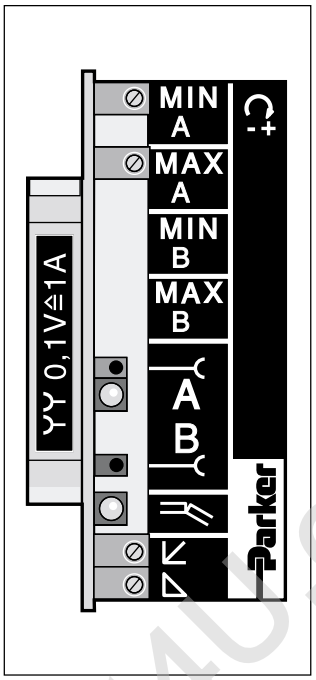
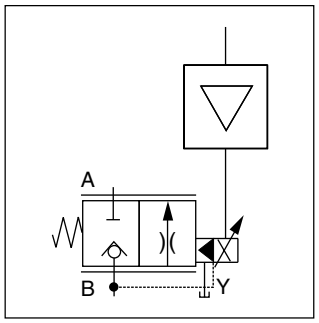
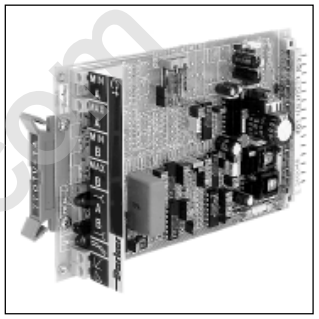
General Description

The ET104 series electronic module is used to control TDA and TEA proportional throttle valves configured with the 'L' solenoid option. For valves configured with the 'M' solenoid option, refer to driver card ET154. The module accepts a 0 to 10 volt command signal, and produces a proportionally linear output current used to drive the valve's proportional solenoid. Note that the linearity of the valve itself determines the linearity of the system. Refer to the specific valve data for actual linearity performance. Two ramp adjustments provide control of actuator acceleration and deceleration.



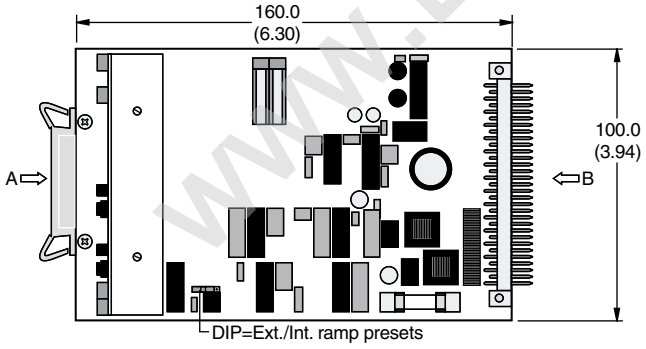




Features

- Processing and amplification of the externally supplied positive set-values into output signals for the control solenoid.
- Can be combined with EZ150 or external programmable control.
- DIP switch from internal ramp generation to external ramp setting.
- MIN/MAX limiters for matching the working range to the full set value range.
- Pulsed low-loss amplifier power stage with supporting constant current control for constant, temperature-independent, solenoid forces.
- Dither generator with applied frequency to improve static characteristics.
- Diagnosis by means of diagnostic sockets as well as LEDs for indicating working conditions.

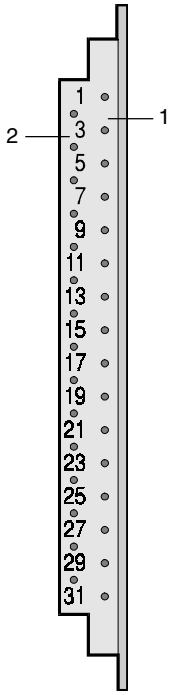
Dimensions



Specifications

Connection	31 Pole Male Connector, DIN 41617
Power Supply	Regulated: 18-26V Unregulated: 22-38V
Power Required	40 VA
Command Signal	0 to +10 VDC
Input Select Voltage	5 to 30 VDC
Reference Outputs	+10 VDC 10 mA
Max. Solenoid Output Current	1.05A with set value 10V
Ambient Temp. Range	0°C to +70°C (+32°F to +158°F), Standard Range
Ramps	0 to 5 seconds adjustable
Shielded Cable Connection	Supply connections + valve: 1.5 sq. mm (16 AWG) Command Signals: 0.5 sq. mm (20 AWG)
Fuse	2A medium lag, DIN 41571/5x20 mm

Connector (Elevation B)



14 Input command voltage 0...+10VDC

16 Output +10V reference

18 Input 24VDC supply

22 Input external ramp option

26 Output to control solenoid

11 Reference potential 0V supply

13 Input ramp disable

25 Output to control solenoid

27 Input external ramp option

31 Reference potential 0V set value

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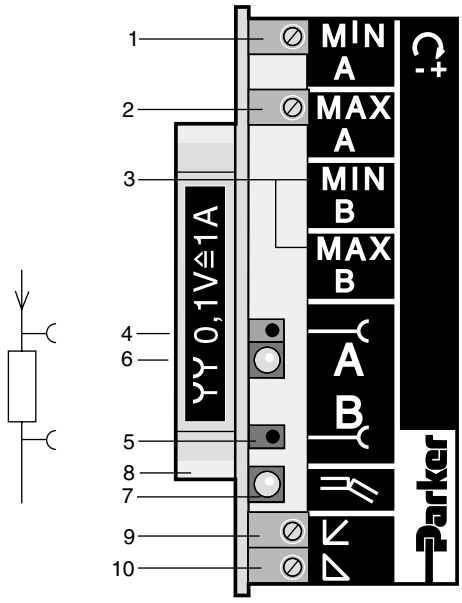
Operating and Diagnostic Elements (Elevation A)

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.

Only potential-free measuring equipment to be used



1 MIN limiter for matching the smallest throttle aperture

2 MAX limiter for matching the largest throttle aperture

3 not used

4 Red socket for current diagnostic

5 Black socket for current diagnostic

6 Red LED (A) for:
- function indicator control solenoid
- (B not used)

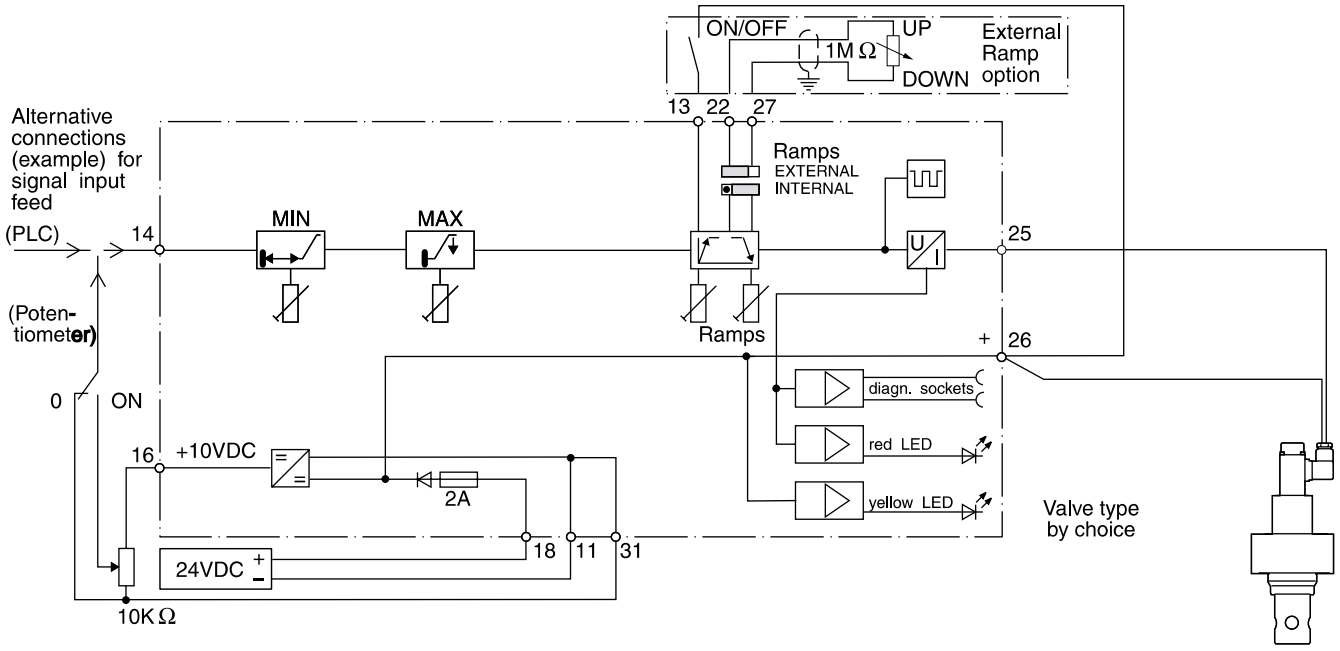
7 Yellow LED for:
- correct voltage supply

8 Green grip strip with reference information for measured values

9 UP ramp potentiometer

10 DOWN ramp potentiometer

Block Diagram



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Ordering Information

ET — **Electronic Module Pressure Valve**

Valve Size

Code	Valve	Sol.
00	TDA...LAF E16 to E50	35mm
00	TEA...LAF E16 to E50	35mm
99	TDA...LAF E63 to E100	60mm
99	TEA...LAF E63 to E100	60mm

104 — **Module Type**

Code	Description
104	Amplifier, adjustable MIN/MAX limits, UP/DOWN ramps for valves with 'L' solenoid option

10 — **** Design Series**

** Replaces /D Series Units