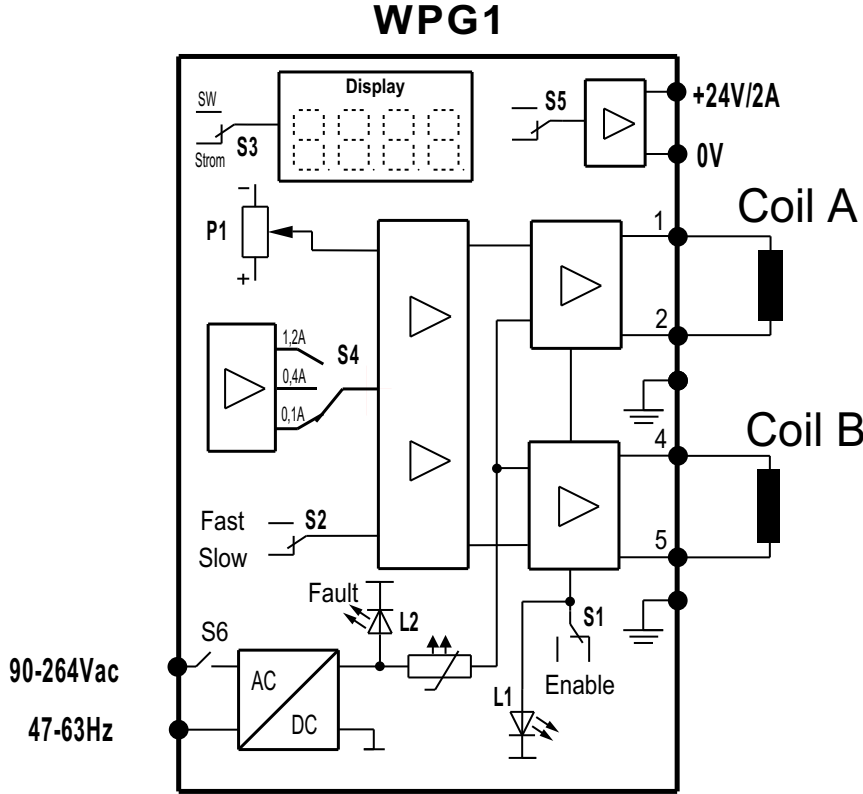


Fig. 2. Block circuit diagram WPG1

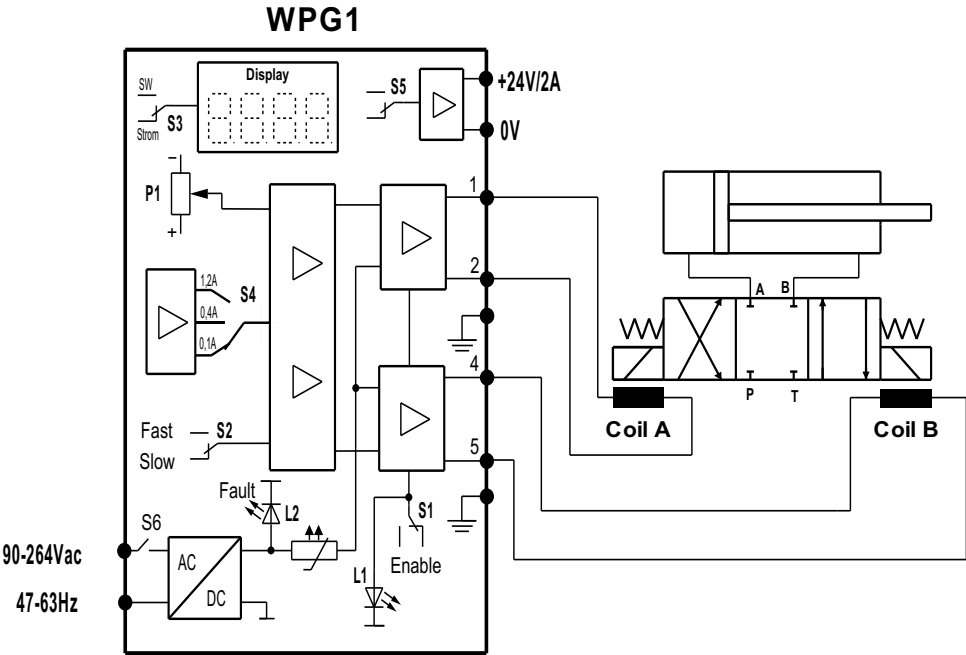


Fig. 3. Commissioning of a 3/4 way proportional valve

### 3. Operating elements and illuminated displays

<b>S1</b>	Enable switch: Enabling of the end stages
<b>S2</b>	Fast/Slow switch: For selection between fast and slow actuation
<b>S3</b>	Measure switch: Select for measurement of the setpoint or of current in the coil
<b>S4</b>	Selector switch for current (0.1A; 0.4A; 1.2A)
<b>S5</b>	Black-white valve switch
<b>S6</b>	Master switch, 230V AC
<b>P1</b>	Potentiometer: for selection of setpoint +/-100% or +/-50% Setpoint of 0 to +100% actuates Stage A Setpoint of 0 to -100% actuates Stage B
<b>L1</b>	LED (green): Indicates enabling of the end stages
<b>L2</b>	LED (red): Indicates a short-circuit in the output
<b>Display</b>	Display: Either setpoint (%) or current in the coil (Ampere) is displayed, depending on the position to which <b>S3</b> is set.

## 4. Connection of valves

The valve to be tested must be connected with a Type Ca6GD (see Fig. 4) mounting box to the WPG1 using a cable. A suitable cable is included in the scope of supply and consists of a screened line with a Type CA6LS (see Fig. 5) in-line connector and two Type GDM2011 valve-connection sockets (see Fig. 6).



Fig. 4. Type CA6GD mounting box



Fig. 5. Type CA6LS cable plug



Fig. 6. Type GDM 2011 valve-connection socket

Pin assignment of mounting box and cable plug

Pin	
1	Coil A
2	Coil A
3	Coil B
4	Coil B
5	PE+screen
6	PE+screen
PE	PE+screen

## 5. Connection of black-white valves.

If a black-white valve is needed, it can be connected to Sockets BW (+24V/2A; 0V) (see Fig. 1) and two-pole switched using an **S5** switch. Current is limited to 2 Ampere. The connecting cable for this is not included in the scope of supply.

## 6. Terminal block adapter

For explosion-proof zones, the tester must be connected to a terminal block. An adapter is provided for this purpose (see Fig. 7).

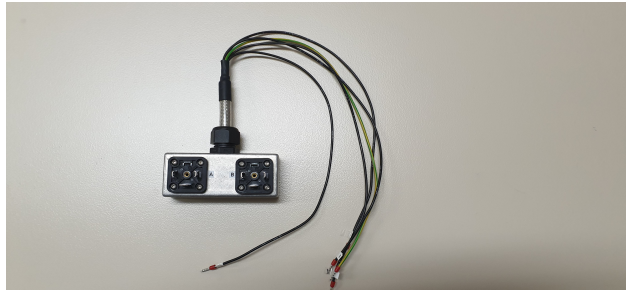


Abb7. Terminal block adapter

## 7. Setting the WPG1

Set the WPG1 as follows:

1. Switch on Master Switch **S6**
2. Set Switch **S2** to Slow
3. Set Switch **S3** to Command
4. Use Potentiometer **P1** to set the setpoint to 0% on the display
5. Use Switch **S4** to select the current range to correspond to the valve
6. If necessary, connect a black-white valve and switch it using Switch **S5**.
7. Connect valve cable
8. Switch on Switch **S1**; the end stages are then enabled and **L1** (green) will illuminate
9. Use Potentiometer **P1** to select an actuation between +/-50%
10. Measure the halved current when switching **S3** Current
11. Set Switch **S2** to Fast and select between +/-100% using Potentiometer **P1**
12. Measure full current on the display

Set Switch **S1** to OFF **immediately** if LED **L2/Fault** (red) illuminates. Then eliminate the short-circuit (e.g. short-circuit in one of the coils). The device is fully ready for use again once the PTC fuses have cooled down.

## 8. Accessories

- Non-heating appliance power cord
- Valve-connecting cable
- Terminal-strip adapter
- Case
- Operating Manual