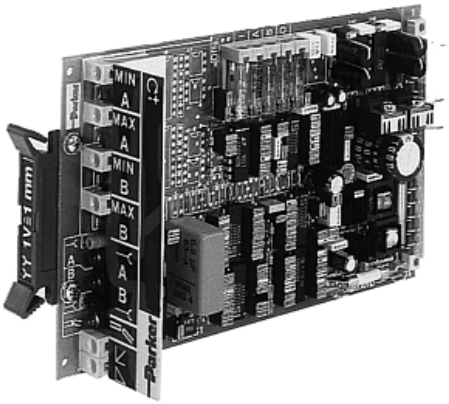
Bulletin HY11-5715-475/UK

Installation Manual
Series EW104

Power Amplifier for DC Valves



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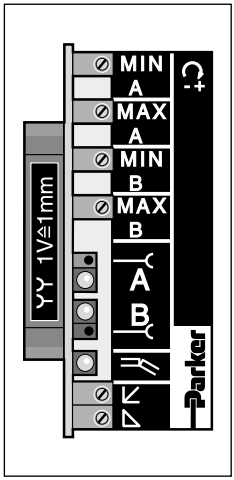
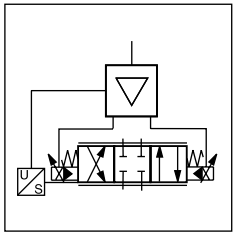
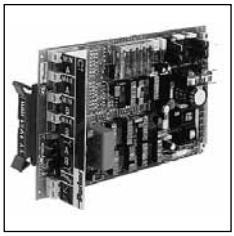
Electronic module for the control of pilot operated proportional directional valves with transducer. The movement profile of the valve spool is given by externally supplied command signals and internal limiting and ramp potentiometers. The command signals can, e.g., be processed using a programmable controller or an EZ150 module.







Features

- Spool overlap range can be manipulated with MIN potentiometer, adjustable by feeding a constant set value of 0.2V.
- MAX limiting of spool stroke with full command range. Can be set up after MIN has been set and feeding a constant set value of 10V.
- DIP-switch from internal ramp generation to external ramp supply.
- Pulsed low-loss amplifier power stage with supporting constant current control for constant, temperature-independant, solenoid forces.
- Dither generator with applied frequency to improve static characteristics.
- Diagnosis of spool stroke by means of measuring sockets as well as LEDs for indicating working conditions.

CE

Characteristics

Power supply	filtered: 22...38V, unfiltered: 18...26V
Power required	max. 40VA
Set value voltage	0...+10VDC and 0...-10VDC
Input select voltage	5...30VDC
Reference outputs	+10V / -10V, max. 10mA
Solenoid output current max.	1.8A
Ramps	0...5 sec.
Ambient temperature	0...+70°C
Connection	31pole male connector, DIN 41617
Shielded cable connections	Supply connections and valve: AWG15; Commands: AWG20
Fuse	2A medium lag, DIN 41571

Ordering Code

EW — **104**

Electronic module DC Valves

Valve size

Module type Amplifier, adjustable MIN./ MAX.-limiting, Up/Down-ramps

Design series

Code	Valve size	Mount. patt.	Valve stroke
10	D31FS	NG10	±5mm
16	D41FS	NG16	±6mm
25	D81FS	NG25	±9.3mm
26	D91FS	NG25	±6.5mm
32	D111FS	NG32	±15mm

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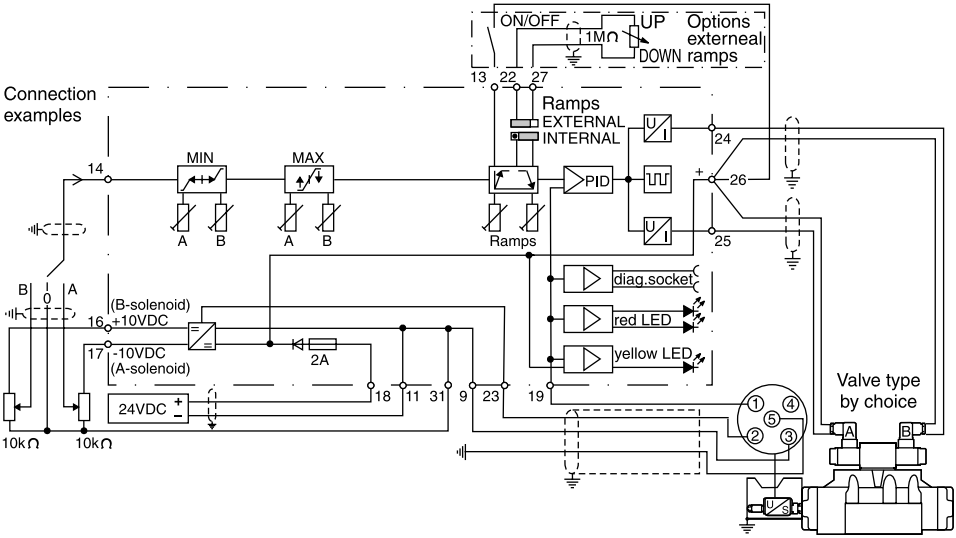
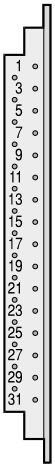
EMV

EN 50081-2	EN 55011					
EN 50082-2	ENV 50140	EN 61000-4-4	ENV 50204	EN 61000-4-5	EN 61000-4-2	EN 61000-4-6

Block Diagram



Connector (Elevation B)



14 Input command voltage 0...±10VDC
16 Output +10V reference
18 Input 24VDC supply

22 Input external ramp option
24 Output control solenoid B
26 Output control solenoid A+B with possibility for external switch connection

9 Reference potential 0V transducer
11 Reference potential 0V supply
13 Input ramp disable

17 Output -10V reference
19 Input transducer signal

23 Output transducer supply
25 Output control solenoid A
27 Input external ramp option

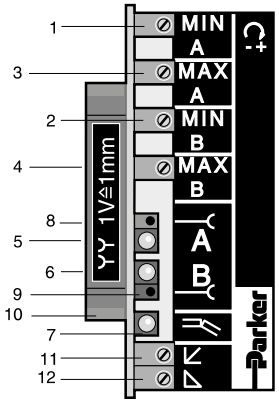
31 Reference potential 0V set value

Operating and Diagnostic Elements (Elevation A)

Notes

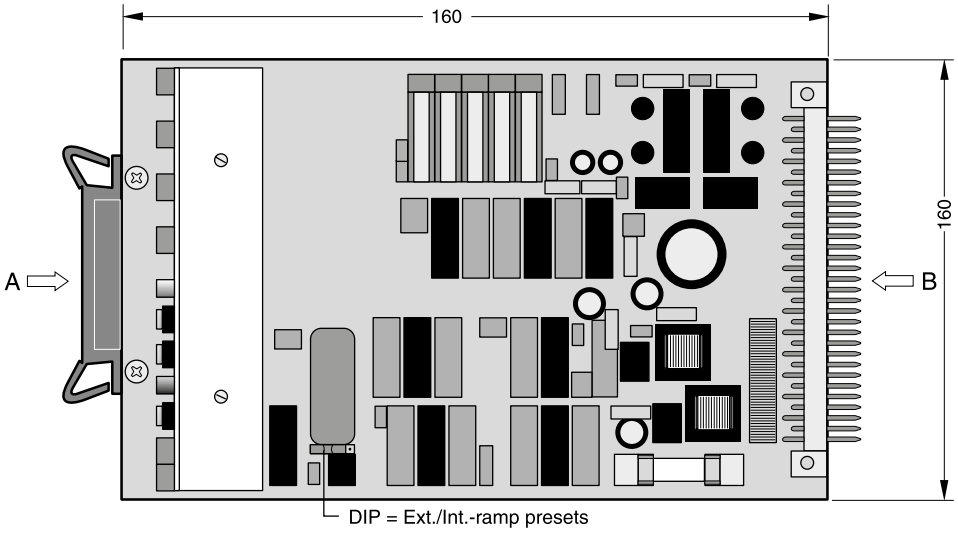
Turn off the electrical power to this board whenever the hydraulic supply to the valve is not on.

Always turn off the power to this board before removing it from the card holder.



1–2 MIN limiting potentiometers for A and B sides
3–4 MAX limiting potentiometers for A and B sides
5–6 Red LEDs for: stroke direction indication
7 Yellow LED for:
• correct voltage supply,
• correct connection of transducer
8 Red socket for spool diagnostic
9 Black socket for spool diagnostic (0V potential)
10 Blue grip strip with reference information for measured values on the measuring sockets.
11 UP ramp potentiometer
12 DOWN ramp potentiometer

Dimensions (Euro card)



Installation guide to electronic modules to provision of electromagnetic compatibility

Power Supply

The utilized power supply has to comply with the EMC-standards (CE-sign, certificate of conformity). Relais and solenoids operating from the same supply circuit than the valve electronics has to be fitted by surge protection elements.

Wiring Cable

The wires between the installation site of the module and the peripheral units, as power supply, valve solenoids, position transducer, command signal source has to be shielded. The following wire sizes must be reached: power supply AWG 16, other connections AWG 20. The capacity should not exceed a value of approx. 130 pF/m (wire/wire). The maximum cable length is 50m. No power current lines may be placed within the wired shielded cables to the electronic module. The cable shield has to be connected to ground at both ends (see also chapter “Grounding“). Please be aware of ground loops.

Connectors

The connection of the position transducer needs a sensor connector 4pin+E featuring metal case and integrated cable shield coupling. Parker can provide suitable connectors:

5004108 (Connector 4pin+E)

The connectors has to be installed according the connection diagram, the cable shield has to be tied on the whole periphery to the provided coupling clamp.

Installation

The module has to be mounted within a conductive, shielded enclosure. Usable is i.e. an EMC-approved control cabinet. A perfect grounding of the enclosure is mandatory (see also chapter “Grounding“).

Grounding

The mounting plate of the valve has to be connected to the grounded metal machine frame. The cable shields must be tied to ground at the control cabinet. A low-ohmic potential compensation wire has to be provided between the control cabinet and the machine frame (cable wire >AWG 7 cross section) to prevent ground loops.