



## Application

Indication of the status of e-stop buttons in an e-stop chain. We recommend to use the BH 5922 together with DOLD E-stop modules (approval).

## Function

If all the e-stop buttons are closed all green LEDs are on. If one button is activated the corresponding LED goes off.

The e-stop buttons are connected in series, therefore only one LED goes off even if several buttons are pressed. Only the first activated button in the row is indicated. When this e-stop button is released again the LED lights up again and the LED of the next activated button in the row goes off.

If the variant B\_5922/0\_2, B\_5922/0\_4, B\_5922/0\_5 is connected to a IP 5503 in Plug and Play modus the outputs show the state of the E-stop buttons and the LEDs the state of the status LEDs I1 - I8 on the e-stop monitor.

## Indicators

Green LED "On":	on, when supply connected
Yellow LED:	on, when bus active (only with /002)
Green status LEDs:	Continuous: when all e-stop buttons are closed Off: when corresponding e-stop button is pressed Flashing of one status LED only when: - manual reset and - released e-stop buttons and - signal not reset Reset can be made with button on front or with remote reset-button. Flashing of all status LEDs: The input S11 of the e-stop monitor is not connected. A reason could be a broken wire between this terminal and S11 of the e-stop module. When several e-stop monitors are connected in series this status also occurs when the previous shows an activated e-stop button.

## Notes

When using B\_5922/00\_ or B\_5922/01\_ for single channel monitoring or 2-channel connection of the e-stop chain the e-stop monitor has to be connected to the loop between S11 and S12 of the e-stop module. In this way channel AB is monitored.

In a 2-channel e-stop loop, the e-stop monitor has to be connected to the channel which normally is between the terminals S11 and S12 of the e-stop module. The E-stop monitor and the e-stop module have to be connected to the same DC 24 V power supply. When using an E-stop module with AC-supply the minus-terminal of the e-stop monitor (A2) must be connected to the minus-terminal of the e-stop control voltage (S21 or PE) on the e-stop module.

## Setup procedure

### CANopen mode

With switch position "CANopen" the CANopen protocol is active on the interface. The configuration of the device is made by software, e.g. Pro CANopen. The configuration file for BH 5922 can be ordered with reference: PN5501; Article number: 0052860

### Plug and Play mode

With switch position "Plug and Play" a variant of the CANopen protocol is active on the interface. The unit setting is done with a switch on the front, see picture below. If a system is on plug and play mode it can be switched over to CANopen protocol at any time.

### Address setting Plug and Play mode

To allow the E-stop monitor to communicate with a corresponding device via the CAN-bus the addresses have to be set with the 2 rotational switches on the front according to the table below. Addresses between 1...49, 51...99 are possible. Address 0 and 50 cannot be chosen in Plug and Play mode.

## Setup procedure

E-stop monitor BH/BL 5922 with address	transmits to	output module IP 5503 with address
1	→	51
·		·
49	→	99

Example of setting:  
left switch 10<sup>1</sup>:  
right switch 10<sup>0</sup>:

Address 14  
to position 1 x 10<sup>1</sup>  
to position 4 x 10<sup>0</sup>

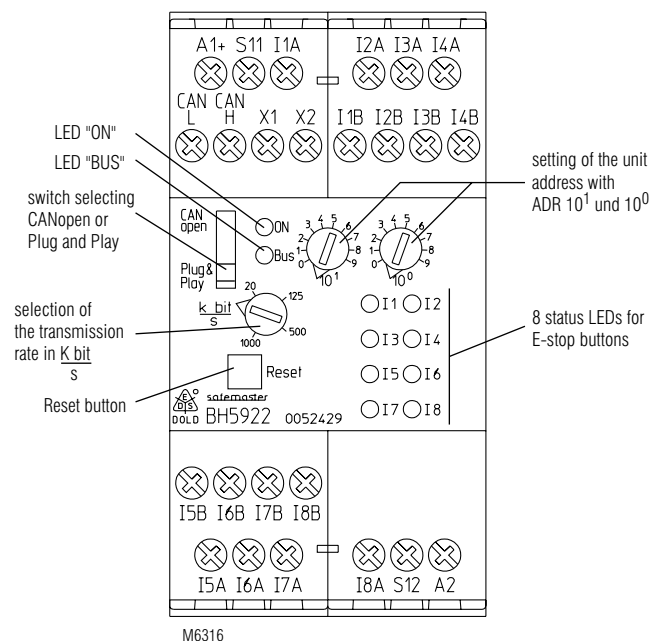
## Notes for Plug and Play mode

On the BL-models with 2-channel monitoring of the e-stop loop 2 addressees and 2 transmission rates can be chosen (channel AB and channel CD). For correct operation the adress settings must be different and the transmission rate settings must be the same. The screen of the bus wire has to be connected to A2 of the e-stop monitor.

## Setup procedure

- 1.) Connect CAN-bus to terminals CAN\_L and CAN\_H
- 2.) Terminate the physical end of the bus by connecting a termination resistor of 120 Ω between CAN\_L and CAN\_H on the first and last module of the bus
- 3.) Connect screen of bus wire to A2
- 4.) Select transmission rate (e.g. 20 K bit/sec) using the rotational switch on the front (see drawing)
- 5.) Select address of the module using rotational switches on the front (see drawing and above example)

**Attention:** To communicate in a system configured in Plug and Play modus it is necessary to set one module in the system to the address 1.



## Technical data

### Input

Nominal voltage U <sub>N</sub> (A1/A2):	DC 24 V
Voltage range:	0,8 ... 1,1 U <sub>N</sub>
Control voltage on S11/S12:	DC 24 V
Reset input X <sub>1</sub> , X <sub>2</sub> :	Voltfree contact
BCD interface:	
Output (O0, O1, O2, O3):	Transistor switching +
switched /auxiliary voltage:	DC 24 V
Switching capacity:	40 mA short circuit proof
Residual voltage:	typ. 0,6 V

## Technical data

BCD output, high active: (only with B_ 5922/001, B_ 5922/011)				description
O3	O2	O1	O0	
0	0	0	0	input S11 without voltage
0	0	0	1	E-stop 1 active
0	0	1	0	E-stop 2 active
0	0	1	1	E-stop 3 active
0	1	0	0	E-stop 4 active
0	1	0	1	E-stop 5 active
0	1	1	0	E-stop 6 active
0	1	1	1	E-stop 7 active
1	0	0	0	E-stop 8 active
1	1	1	1	no E-stop active

BCD output, low active: (only with B_ 5922/003, B_ 5922/013)				description
O3	O2	O1	O0	
1	1	1	1	input S11 without voltage
1	1	1	0	E-stop 1 active
1	1	0	1	E-stop 2 active
1	1	0	0	E-stop 3 active
1	0	1	1	E-stop 4 active
1	0	1	0	E-stop 5 active
1	0	0	1	E-stop 6 active
1	0	0	0	E-stop 7 active
0	1	1	1	E-stop 8 active
0	0	0	0	no E-stop active

BCD output, high active: (only with B_ 5922/021, B_ 5922/031)								description
O7	O6	O5	O4	O3	O2	O1	O0	
0	0	0	0	0	0	0	0	input S11 without voltage
0	0	0	1	0	0	0	0	E-stop 1 active
0	0	1	0	0	0	1	0	E-stop 2 active
0	0	1	1	0	0	1	1	E-stop 3 active
0	1	0	0	0	1	0	0	E-stop 4 active
0	1	0	1	0	1	0	1	E-stop 5 active
0	1	1	0	0	1	1	0	E-stop 6 active
0	1	1	1	0	1	1	1	E-stop 7 active
1	0	0	0	1	0	0	0	E-stop 8 active
1	1	1	1	1	1	1	1	no E-stop active

BCD output, low active: (only with B_ 5922/023, B_ 5922/033)								description
O7	O6	O5	O4	O3	O2	O1	O0	
1	1	1	1	1	1	1	1	input S11 ist without voltage
1	1	1	0	1	1	1	0	E-stop 1 active
1	1	0	1	1	1	0	1	E-stop 2 active
1	1	0	0	1	1	0	0	E-stop 3 active
1	0	1	1	1	0	1	1	E-stop 4 active
1	0	1	0	1	0	1	0	E-stop 5 active
1	0	0	1	1	0	0	1	E-stop 6 active
1	0	0	0	1	0	0	0	E-stop 7 active
0	1	1	1	0	1	1	1	E-stop 8 active
0	0	0	0	0	0	0	0	no E-stop active

0 = voltage on output: 0 V  
1 = voltage on output: 24 V

### CANopen interface

wiring: screened twisted pair  
transmission rate: settable 20 K bit/s, 125 K bit/s, 500 K bit/s, 1 M bit/s,  
max. length: 20 K bit/s = 2.500 m  
125 K bit/s = 500 m  
500 K bit/s = 100 m  
1 M bit/s = 25 m

### Plug and Play

transmission rate: 20 K bit / sec (recommended)

### Attention:



Both physical ends of the 2-wire system must be terminated with a 120 Ω resistor between the terminals CAN\_L and CAN\_H.

## General data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range:</b>	- 20 ... + 60 °C	
<b>EMC</b>		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
Surge proof against wire bound surges, induced by high frequency fields:	10 V class 3, f = 150 kHz - 80 MHz	IEC/EN 61 000-4-6
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages between wires for power supply:	1 kV	IEC/EN 61 000-4-5
between wire and ground:	2 kV	IEC/EN 61 000-4-5

## Technical data

Interference suppression:	Limit value class B	EN 55 011
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
<b>Housing:</b>	Thermoplastic with V0-behaviour to UL subject 94	
<b>Vibration resistance:</b>	Amplitude 0,35 mm IEC/EN 60 068-2-6 frequency 10 ... 55 Hz	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60 068-1	
<b>Terminal designation:</b>	EN 50 005	
<b>Wire connection:</b>	1 x 4 mm <sup>2</sup> solid or 1 x 2,5 mm <sup>2</sup> stranded ferruled or 2 x 1,5 mm <sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3/-4 or 2 x 2,5 mm <sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3	
<b>Wire fixing:</b>	Terminal screws M3.5, box terminals with wire protection	
<b>Mounting:</b>	DIN rail IEC/EN 60 715	
<b>Weight:</b>	approx. 255 g (BH 5922); approx. 470 g (BL 5922)	

## Dimensions

<b>Width x height x depth:</b>	
BH 5922:	45 x 86 x 121 mm
BL 5922:	90 x 86 x 121 mm

## Standard type

<b>BH 5922.08 DC 24 V</b>	
Article number:	0052427
• for 8 e-stop-buttons, single channel connection	
• Nominal voltage U <sub>N</sub> :	DC 24 V
• Width: 45 mm	
<b>BL 5922.08/010 DC 24 V</b>	
Article number:	0052430
• for 8 e-stop buttons, 2-channel connection	
• Nominal voltage U <sub>N</sub> :	DC 24 V
• BH 5922:	45 mm width
• BL 5922:	90 mm width

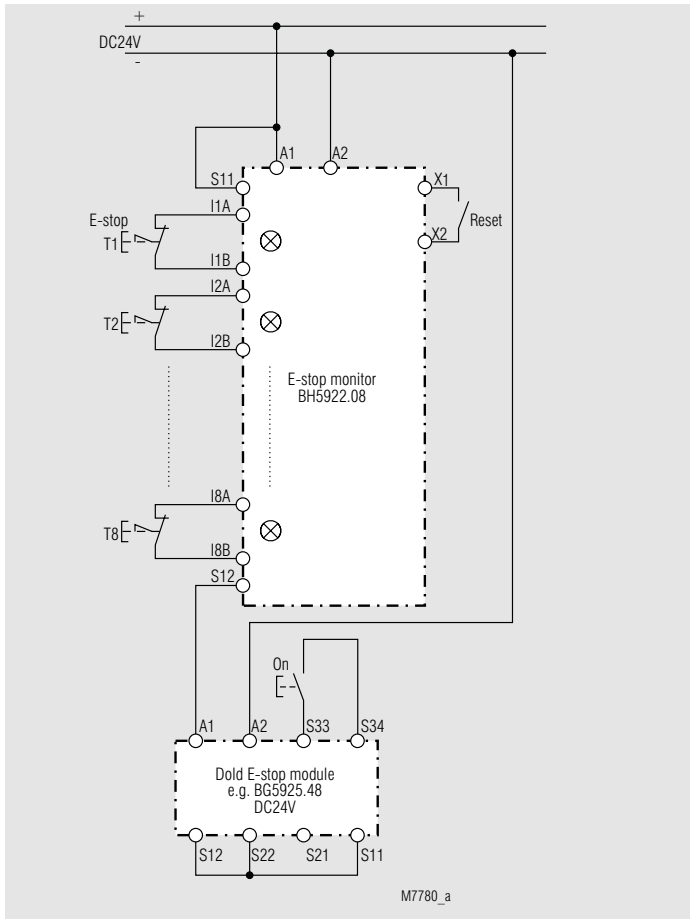
## Variants

B_ 5922	__ / 0 __	
		0 = without BCD output and CANopen interface
		1 = with BCD output, high active
		2 = with CANopen interface
		3 = with BCD output, low active
		4 = with CANopen interface and BCD output, high active
		5 = with CANopen interface and BCD output, low active
		Connection of e-stop buttons
		0 = single channel
		1 = 2-channel
		2 = 2-channel, 2-channel monitoring when no cross fault monitoring (only with BL 5922)
		3 = 2-channel, 2-channel monitoring when cross fault monitoring (only with BL 5922)
		Number of e-stop buttons that can be connected
		04 = 4 e-stop buttons, 2-channel connection with BH 5922
		08 = 8 e-stop buttons
		16 = 16 e-stop buttons
		H width 45 mm
		L width 90 mm

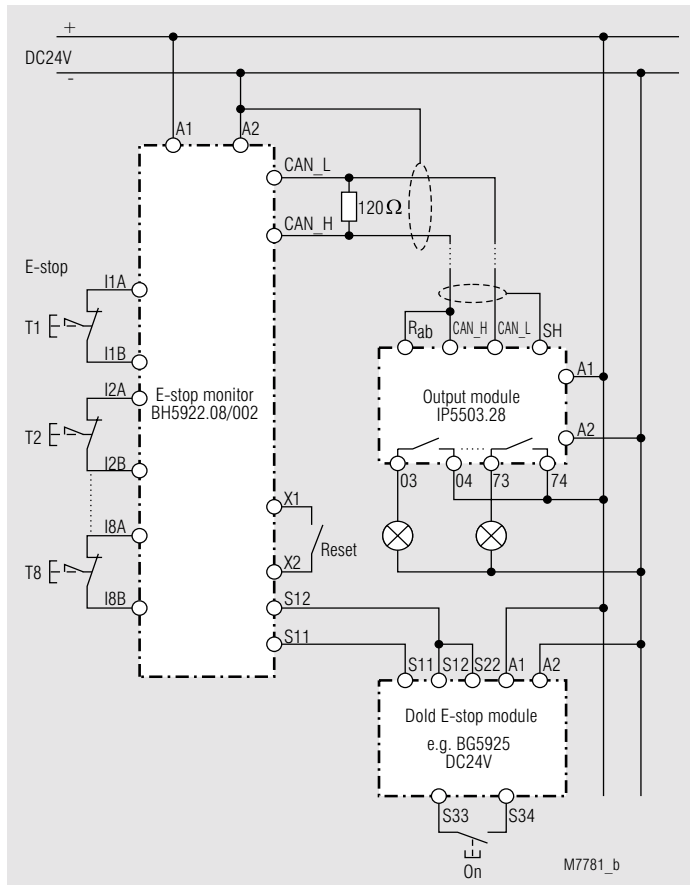
## Ordering example for variants

BH 5922.08 /	DC 24 V	Nominal voltage
		Variant, if required
		Number of e-stop buttons that can be connected
		Type

### Application examples

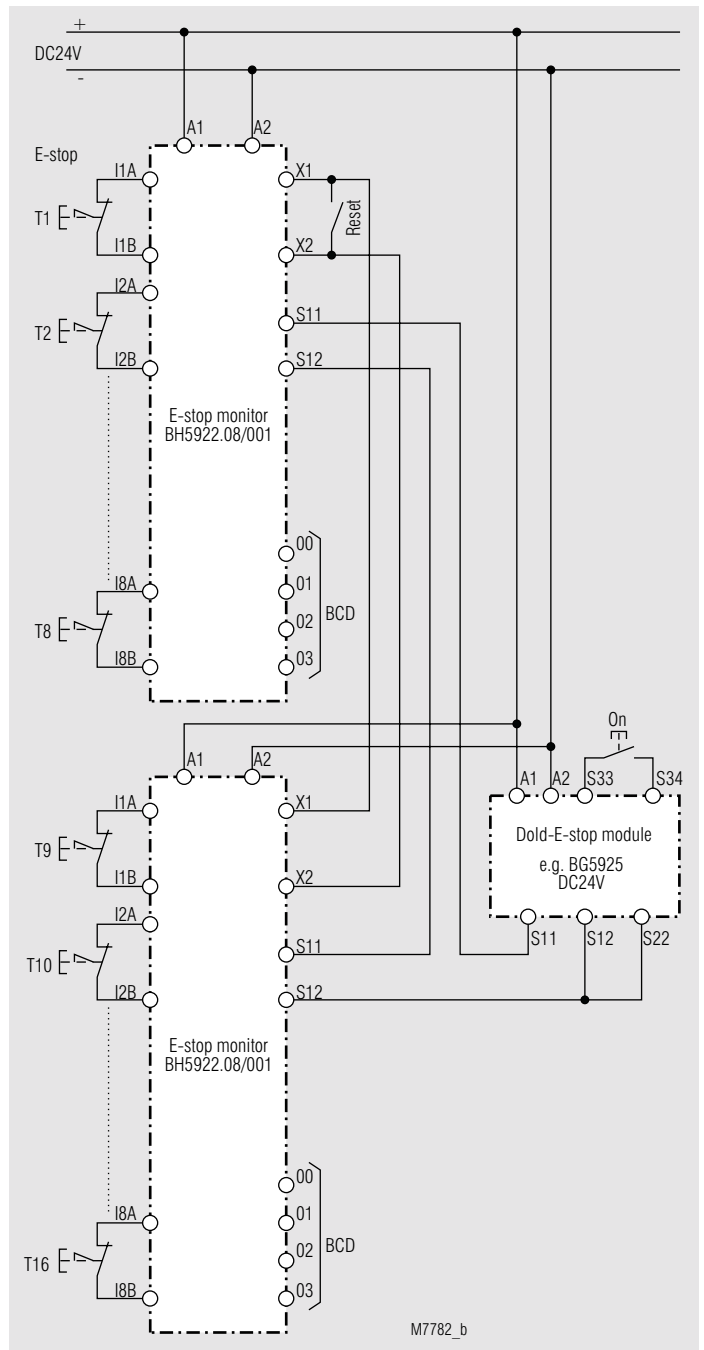


Pic 1: Monitoring of 8 e-stop buttons with e-stop monitor, single-channel connection, e-stop module single channel. Display via 8 LEDs on frontside of the module



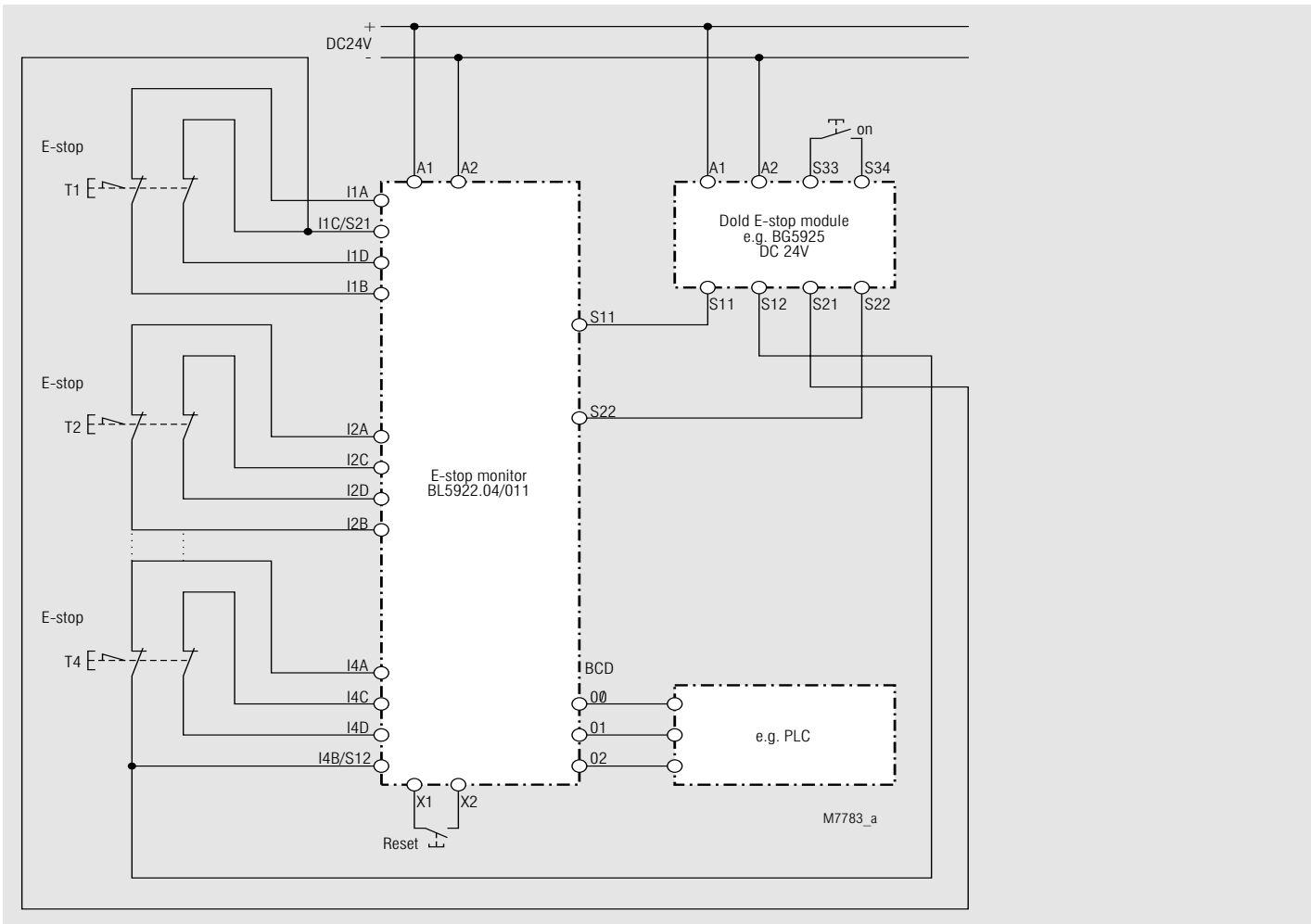
Pic 2: Monitoring of 8 e-stop buttons with e-stop monitor, single-channel connection, e-stop module 2-channel. Remote display of the status of e-stop buttons via CANopen interface.

### Application example

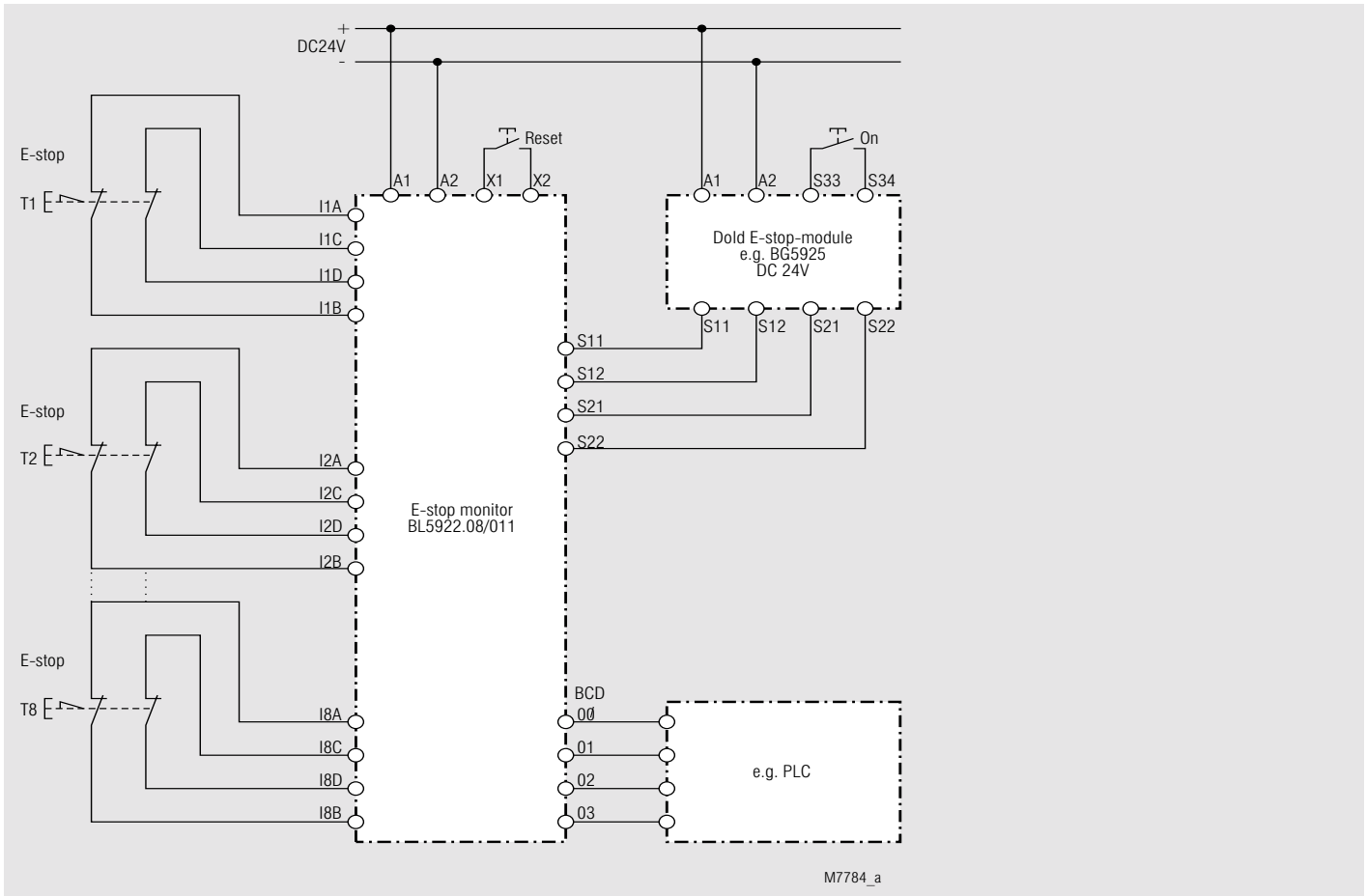


Pic 3: Monitoring of 16 e-stop buttons with e-stop monitor, single-channel connection, e-stop module 2-channel. BCD-output for remote display of the status of the e-stop buttons

## Application examples

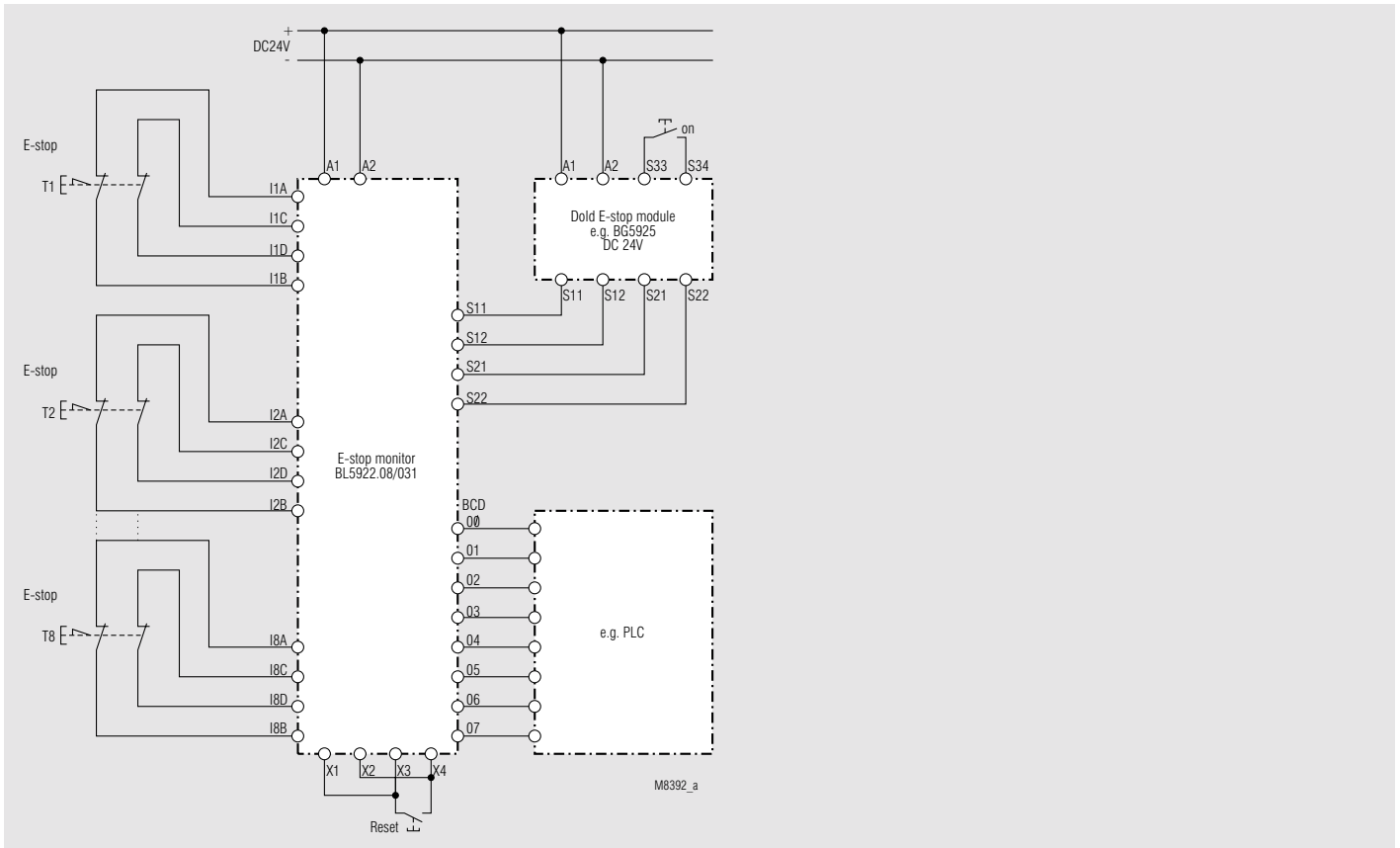


Pic 4: Monitoring of 4 e-stop buttons with e-stop monitor, 2-channel connection, BCD output, single-channel monitoring

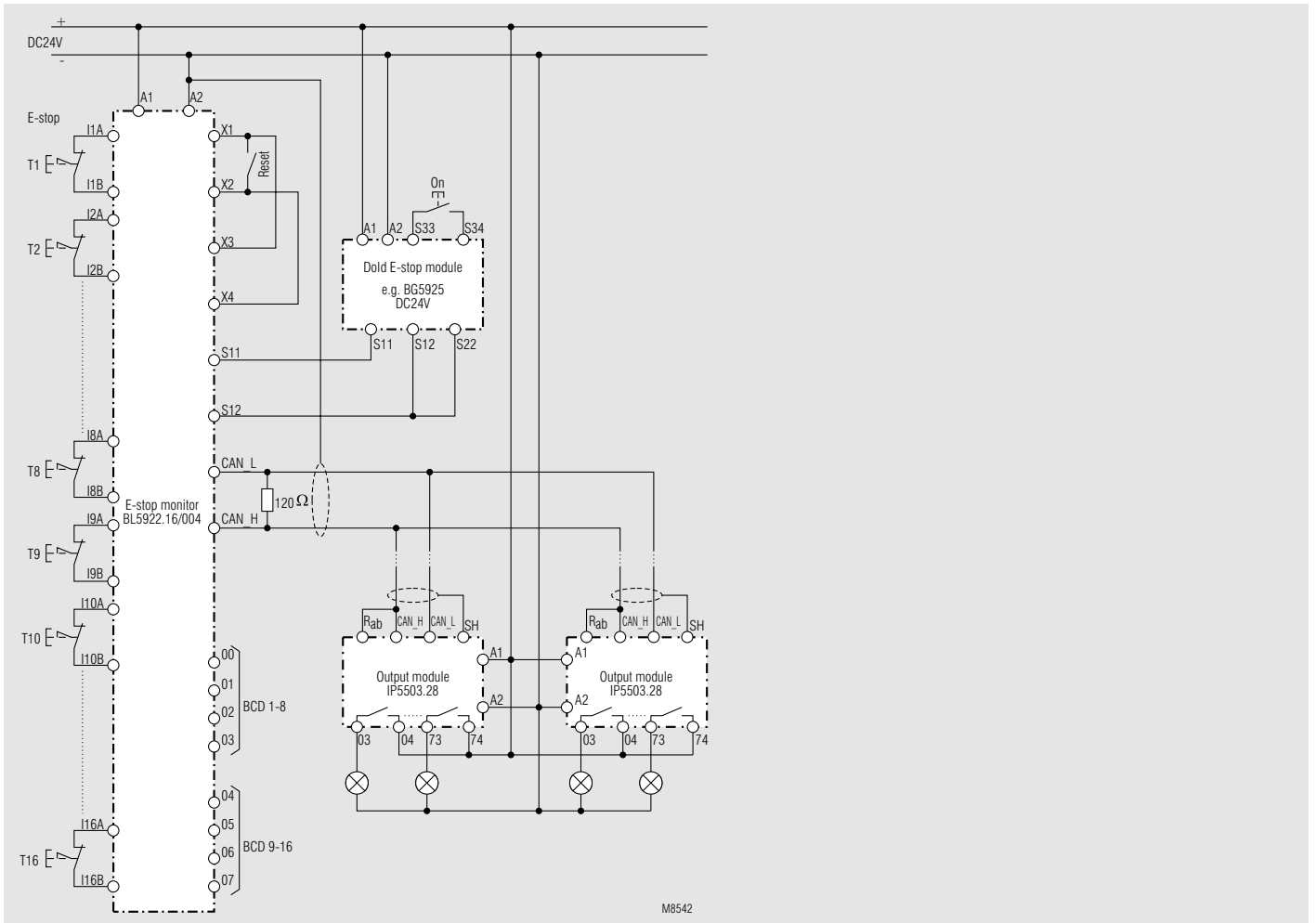


Pic 5: Monitoring of 8 e-stop buttons with e-stop monitor, 2-channel connection, BCD output, single-channel monitoring

## Application example



Pic 6: Monitoring of 8 e-stop buttons with e-stop monitor, 2-channel connection, 2-channel monitoring (2. channel with cross fault monitoring), BCD output



Pic 7: Monitoring of 16 e-stop buttons with e-stop monitor, single-channel connection, BCD-output, single-channel monitoring