Data sheet
mtv/ehm/e

Valve driver and control electronics for modular valves

- Ethernet interface for configuration
- 14-pole digital I/O connection
- 2 buttons for manual operation of functions
- Status LED
- µSD slot for configuration backup
- DIN hat rail mounting

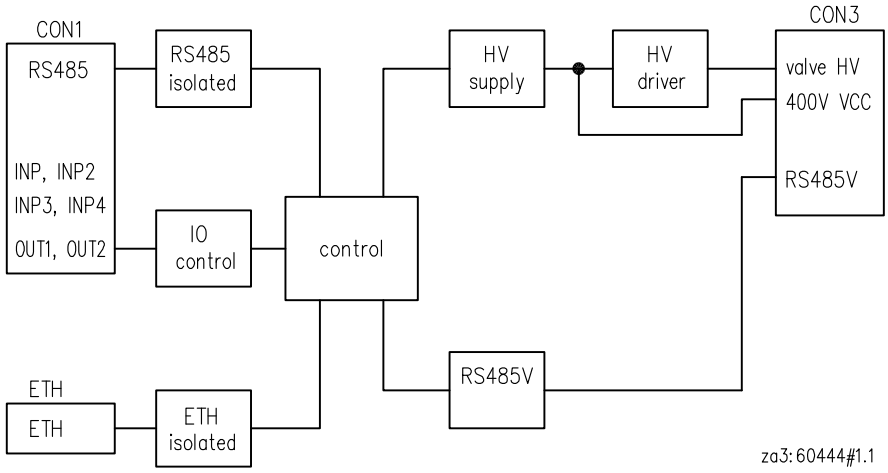
Figure 1: mtv/ehm/e

The *mtv/ehm/e* Ethernet high voltage module drives an *mtv/dsm/e* modular TorqueBlock valve.
The *mtv/ehm/e* controls the whole dispensing process.
Dispensing parameters and process operation are configured via Ethernet or Modbus interface.
The following options are available:

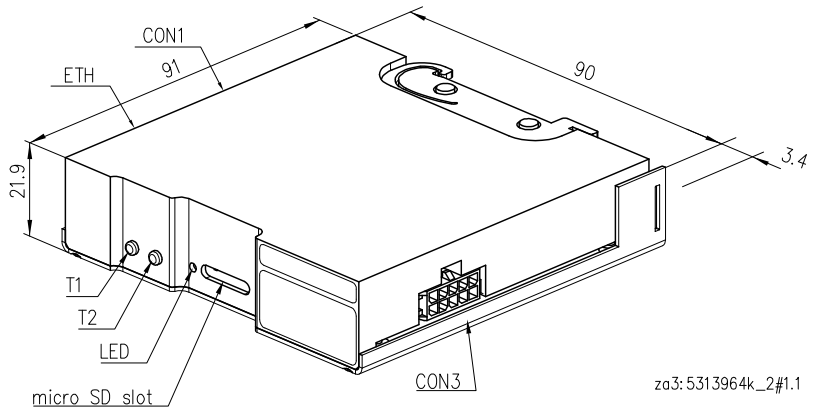
- configuration software basiCONTROL
- *vis/vt** HMI terminal series
- Modbus interface (RS485 or TCP)
  Please refer to *doc:P/mtv/ehm/doc/002* for a description of the Modbus interface.

The dispensing action can be triggered via the hardware I/O. Dispensing programs can be selected via software or also via the hardware I/O.

Internal structure



Control elements



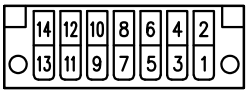
Name	Function	Mating part
CON1	supply, control, status	Phoenix 1790344 DFMC 1,5/ 7-STF-3,5
CON3	marco TorqueBlock valve	mtv/cab/<L>c (L: length in cm)
ETH	Ethernet	
T1, T2	configuration via IOMapping	
µSD Slot	backup/transfer of configuration	

Do not plug or unplug cabling to the marco TorqueBlock valve while energised.

Pin assignments

Frontal view of the device connector.

CON1



Pin	Signal	Pin	Signal
1	VCC	2	GND
3	INP1	4	INP2
5	OUT1	6	OUT2
7	INP3	8	INP4
9	n.c	10	RS485-G
11	RS485-A	12	RS485-B
13	PE	14	n.c.

CON1 signal description

Signal	Default function	Comment
VCC	supply voltage	24 V nominal
GND	reference potential	
INP1	input: pulse trigger	rising edge trigger
INP2	input	
INP3	input	
INP4	input	
OUT1	output: ready	
OUT2	output	
RS485-A (P)	RS485 slave line A	galvanically isolated
RS485-B (N)	RS485 slave line B	galvanically isolated
RS485-G (P)	RS485 GND	reference potential RS485
PE	Protective Earth	housing potential isolated from GND to be connected to facility ground!

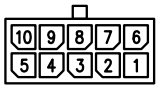
The inputs and outputs of the component assembly can take on different I/O functions as required by the customer. The following tables provide an overview of the possible I/O options of the individual pins. This functionality is only possible in combination with a *vis/vt** HMI terminal.

I/O properties

Electrical characteristics of the input/output lines.

Digital	
input level low	max 5.1 V
input level high	min 15.5 V
input hysteresis	typically 10.0 V
input frequency	max. 80 kHz
input type	EN61131-2 type 1
output type	high-side PNP
output current	max. 0.25 A per channel

CON3



za3: 38091k_5#1.4

Pin	Signal	Pin	Signal
1	400V VCC	6	RS485V-A (P)
2	valve HV	7	GND
3	GND	8	RS485V-B (N)
4	Vcc enable	9	heater
5	PE	10	24V VCC

ETH

Standard 100BASE-T 802.3 Ethernet suitable for auto 10/100MBit, auto MDI-X.

Controls

mtv/ehm/e has two operating buttons for simple tasks and a status indicator LED.

Buttons

The device has 2 physical push buttons T1 and T2. These can be assigned to an action via IOMapping if required. Please refer to the HMI VisTwo documentation for more information.
Default function:

Button	Function
T1	Dispensing Trigger
T2	Dispensing Purge

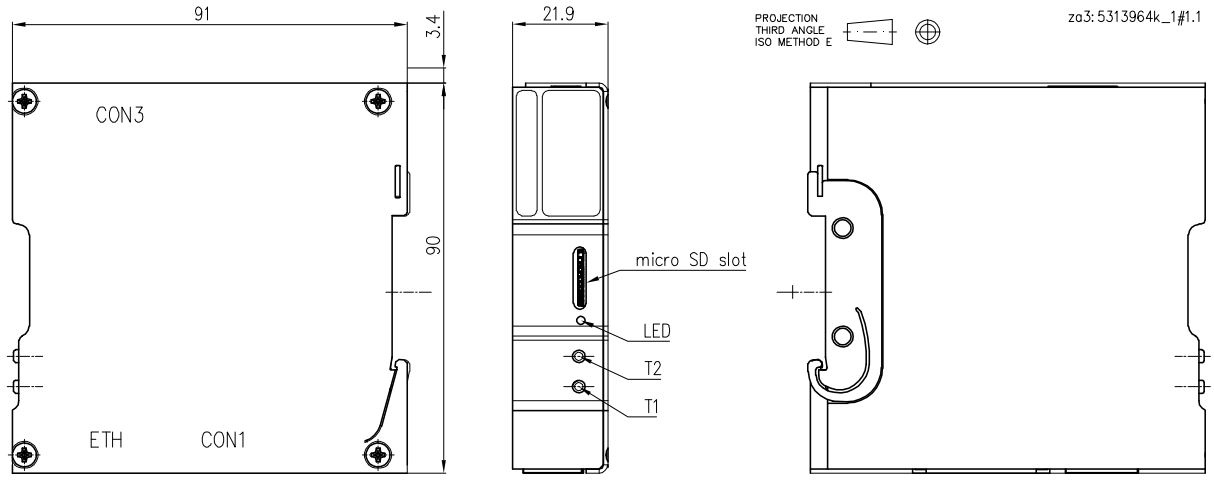
LED

LEDs		Description
red & green	blink alternately	initialisation
red	blinks	not ready for operation
green	blinks	ready for operation
blue	flashes	pulse is triggered

Technical data

Supply voltage	24 V +-10 % nominal
Power consumption	1.8 W idle 31 W full load
Dimensions L x W x H	90 mm x 91 mm x 21.9 mm
Weight	approx. 0.37 kg
Operating temperature	+5 °C to +50 °C
Storage temperature	0 °C to +70 °C
Degree of protection	IP30
Propagation delay	15 µs
Computation delay	30 µs

Technical drawing



Connection examples for inputs

Two example circuits for connecting an *mtv/ehm/e* using a single power supply and using multiple isolated power supplies.

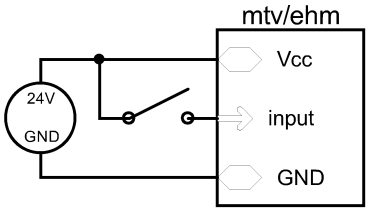


Figure 2: single source supply

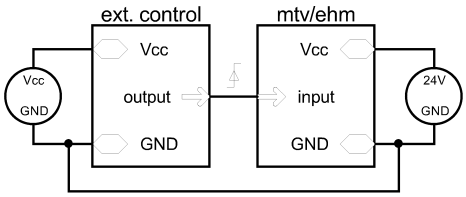


Figure 3: Multiple source supply

When supplying power to *mtv/ehm/e* and an external controller from different sources, the respective grounds must be connected.

Order number	Description
mtv/ehm/e	mTV basic valve driver module for modular TorqueBlock valves

marco Systemanalyse und Entwicklung GmbH
Hans-Böckler-Str 2, 85221 Dachau, Germany
Tel +49 8131 5161-0 Fax +49 8131 5161-66