



*Electronic Control System
EHC35*

IPS302 Control Unit

*Catalogue 9129 8359-02
February, 1999 GB*



Applications

The IPS302 is an electronic control unit designed for use with the ICL3, ICL4 and ICM4 lever units, and the PVE102, PVC102 and PVC25 remote control valves.

A single IPS unit can be used to control up to four double-acting functions. Easily accessible potentiometers on the front of the unit make it easy to set the breakaway and final currents for the respective remote control valves.

Construction and function

The IPS302 control unit generates a pulse-width modulated square wave in order to minimize hysteresis in the controlled functions. The power amplifier board is current controlled by means of a current-sensing feedback, which makes the control unit independent of resistance changes in the solenoid or variations in the supply voltage. Since the force of the solenoid is dependent only on the strength of the current through the coil, and on the number of turns in the coil, current control means that the IPS302 is independent of temperature variations in the solenoid coil of the remote control valve it controls. Even resistances arising in cables and oxidizing contacts are compensated for by the IPS302. Quenching diodes for the solenoid coils are built into the IPS302.

The control unit is equipped with stabilized DC output for connection to the ICL3, ICL4 and ICM4 lever units.

A built-in safety circuit breaks the supply voltage if any of the outputs are activated incorrectly. The outputs are protected against transients, and the battery connection is protected against polarity errors and overvoltage.

Each function is controlled by means of two potentiometers. One controls the curve's breakaway point, and the other the slope of the curve. The final point is therefore determined by the curve's breakaway point and slope.

The IPS302 is equipped with a filter, F1 or F2, for protection against external interference.

Characteristics

- Individual tuning of each function, even during operation, within a very wide range.
- Simple construction and tuning of new systems.
- Temperature compensated.
- Protection against EMC.
- CE marked.

Ramp function

The IPS302 can be equipped with a built-in ramp function, known as a down ramp. It is used to obtain a gentle retardation sequence. This provides effective protection against overloading of the machine in the event of careless operating movements. The operator is thus able to exploit the machine fully, but with minimal risk of damaging the machine or the goods being handled. Ramp times can be set between 0 and 2 seconds. The function is very useful in most applications, e.g. in cranes, forestry and agricultural machines, working platforms, mining and contractor's plant.

If the down ramp is set at, e.g. 1 second, and the lever is released from the actuated position to neutral, the control signal will fall to 0 in 1 second (see curve in diagram). When controlling a directional valve, actuation of the spool is terminated once the control signal has fallen to the breakaway signal level. The ramp function continues even if the lever is moved beyond the neutral position.

The ramp time is set separately for each direction by means of easily accessible potentiometers on the front of the unit.

Tuning

Each function is regulated by means of three potentiometers:

"Min" regulates the breakaway point of the curve.

"Max" regulates the slope of the curve.

"Ramp" regulates the down-ramp time.

See also the installation and servicing instructions, printed matter No. 9129 8332-02.

Technical data

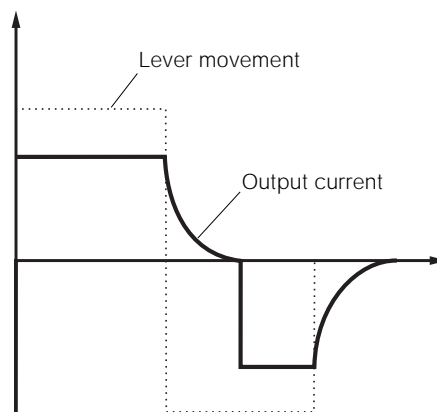
Version	12V	24V
Ambient temperature range for function	-30 °C to +50 °C	-30 °C to +50 °C
Approved test	CE marked	CE marked
Supply voltage	9.5 – 16 V DC	20 – 32 V DC
Supply voltage ripple, max.	10%	10%
Overvoltage protection	18 V DC	33 V DC
Current consumption, idling	160 mA	115 mA
Load per channel, max.	1.5 A	1 A
Breakaway current	50 – 800 mA*	50 – 400 mA*
Diff. between breakaway and final current	0 – 1300 mA*	0 – 850 mA**
Frequency	50 – 150 Hz	50 – 150 Hz
External fusing	8 A	6.3 A
Supply voltage to lever unit	5 V	8 V
Protection rating (recommended for installation in cab)	IP20	IP20
Weight with 3 amplifier boards	approx. 1.3 kg	approx. 1.3 kg

Settings on delivery:

Breakaway current	375 mA	200 mA
Final current	725 mA	400 mA
Frequency	100 Hz	100 Hz

* On connection of 8.9 ohm load, PVE102-12. 50 °C

** On connection of 27 ohm load, PVE102-24. 50 °C



Ramp function, IPS302.

Ordering code

(Example)

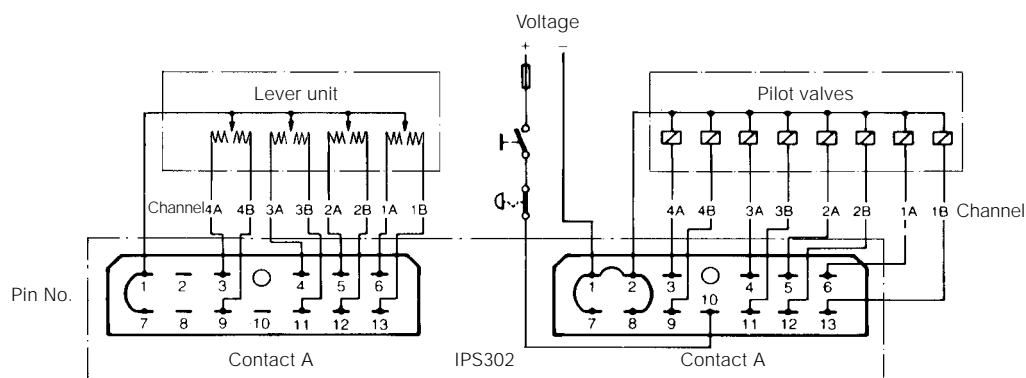
IPS302 – F2 24 – SSSS

Code	Filter
F1	Filter unit with connection on front
F2	Filter unit with connection on side

Code	Supply voltage
12	12-volt system
24	24-volt system

Code	Amplifier board, 4 places
S	Standard without ramp
R	Amplifier board with ramp function
/	Board slot empty

Diagram

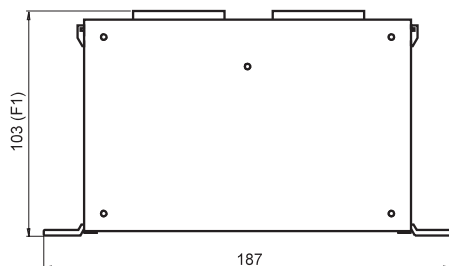


Contact A: Pin Nos. 2 and 8 (earth) and 10 not connected.

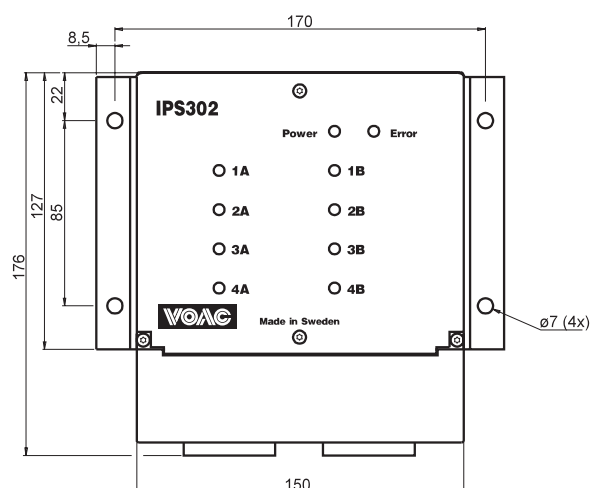
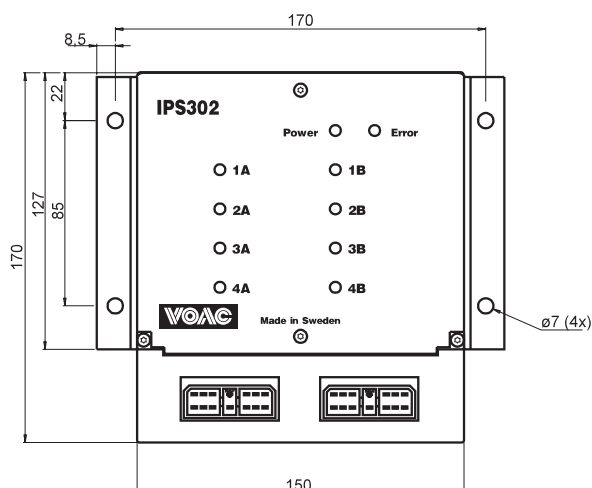
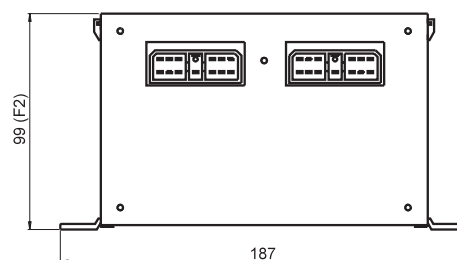
Pin Nos. 1 and 7 for supply voltage.

Dimensions

F1



F2



For more information, please contact:



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