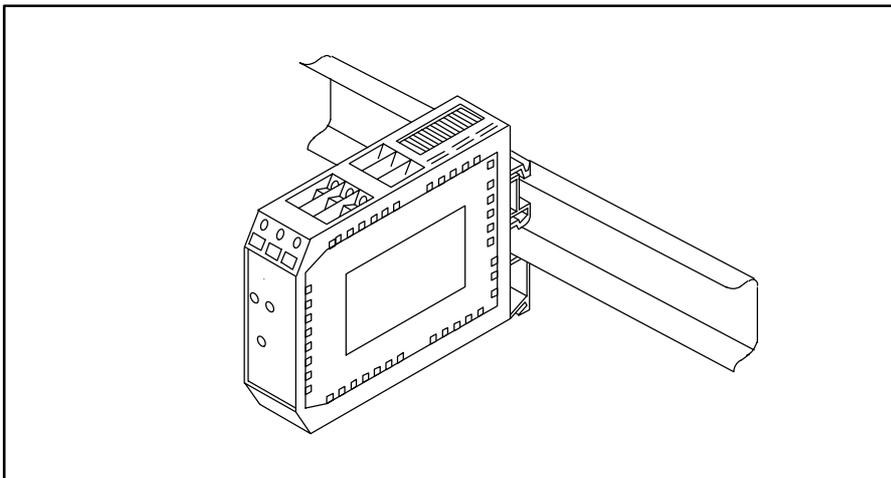


Electronic Control Modules for DIN-Rail-Mounting

EHA-CON-201-A-20; EHA-RMP-201-A-20; EHA-PSU-201-A-10



Features and Benefits

- Provides for enhancement of control system for Vickers “KA” and “KB” series integrated valve/amplifier proportional valves
- Snap-on to DIN EN 50022 or DIN EN 50035 rails
- 24V DC power supply with wide tolerance
- All output signals $\pm 10V$ DC
- Screw terminals reduce wiring installation costs
- All of user adjustments clearly identified
- LEDs show status

General Description

A range of three “Snap-on” control modules for mounting into control cabinets, using rails to DIN EN 50022 or DIN EN 50035. The range is ideally suited for use with Vickers “KA” and “KB” series of proportional valves with integrated drive electronics, where external ramp generation, conversion from current to voltage command signals, etc. may be required.

All adjustment potentiometers, together with status LEDs and switches are mounted on the front panels of the modules.

Supply voltage to all models is 24V DC. Wiring connections are via screw clamp terminals.

General Specification

For data specific to each module see later “Operating Data” sections.

Power (input) supply	24V DC nom. See individual module data.
Control (output) supplies	See individual module data
Connections	Screw clamping terminals
Wiring recommendations, all connections	0,5 to 2,5 mm ² (22 to 12 AWG)
Mounting	Rails to DIN EN 50022 or DIN EN 50035
Housing material	Polyamid 6.6
Protection	IEC 529 class IP20
Vibration: Vickers environmental specification	Class I level 2 (IEC 68-2-6)
Electromagnetic compatibility (EMC): Emission Immunity	EN 50081-2 EN 50082-2
Ambient temperature range: Operational Storage	0 to 50°C (+32 to 122°F) -25 to 85°C (-13 to +185°F)
Mass: EHA-CON-201-A-20 EHA-RMP-201-A-20 EHA-PSU-201-A-10	0,2 kg (0.45 lb) 0,2 kg (0.45 lb) 0,2 kg (0.45 lb)



This product has been designed and tested to meet specific standards outlined in the European Electromagnetic Compatibility Directive (EMC) 89/336/EEC, amended by 91/263/EEC, 92/31/EEC and 93/68/EEC, article 5. For instructions on installation requirements to achieve effective protection levels, see this leaflet and the Installation Wiring Practices for Vickers Electronic Products leaflet 2468. Wiring practices relevant to this Directive are indicated by Electromagnetic Compatibility (EMC).

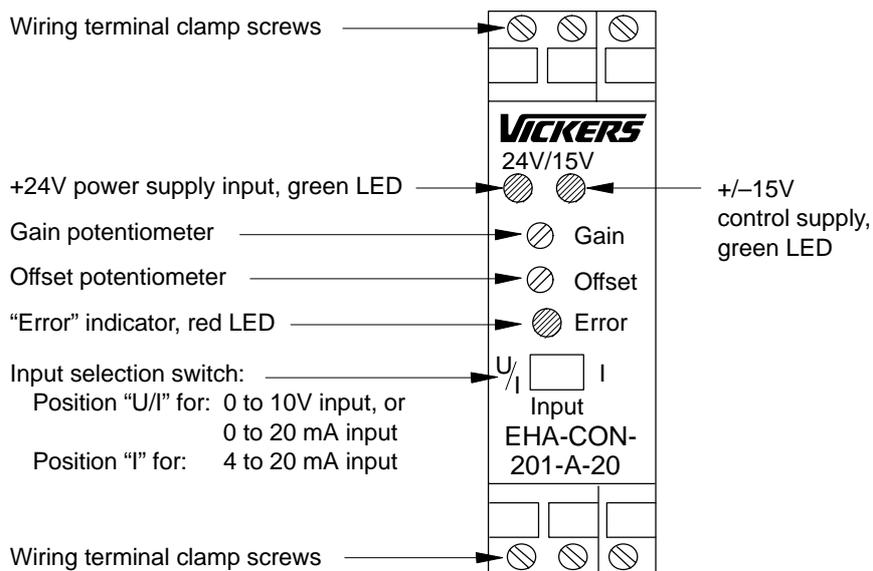
Signal Converter Module

EHA-CON-201-A-20

Converts uni-polar current and uni-polar voltage signals to bi-polar voltage output signal in the range $\pm 10V$, to match the requirements of Vickers "KA" and "KB" series valves.

The output is grounded if the input signals are out of their operating range. Simultaneously a red "error" LED is illuminated and an "error" switching signal provided. The system self-resets when the input comes within its operating range.

Front Panel; Actual Size



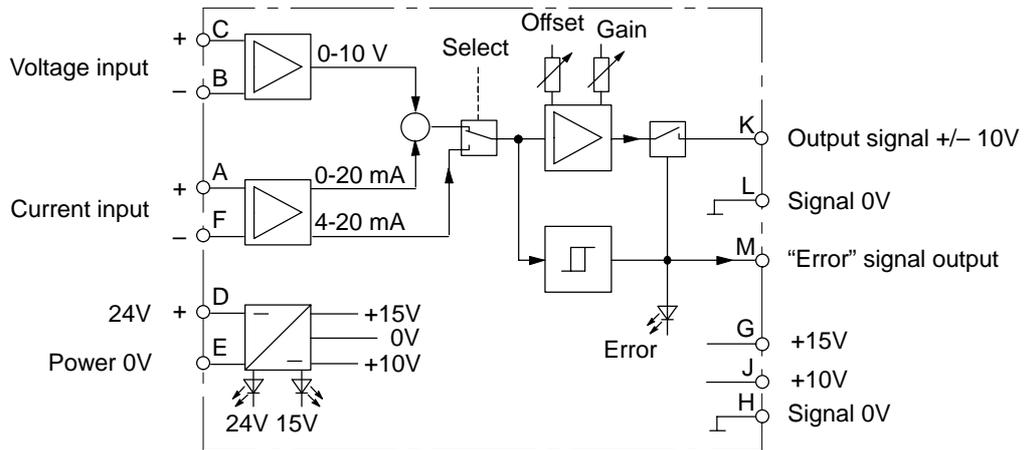
Operating Data

Power (input) supply		24V DC nominal x 6W (18-36V DC including $\pm 10\%$ pk. to pk. ripple)
Control (output) supplies	[G] [J]	+15V x 50 mA +10V x 5 mA Temperature drift $<1 \text{ mV}/^\circ\text{C}$ thru $0-50^\circ\text{C}$ ($<0.5 \text{ mV}/^\circ\text{F}$ thru $32-122^\circ\text{F}$)
Output signal	[K]	$\pm 10V$ x 5 mA max. Temperature drift $<1 \text{ mV}/^\circ\text{C}$ thru $0-50^\circ\text{C}$ ($<0.5 \text{ mV}/^\circ\text{F}$ thru $32-122^\circ\text{F}$)
Gain adjustment		60 to 100% of max. output signal range
Zero point ("Offset") adjustment range		$\pm 1V$ at output
Input signal: Current	[A/F]	0 to 20 mA, with selector switch set to "U/I", or 4 to 20 mA, with selector switch set to "I"
Voltage	[C/B]	0 to 10V, with selector switch set to "U/I"
Input signal zero point		
0 to 20 mA input		10 mA
4 to 20 mA input		12 mA
0 to 10V input		5V
Input/output conversion:		
0 to 20 mA input		} $-10V$ to $+10V$ output
4 to 20 mA input		
0 to 10V input		
Error switching output signal ▲	[M]	23V DC (typical) x 100 mA: short-circuit protected; with flywheel diode

▲ The input error indicates that the input signal is out of its operating range. The output self-resets if the signal is in the correct operating range.

Signal Converter Module EHA-CON-201-A-20

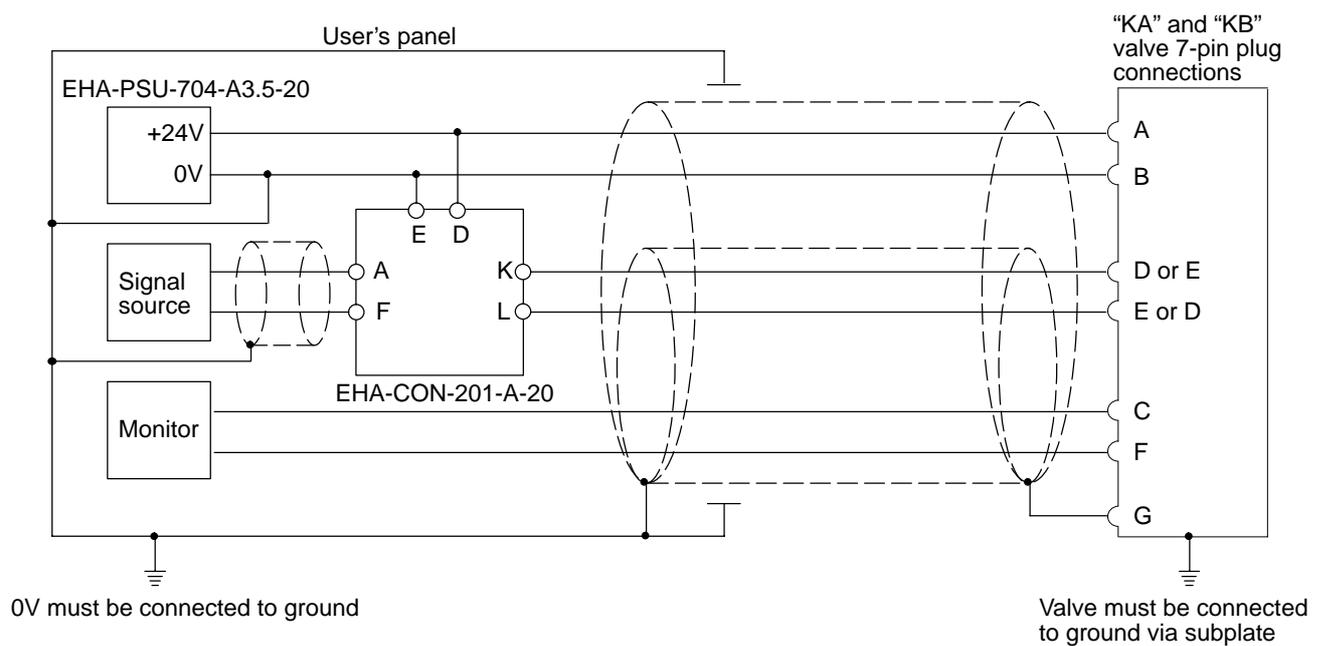
Electrical Block Diagram



Note: The unused input signal pin B or C must be connected to signal 0V (pin H or pin L).

Typical Connection Arrangement

Customer-generated current command signal used to control KA/BDG*V-* valve with integral amplifier



⏚ Customer's protective ground connection.

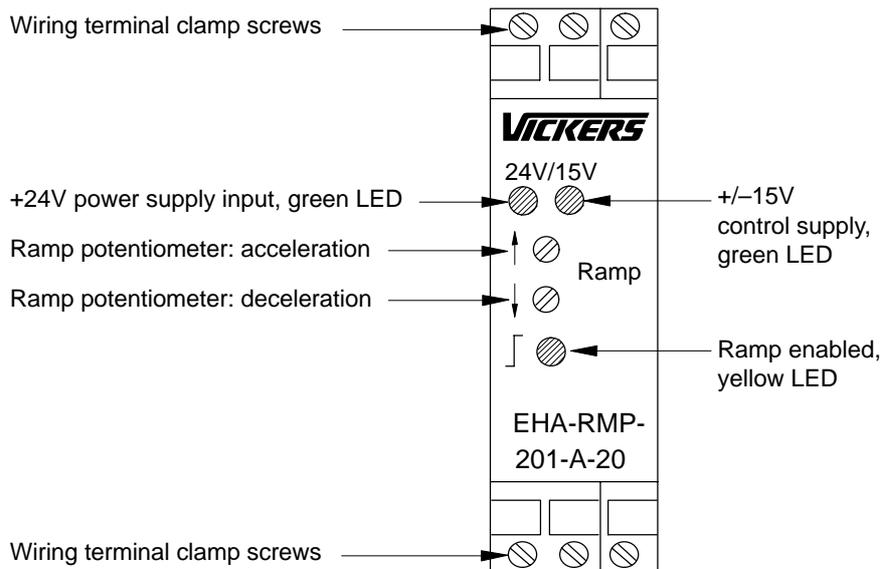
Ramp Generator Module

EHA-RMP-201-A-20

Separately adjustable acceleration and deceleration can be applied to voltage signals in the range +10V to -10V. The ramp is enabled by an external 24V signal. When the ramp function is not enabled, the output and input signals are identical.

Control voltages are provided from a DC/DC converter.

Front Panel; Actual Size

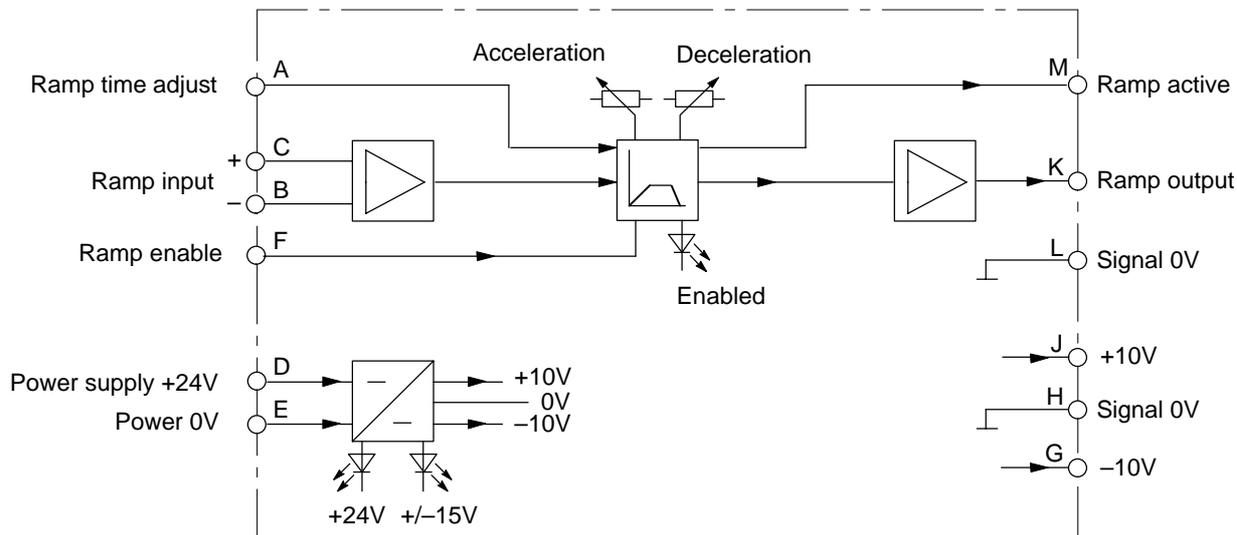


Operating Data

Power (input) supply		24V DC nominal x 6W (18-36V DC including $\pm 10\%$ pk. to pk. ripple)
Control (output) supplies	[J] [G]	+10V x 10 mA -10V x 10 mA Temperature drift <1 mV/°C thru 0-50°C (<0.5 mV/°F thru 32-122°F)
Ramp differential input signal:		$\pm 10V$, 100 k Ω
Positive	[C]	
Negative	[B]	
Ramp output signal	[K]	$\pm 10V$ x 5 mA Temperature drift <1 mV/°C thru 0-50°C (<0.5 mV/°F thru 32-122°F)
Ramp function:		
Enable	[F]	12 to 40V ($R_i = 2,7$ k Ω)
Disable	[F]	$\leq 3,5V$ or open circuit
Ramp adjustment:		
By potentiometer (separate acceleration and deceleration)		50 ms to 5s
By external voltage (common acceleration and deceleration with potentiometers at zero)	[A]	50 ms to 2s
Ramp active output signal	[M]	23V DC (typical) x 20 mA

Ramp Generator Module EHA-RMP-201-A-20

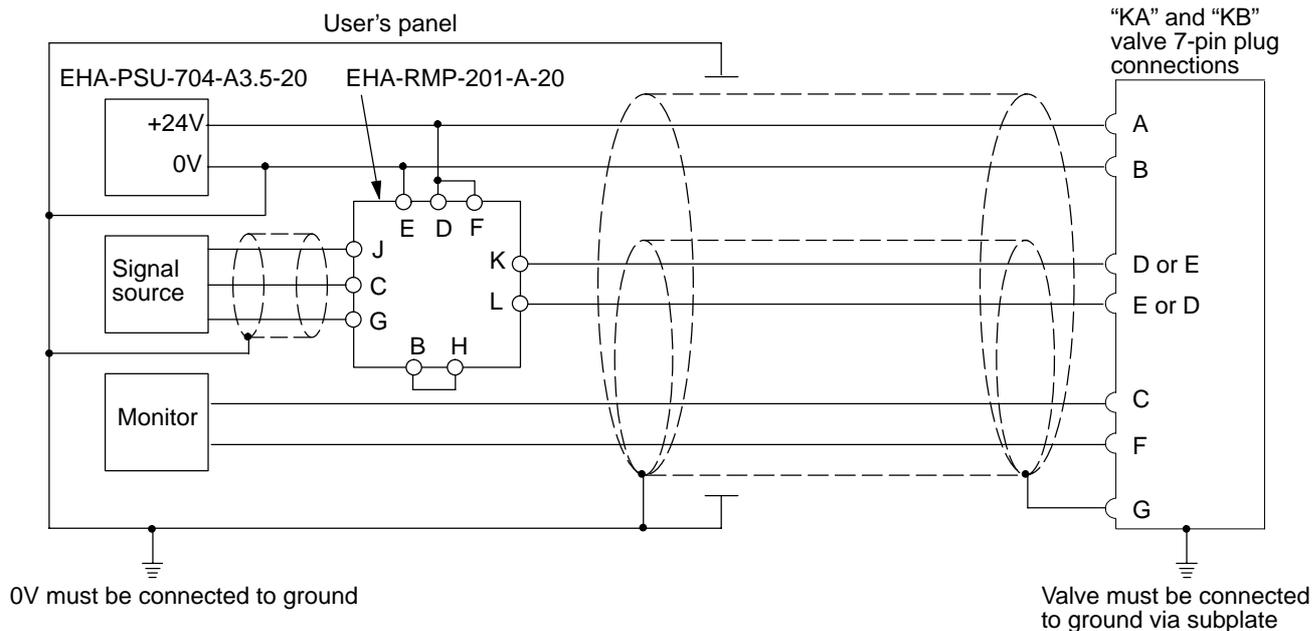
Electrical Block Diagram



Note: The unused input signal pin B or C must be connected to signal 0V (pin H or pin L).

Typical Connection Arrangement

Module limits acceleration and deceleration to preset levels

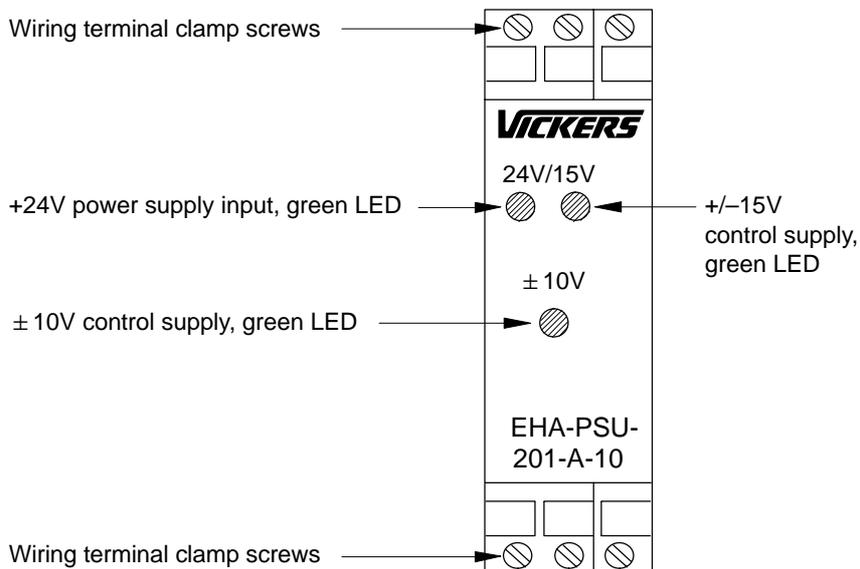


⊥ Customer's protective ground connection.

Power Supply Module EHA-PSU-201-A-10

Provides control voltages of $\pm 15V$ and $\pm 10V$ when used with 24V power supply EHA-PSU-704-A-20

Front Panel; Actual Size

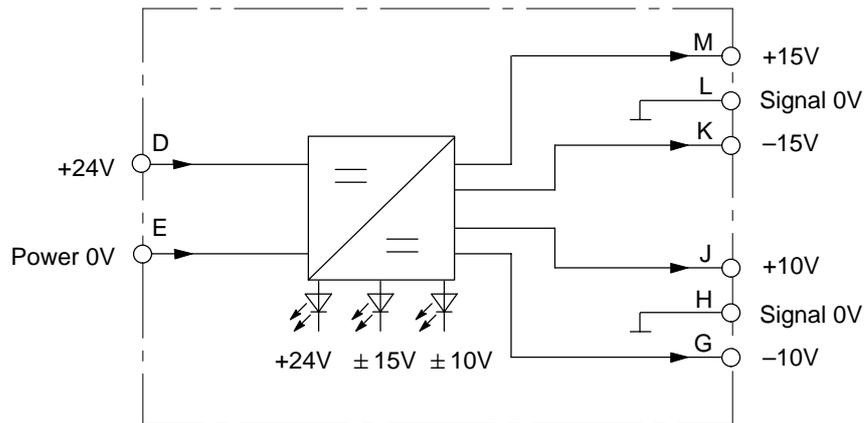


Operating Data

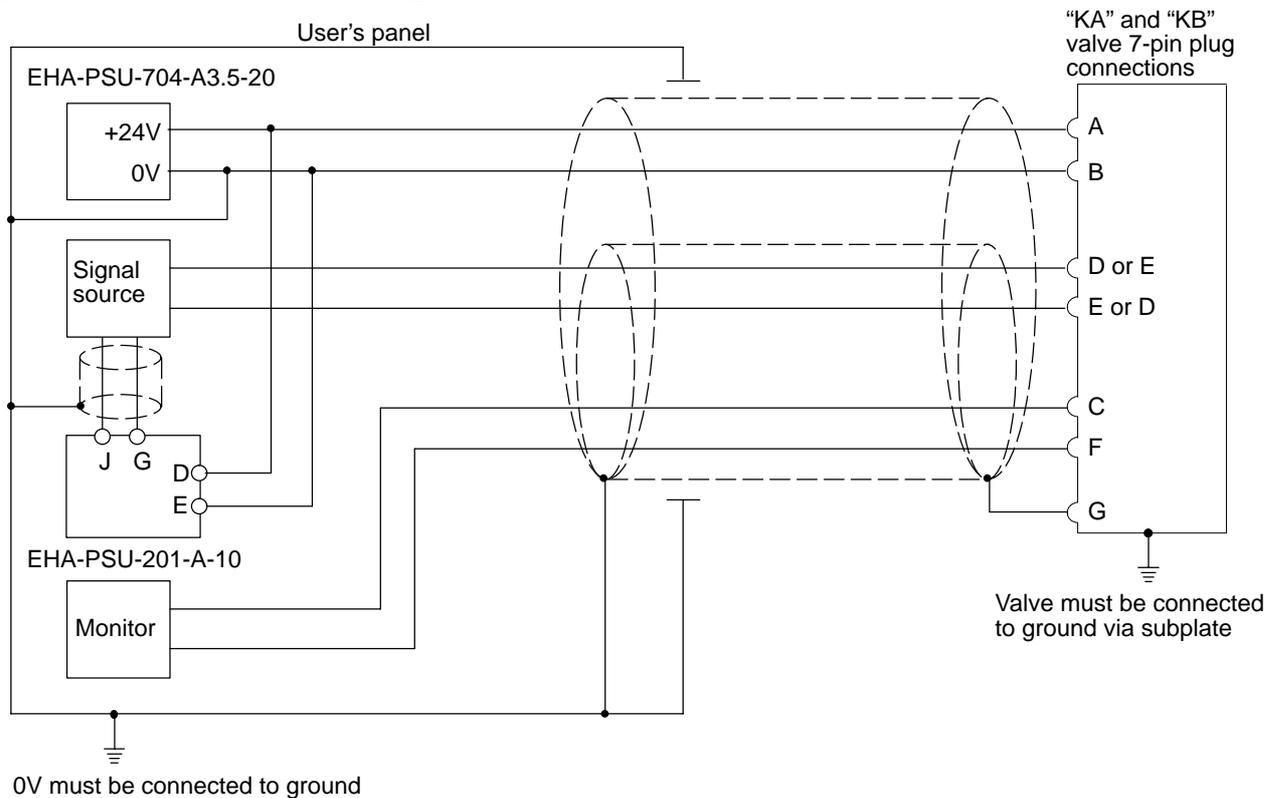
Power (input) supply		24V DC nominal x 12W (20-36V DC including $\pm 10\%$ pk. to pk. ripple)
Control (output) supplies	[M]	+15V x 250 mA
	[K]	-15V x 250 mA
	[J]	+10V x 50 mA
	[G]	-10V x 50 mA
		Temperature drift $< 1 \text{ mV}/^\circ\text{C}$ thru $0-50^\circ\text{C}$ ($< 0.5 \text{ mV}/^\circ\text{F}$ thru $32-122^\circ\text{F}$)

Power Supply Module EHA-PSU-201-A-10

Electrical Block Diagram

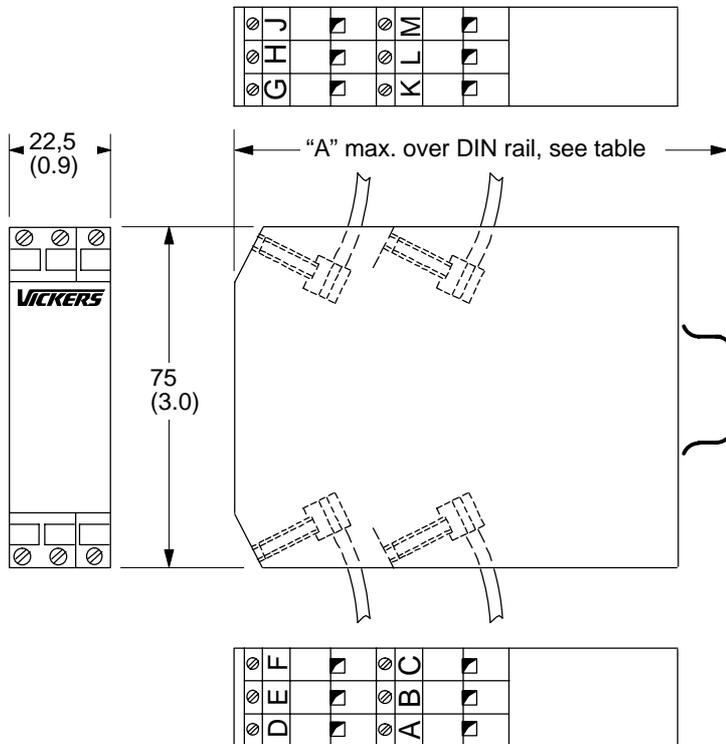


Typical Connection Arrangement



⏚ Customer's protective ground connection.

Installation Dimensions in mm (inches)



Type	TS1	TS3	TS4/5
A	107 (4.22)	02 (4.01)	109,5 (4.32)



Warning: Electromagnetic Compatibility (EMC)

It is necessary to ensure that the unit is wired up in accordance with the connection arrangements shown in this leaflet. For effective protection the user's electrical cabinet, the valve subplate or manifold and the cable screens should be connected to efficient ground points. The metal 7 pin connector part no. 934939 should be used for the integral amplifier.

In all cases both valve and cable should be kept as far away as possible from any sources of electromagnetic radiation such as cables carrying heavy current, relays and certain kinds of portable radio transmitters, etc. Difficult environments could mean that extra screening may be necessary to avoid the interference.