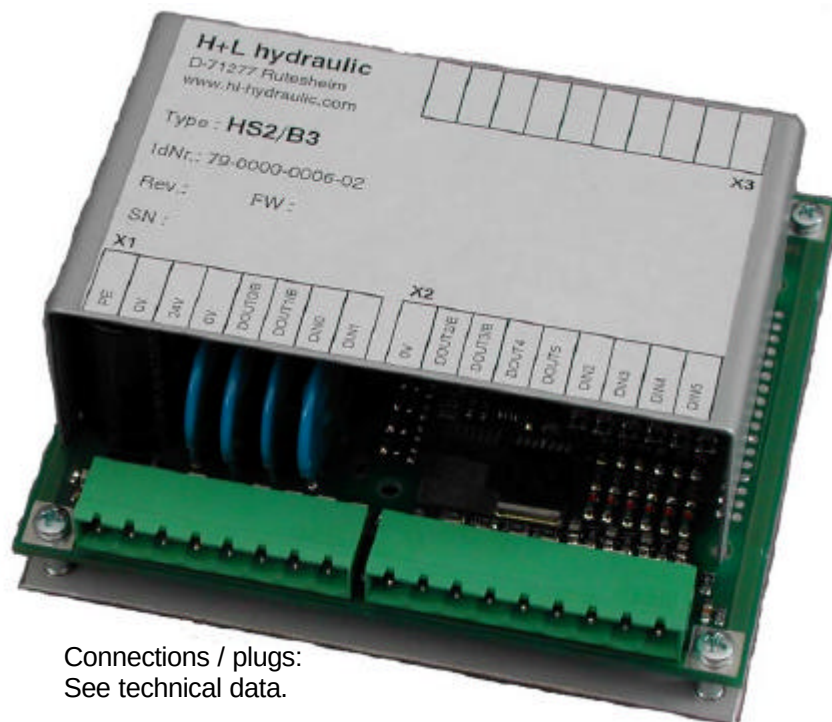


HS2/Bx

Booster for 1/2/4 Valves

Operating Instructions

- o Fast Switching of 1..4 Magnet Valves
- o Simple Supply with 24 VDC
- o Mounts on 35 mm DIN Rail
- o Low Cost Device
- o Connections on Spring Force Clamps
- o Status Indication with LED
- o Variants:
 - HS2/B2 No. 79-0000-0006-01 for 2 Valve Magnets
 - HS2/B3 No. 79-0000-0006-02 for 4 Valve Magnets



Connections / plugs:
See technical data.

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Reserved to change

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1. General Information

- o The intended application of the device is described in this document and must be observed. Contact manufacturer / supplier for different applications.
- o Installation, configuration and operation of the device must be under supervision of a skilled electrician. National regulations must be observed for:
 - Prevention of accidents
 - Safety and installation of mechanical and electrical systems
 - Electromagnetic compliance
- o Please note the technical data of the device, environmental requirements and requirements for power supply.
- o ESD rules must be complied with when handling the device.
- o The device is to be regarded as a „component“ in terms of EMC regulations. Compliance with EMC regulations must be reached for the machine of which the device is a component. Use appropriate measures for shielding / filtering.
- o The process of development and verification for software and firmware (sw/fw) is carried out with the necessary care and understanding. However, sw/fw can not be guaranteed to be error free. H+L reserves the right to change and correct the affected products at its own judgement.

2. Revisions

21.06.02/Bra	first issue
25.02.03/Bra	Picture, 4.,9.

3. Delivery

Delivery contains the device HS2 without further accessories.

4. Accessories

For devices with spring force clamps (HS2/B2), there is no necessary (plugs) accessories.

For device HS2/B3 (four outputs) the necessary plugs are not included:

For X1:	Typ: MSTB2,5/ 8 -ST-5,08	Phoenix Nr.: 17 57 07 7	1 piece
For X2:	Typ: MSTB2,5/ 9 -ST-5,08	Phoenix Nr.: 17 57 08 0	1 piece

Manufacturer: Phoenix Contact, Tel.: 05235/3-00 www.phoenixcontact.com

Available on request::	Item:	Plug Set HS2/F1
	IdNo.:	79-0041-0008-00
	Contents:	1 * MSTB2,5/ 8 -ST-5,08
		1 * MSTB2,5/ 9 -ST-5,08
		1 * MSTB2,5/ 10 -ST-5,08

5. Overview

The device HS2 is used for faster switching of hydraulic valves with electromagnetic operation. HS2 is optimized for the NG4 line of valves from H+L. By applying a short pulse of high voltage, the switching on time of a typical valve will be brought down from 17 ms to approx. 7 ms. The optimized de-energizing of the magnet will also bring the switching off time down to 10 ms (typical numbers).

6. Setup

Connections to HS2 may only be made / disconnected while power is off. After power-on the device is ready - there are no software parameters or hardware options to be set.

In case of a rotary mode switch being on board, it will be factory set to „0“ - this is the standard mode of operation. Choose other modes of operation only after consultation with H+L.

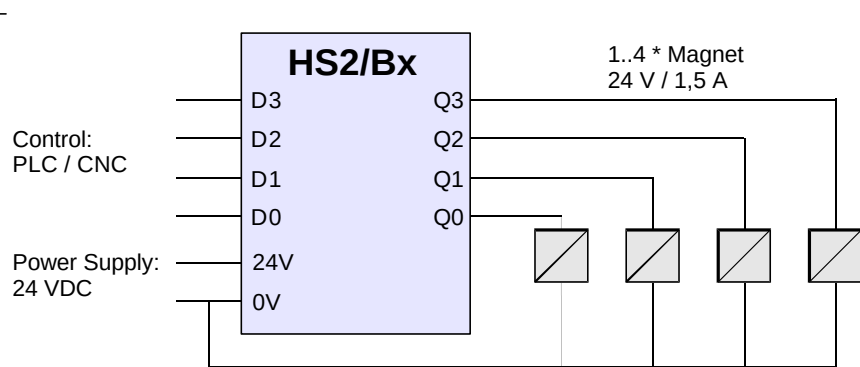
7. Power Supply and Fusing

Note the specifications for the power supply in the technical data.

Note: using a DC power supply with „hard“ control characteristic (electronic current limiter) can result in erroneous voltage drops due to peak current limiting. Using a DC power supply with „soft“ control characteristic is preferred.

8. Operation

The four magnets will be connected to the outputs Q[0..3]. They will be controlled by the inputs D[3..0]. Control of the four channels 0..3 is independent from each other. Please note: the required delay between two switch-on events must be at least 25 ms to result in the full speedup of switching.



The HS2 implements no logical processing or flow control. The control signals D[0..3] from the PLC/CNC will be amplified transparently.

8.1 Mode of Operation

The Mode of operation will be selected on the rotary coding switch. A change of this setting becomes effective after power-on.

Mode	Function
0	For H+L NG4 valves
1 .. F	reserved

9. Connections

Connectors X1 and X2 are either spring force clamps for wires of max. 1mm² (HS2/B2) or connectors of the type Phoenix COMBICON 5.08 mm (HS2/B3).

Connector X1

Pin No.	Signal	Function
X1-1	PE	Earth
X1-2	0V	0 V Supply
X1-3	24V	24 V Supply LED: GN
X1-4	0V	0 V return for Q[1,0]
X1-5	Q0	Output: Magnet Q0 LED: YE
X1-6	Q1	Output: Magnet Q1 LED: YE
X1-7	D0	Control input: for magnet Q0 LED: YE
X1-8	D1	Control input: for magnet Q1 LED: YE

Connector X2 (optional)

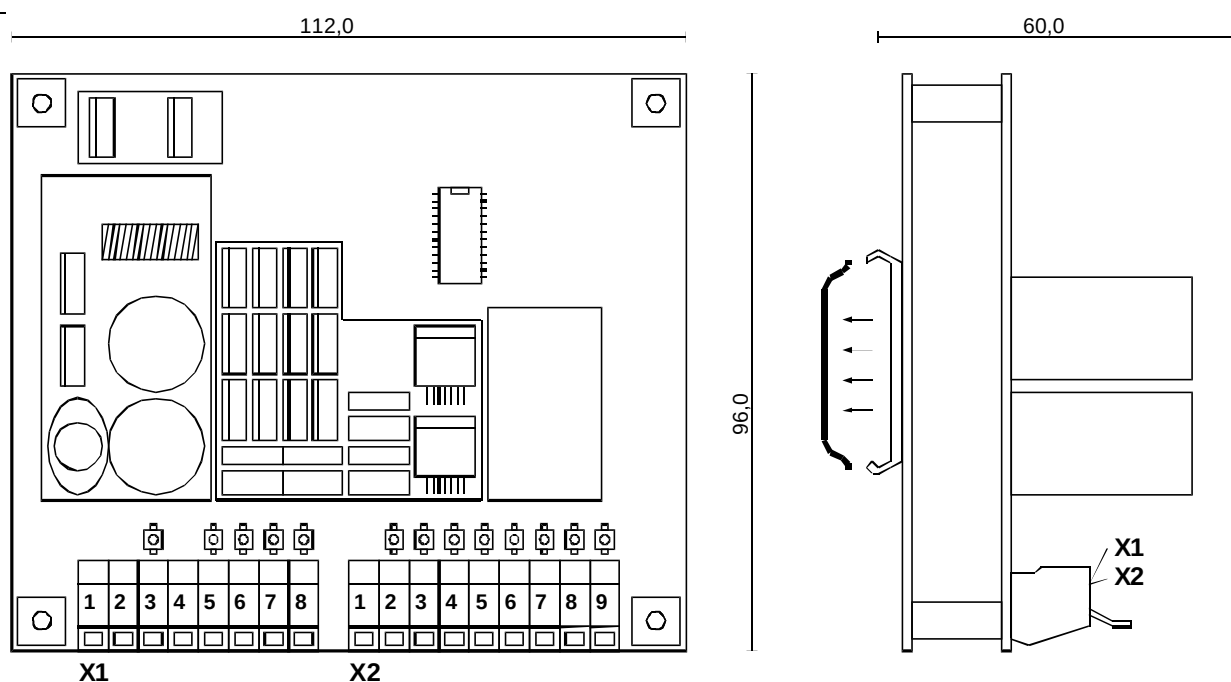
Pin No.	Signal	Function
X2-1	0V	0 V return for Q[2,3]
X2-2	Q2	Output: Magnet Q2 LED: YE
X2-3	Q3	Output: Magnet Q3 LED: YE
X2-4	Q4	Q4 (res.) LED: YE
X2-5	Q5	Q4 (res.) LED: YE
X2-6	D2	Steuereingang: für Magnet Q2 LED: YE
X2-7	D3	Steuereingang: für Magnet Q3 LED: YE
X2-8	D4	D4 (res.) LED: YE
X2-9	D5	D5 (res.) LED: YE

The outputs are high-side switching. The load will be driven against 0V.

10. Technical Data

Ident.-No.	79-0000-0006-01 79-0000-0006-02	HS2/B2 with two outputs HS2/B3 with four outputs
Dimensions	112 mm * 96 mm * 60 mm Mounts on 35 mm DIN rail	
Protection	IP 00, device has metal cover against coarse contacts	
Power consumption	150 VA, depending on connected load and cycle timing	
Storage environment	-25°C..+70°C humidity: 5%..95% not condensing	
Operating environment	5°C..+50°C humidity: 5%..95% not condensing	
Power supply	21..28VDC, including max. 2 Vss ripple Power-on current peak: max. 10 A / 10 ms	
Fuse	External: 10 A, slow	
Connectors	HS2/B1: spring force clamps, max. wire diameter 1 mm ² HS2/B2: COMBICON RM 5,08 mm plug	
24 V logic inputs	24V/10 mA, low = 0..5 V, high = 15 V .. Vb	
24 V logic outputs	24V/50A	
Valve outputs	24V / 1,5 A, with booster max. 100 V Clamping voltage: approx. -50V	
Cycle time	<= 0,2 ms	

11. Dimensions



Reserved to change.