

- Optimal integration of SICK safety devices
- Significant reduction in the control cabinet width
- Easy program selection using rotary switches (no software required)
- Significant reduction in the wiring effort
- Relay module
- PROFIBUS, DeviceNet and CANopen integration



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Overview of technical specifications

Safety category	Up to category 4 (EN 954-1)
Safety integrity level (SIL)	Up to SIL 3 (IEC 61508)
Number of safety capable inputs	4 ... 100 depending on modules used
Number of safety capable outputs	4 ... 52 depending on modules used
Programming method	Rotary DIP switch (no software required)
Logical functions	AND, OR, Bypass, Muting

Product description

The UE410 Flexi Controller provides a unique solution for safety-relevant applications. Historically, safety logic has been implemented using either hardwire techniques with safety relays, or via expensive safety programmable logical controllers (safety PLCs). UE410 Flexi Controllers take advantage of the benefits of both technologies. When you connect safety input devices to the UE410 Flexi Controller system, the logic is implemented using rotary DIP switches. Solid state safety outputs, rated at 1.6 Amps each (3.2 Amps available per module), provide sufficient current capabi-

lity to drive a variety of actuator loads without using electromechanical relays. Users also may use diagnostic modules to gain valuable diagnostic and status information regarding the UE410 Flexi Controller system. Diagnostic data includes: input states, output states, module status and fault-specific information. Communication to the standard control system allows this information to be displayed on the operator interface.

For applications involving control voltages other than 24 V DC, for currents greater than 1.6 Amps or require signal isolation using mechanical contacts, relay modules are also available.

The UE410 Flexi Controller system may be composed of the following module types:

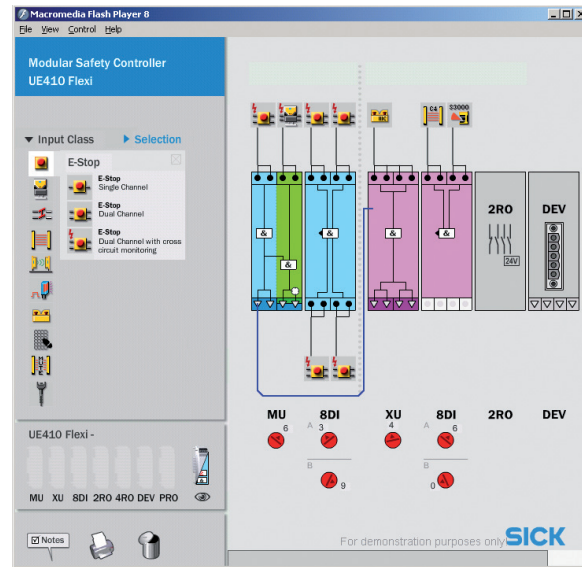
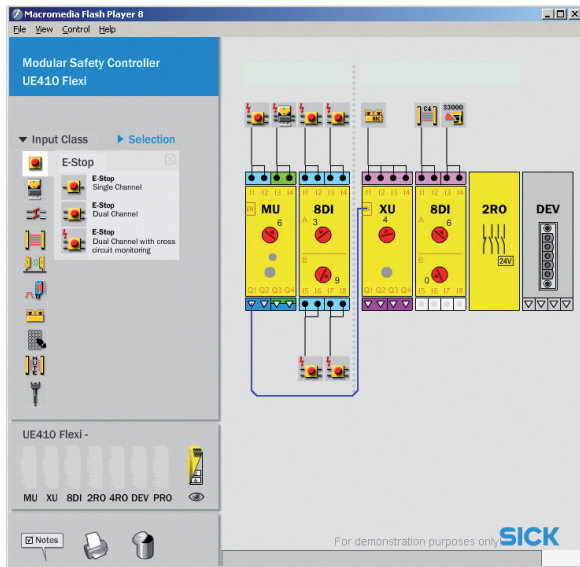
UE410-MU	Main unit
UE410-XU	Expansion unit for additional logic or output requirements
UE410-8DI	Input expansion unit
UE410-2RO/-4RO	Relay modules
UE410-PRO	PROFIBUS-DP diagnostic module
UE410-DEV	DeviceNet diagnostic module
UE410-CAN	CANopen diagnostic module
UE410-ETH	EtherNet module (in preparation)

In-system added value

The UE410 Flexi Controller system consists of a main unit (UE410-MU) and, as required, additional extension units (UE410-XU, UE410-8DI) followed by one diagnostic module (UE410-DEV, UE410-PRO, UE410-CAN, UE410-ETH). Further, relay modules (UE410-2RO, UE410-4RO) can also be added to the system.

Logic is implemented with rotary DIP switches on the front of each module. Logical combinations with multiple modules are easily set based on how the modules are combined.

A visualization tool has been developed to help simplify module selection and to understand the logic configuration possibilities associated with the UE410 Flexi Controller system. This visualization tool is known as Flexi Configuration Planner and is available at www.ue410flexi.com



Flexi Configuration Planner is an ingenious tool that provides a means for selecting modules, connecting safety relevant devices and displaying the logic associated with the rotary DIP switch settings. It is important to note that this software is not required to configure the logic in the UE410 Flexi Controller

system, but rather to help understand how the rotary DIP switch settings affect the logic. Any modification to switch settings after the "teach" process is completed will generate a fault condition.

Ordering information

Main unit

Number of inputs	Number of safety capable outputs	Connector technology	Delay time (adjustable) ¹⁾	Type	Part number
2 dual-channel resp. 4 single-channel	2 dual-channel resp. 4 single-channel	Plug-in terminals	0 s ... 5 s	UE410-MU3T5	6026136
			0 s ... 50 s	UE410-MU3T50	6026137
			0 s ... 300 s	UE410-MU3T300	6026138
		Dual level spring clamp terminals	0 s ... 5 s	UE410-MU4T5	6032669
			0 s ... 50 s	UE410-MU4T50	6032670
			0 s ... 300 s	UE410-MU4T300	6032671

¹⁾ Only outputs Q3/Q4

Extension unit

Number of inputs	Number of safety capable outputs	Connector technology	Delay time (adjustable) ¹⁾	Type	Part number
2 dual-channel resp. 4 single-channel	2 dual-channel resp. 4 single-channel	Plug-in terminals	0 s ... 5 s	UE410-XU3T5	6032470
			0 s ... 50 s	UE410-XU3T50	6032471
			0 s ... 300 s	UE410-XU3T300	6032472
		Dual level spring clamp terminals	0 s ... 5 s	UE410-XU4T5	6032672
			0 s ... 50 s	UE410-XU4T50	6032673
			0 s ... 300 s	UE410-XU4T300	6032674

¹⁾ Only outputs Q3/Q4

Input expansion unit

Number of inputs	Connector technology	Type	Part number
4 dual-channel resp. 8 single-channel	Plug-in terminals	UE410-8DI3	6026139
	Dual level spring clamp terminals	UE410-8DI4	6032675

Relay module

Number of normally open contacts	Number of application diagnostic outputs	Connector technology	Type	Part number
2	1	Plug-in terminals	UE410-2R03	6026144
		Dual level spring clamp terminals	UE410-2R04	6032677
4	2	Plug-in terminals	UE410-4R03	6026143
		Dual level spring clamp terminals	UE410-4R04	6032676

Diagnostic module

Connector technology	Field bus	Type	Part number
Pluggable screw terminals	PROFIBUS-DP	UE410-PRO3	6028407
	DeviceNet	UE410-DEV3	6032469
	CANopen	UE410-CAN3	6033111
	Ethernet	UE410-ETHx3	In preparation
Dual level pluggable spring clamp terminals	PROFIBUS-DP	UE410-PRO4	6032678
	DeviceNet	UE410-DEV4	6032679
	CANopen	UE410-CAN4	6033112
	Ethernet	UE410-ETHx4	In preparation



Detailed technical specifications

Main unit

General data

	UE410- MU3T5	UE410- MU3T50	UE410- MU3T300	UE410- MU4T5	UE410- MU4T50	UE410- MU4T300
Category	Up to category 4 (EN 954-1)					
Safety integrity level	Up to SIL 3 (IEC 61508)					
PFD	1.7 x 10 ⁻⁵					
PFH	7.9 x 10 ⁻⁹ /h					
SFF	96 %					
DC	93 %					
Ambient operating temperature	-25 °C ... +55 °C					
Storage temperature	-25 °C ... +70 °C					
Air humidity from ... to	15 % ... 95 %, non-dewing					
Climate conditions according to	EN 61131-2					
Vibration resistance	5 Hz ... 500 Hz					
Vibration resistance (checked to)	EN 60068-2-64, EN 61131-2					
Enclosure rating	EN/IEC 60529					
Clamps	IP 40					
Housing	IP 20					
Electromagnetic compatibility (EMC)	Class A (EN 61131-2, EN 61000-6-2, EN 55011)					
Protection class	III					
Connection conductor cross-section	Single-wire or fine-wire conductor: 1 x 0.14 mm ² ... 2.5 mm ² or 2 x 0.14 mm ² ... 0.75 mm ² / fine-wire with terminal crimp according to EN 46288: 1 x 0.25 mm ² ... 2.5 mm ² or 2 x 0.25 mm ² ... 0.5 mm ²					
Connector technology	Pluggable screw terminals			Pluggable spring clamp terminals		
Dimensions (W x H x D)	29 mm x 96.5 mm x 120.8 mm					
Weight	180 g					

Electrical data

	UE410-MU3T5	UE410-MU3T50	UE410-MU3T300	UE410-MU4T5	UE410-MU4T50	UE410-MU4T300
Supply voltage	24 V DC (19.2 V DC ... 30 V DC)					
Type of supply voltage	PELV (electrical output circuit on UE410-4RO/UE410-2RO > 25 V AC/60 V DC), PELV or SELV (electrical output circuit on UE410-4RO/UE410-2RO < 25 V AC/60 V DC)					
Power consumption	3 W					
Switch-on time	10 s					
Short-circuit protection	4A, fuse characteristic gG					
Input circuit (I1 - I4, EN, S1 - S3)	Input voltage HIGH 15 V ... 30 V Input voltage LOW -5 V DC ... 5 V DC Input current HIGH 3 mA (2.3 mA ... 3.6 mA) Input current LOW -2.5 mA ... 0.15 mA Switch-on time Min. 70 ms Switch-on time ENTER button 3 s ¹⁾					
Number of inputs	2 dual-channel resp. 4 single-channel					
Control outputs (X1, X2)	Number of outputs 2 Type of output PNP semiconductors, short-circuit protected, cross-circuit monitored Output voltage 18 V DC ... 30 V DC Output current Max. 150 mA Test pulse width 12 ms (at program 1, 2, 4, 5, 6 on X1 and X2, at program 3.2 on X1) 52 ms (at program 3.2 on X2) Test pulse rate 5 Hz Load capacity Max. 1000 nF					
Safety outputs (Q1, Q2, Q3, Q4)	Number of safety capable outputs 4 Type of output PNP semiconductors, short-circuit protected, cross-circuit monitored Output voltage 30 V DC Output current 2 A Response time 13 ms Test pulse width 300 µs Test pulse rate 5 Hz Load capacity 500 nF Cable length 100 m, 1.5 mm ²					
Delay time ²⁾	Adjustable 0 s ... 5 s	Adjustable 0 s ... 50 s	Adjustable 0 s ... 300 s	Adjustable 0 s ... 5 s	Adjustable 0 s ... 50 s	Adjustable 0 s ... 300 s
Data interface	Via field bus					

¹⁾ Upon applying the supply voltage

²⁾ Only outputs Q3/Q4 (configuration dependent)

UE410-MU program configuration and response time information

Program 1 - OR Logic (e.g. Contact Mat OR OSSD)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2	Response time Q3/Q4
	I1/I2 with contact mat - 130 ms I1/I2 with other devices - 29 ms I3/I4 - 13 ms	Same as Q1/Q2 plus the adjustable delay time setting
Program 2 - OR Logic (e.g. RE300 OR OSSD)	Input description	
	Inputs I1/I2 - Dual-channel complementary device with test outputs X1, X2 synchronization monitoring of 800ms (e.g. RE300 non-contact sensor) Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2	Response time Q3/Q4
	I1/I2 - 29 ms I3/I4 - 13 ms	Same as Q1/Q2 plus the adjustable delay time setting
Program 3.1 - Simple Muting (e.g. C4000 Muted with Optical Sensors)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Two single-channel muting sensors Time between muting condition & valid muting state is 61 ms. Typical switch OFF time at muting sensors 61 ms. Maximum switch OFF time at muting sensors 165 ms. Muting gap suppression of inputs I3 / I4 allowed for up to 100ms.	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 3.2 - Simple Muting (e.g. IN4000 Muted with Optical Sensors)	Input description	
	Inputs I1/I2 - IN4000 inductive proximity sensor (I1-X1) or type 2 testable sensor (I2-X2) Inputs I3/I4 - Two Single-channel muting sensors Time between muting condition & valid muting state is 61 ms. Typical switch OFF time at muting sensors 61 ms. Maximum switch OFF time at muting sensors 165 ms. Muting gap suppression of inputs I3 / I4 allowed for up to 100ms	
	Response time Q1/Q2/Q3	Response time Q4
	I1-X1 to Q1/Q2 - 79 ms I2-X2 to Q1/Q2 - 29 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 4 - Two Hand Control (Type IIIC)	Input description	
	Inputs I1/I2/I3/I4 - Type IIIC two hand control (two dual channel complementary inputs) synchronization monitoring of 500 ms	
	Response time Q1/Q2	Response time Q3/Q4
	29 ms	29 ms
Program 5 - AND Logic (e.g. Safety Interlock AND Type IIIA THC)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Two single-channel N.O. contacts with test outputs X1, X2 (Type IIIA THC)	
	Response time Q1/Q2	Response time Q3/Q4
	29 ms	29 ms
Program 6 - AND Logic (e.g. Safety Interlock AND E-Stop)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Dual-channel equivalent device with test outputs X1, X2	
	Response time Q1/Q2/Q3	Response time Q4
	29 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 7 - AND Logic (e.g. C4000 AND S3000)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 8 - Independent Outputs (e.g. C4000 Independent of S3000)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q3 plus the adjustable delay time setting

Note: When cascading systems together utilizing the EN (Enable) Input, an additional response time of 13 ms must be added to the overall system response time for each cascaded system implemented into the safety chain.

Extension unit

General data

	UE410- XU3T5	UE410- XU3T50	UE410- XU3T300	UE410- XU4T5	UE410- XU4T50	UE410- XU4T300
Category	Up to category 4 (EN 954-1)					
Safety integrity level	Up to SIL 3 (IEC 61508)					
PFD	1.7 x 10 ⁻⁵					
PFH	7.9 x 10 ⁻⁹ /h					
SFF	96 %					
DC	93 %					
Ambient operating temperature	-25 °C ... +55 °C					
Storage temperature	-25 °C ... +70 °C					
Air humidity from ... to	15 % ... 95 %, non-dewing					
Climate conditions according to	EN 61131-2					
Vibration resistance	5 Hz ... 500 Hz					
Vibration resistance (checked to)	EN 60068-2-64, EN 61131-2					
Enclosure rating	EN/IEC 60529					
Clamps	IP 40					
Housing	IP 20					
Electromagnetic compatibility (EMC)	Class A (EN 61131-2, EN 61000-6-2, EN 55011)					
Protection class	III					
Connection conductor cross-section	Single-wire or fine-wire conductor: 1 x 0.14 mm ² ... 2.5 mm ² or 2 x 0.14 mm ² ... 0.75 mm ² / fine-wire with terminal crimp according to EN 46288: 1 x 0.25 mm ² ... 2.5 mm ² or 2 x 0.25 mm ² ... 0.5 mm ²					
Connector technology	Pluggable screw terminals			Pluggable spring clamp terminals		
Dimensions (W x H x D)	22.5 mm x 96.5 mm x 120.8 mm					
Weight	180 g					

UE410-XU program configuration and response time information

Program 1 - OR Logic (e.g. Contact Mat OR OSSD)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2	Response time Q3/Q4
	I1/I2 with contact mat - 130 ms I1/I2 with other devices - 29 ms I3/I4 - 13 ms	Same as Q1/Q2 plus the adjustable delay time setting
Program 2 - OR Logic (e.g. RE300 OR OSSD)	Input description	
	Inputs I1/I2 - Dual-channel complementary device with test outputs X1, X2 synchronization monitoring of 800ms (e.g. RE300 non-contact sensor) Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2	Response time Q3/Q4
	I1/I2 - 29 ms I3/I4 - 13 ms	Same as Q1/Q2 plus the adjustable delay time setting
Program 3.1 - Simple Muting (e.g. C4000 Muted with Optical Sensors)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Two single-channel muting sensors Time between muting condition & valid muting state is 61 ms. Typical switch OFF time at muting sensors 61 ms. Maximum switch OFF time at muting sensors 165 ms. Muting gap suppression of inputs I3 / I4 allowed for up to 100ms.	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 3.2 - Simple Muting (e.g. IN4000 Muted with Optical Sensors)	Input description	
	Inputs I1/I2 - IN4000 inductive proximity sensor (I1-X1) or type 2 testable sensor (I2-X2) Inputs I3/I4 - Two Single-channel muting sensors Time between muting condition & valid muting state is 61 ms. Typical switch OFF time at muting sensors 61 ms. Maximum switch OFF time at muting sensors 165 ms. Muting gap suppression of inputs I3 / I4 allowed for up to 100ms	
	Response time Q1/Q2/Q3	Response time Q4
	I1-X1 to Q1/Q2 - 79 ms I2-X2 to Q1/Q2 - 29 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 4 - Two Hand Control (Type IIIC)	Input description	
	Inputs I1/I2/I3/I4 - Type IIIC two hand control (two dual channel complementary inputs) synchronization monitoring of 500 ms	
	Response time Q1/Q2	Response time Q3/Q4
	29 ms	29 ms
Program 5 - AND Logic (e.g. Safety Interlock AND Type IIIA THC)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Two single-channel N.O. contacts with test outputs X1, X2 (Type IIIA THC)	
	Response time Q1/Q2	Response time Q3/Q4
	29 ms	29 ms
Program 6 - AND Logic (e.g. Safety Interlock AND E-Stop)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with test outputs X1, X2 Inputs I3/I4 - Dual-channel equivalent device with test outputs X1, X2	
	Response time Q1/Q2/Q3	Response time Q4
	29 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 7 - AND Logic (e.g. C4000 AND S3000)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q1/Q2/Q3 plus the adjustable delay time setting
Program 8 - Independent Outputs (e.g. C4000 Independent of S3000)	Input description	
	Inputs I1/I2 - Dual-channel equivalent device with external test pulses Inputs I3/I4 - Dual-channel equivalent device with external test pulses	
	Response time Q1/Q2/Q3	Response time Q4
	13 ms	Same as Q3 plus the adjustable delay time setting

Note: When cascading systems together utilizing the EN (Enable) Input, an additional response time of 13 ms must be added to the overall system response time for each cascaded system implemented into the safety chain.



Input expansion unit

General data

		UE410-8DI3	UE410-8DI4
Category		Up to category 4 (EN 954-1)	
Safety integrity level	PFD	Up to SIL 3 (IEC 61508)	
	PFH	9.2×10^{-6}	
	SFF	$6.1 \times 10^{-9}/h$	
	DC	96 %	
Ambient operating temperature		-25 °C ... +55 °C	
Storage temperature		-25 °C ... +70 °C	
Air humidity from ... to		15 % ... 95 %, non-dewing	
Climate conditions according to		EN 61131-2	
Vibration resistance		5 Hz ... 500 Hz	
Vibration resistance (checked to)		EN 60068-2-64, EN 61131-2	
Enclosure rating		EN/IEC 60529	
	Clamps	IP 40	
	Housing	IP 20	
Electromagnetic compatibility (EMC)		Class A (EN 61131-2, EN 61000-6-2, EN 55011)	
Protection class		III	
Connection conductor cross-section		Single-wire or fine-wire conductor: 1 x 0.14 mm ² ... 2.5 mm ² or 2 x 0.14 mm ² ... 0.75 mm ² / fine-wire with terminal crimp according to EN 46288: 1 x 0.25 mm ² ... 2.5 mm ² or 2 x 0.25 mm ² ... 0.5 mm ²	
Connector technology		Pluggable screw terminals	Pluggable spring clamp terminals
Dimensions (W x H x D)		22.5 mm x 96.5 mm x 120.8 mm	
Weight		150 g	

Electrical data

		UE410-8DI3	UE410-8DI4
Power consumption		2 W	
Input circuit (I1 - I4, EN, S1 - S3)	Input voltage HIGH	15 V ... 30 V	
	Input voltage LOW	-5 V ... 5 V DC	
	Input current HIGH	3 mA (2.3 mA ... 3.6 mA)	
	Input current LOW	-2.5 mA ... 0.15 mA	
	Switch-on time	Min. 70 ms	
	Synchronous time monitoring	800 ms (at program 3 and 5)	
Number of inputs		4 dual-channel resp. 8 single-channel	
Control outputs (X1 - X8)	Number of outputs	8	
	Type of output	PNP semiconductors, short-circuit protected, conditionally cross-circuit monitored	
	Output voltage	18 V DC ... 30 V DC	
	Output current	Max. 150 mA	
	Test pulse width	12 ms (at program 1, 2, 4, 5 on X1 and X2)	
	Test pulse rate	5 Hz	
	Load capacity	Max. 1000 nF	
Safety outputs (Q1, Q2, Q3, Q4)	Response time	17 ms (for main unit and input expansion unit) mode switch selection 6, 7 on UE410-8DI	
		34 ms (for main unit and input expansion unit)	
		mode switch selection 1, 2, 3, 4, 5 on UE410-8DI	
		134 ms (for main unit and input expansion unit)	
		mode switch selection 2 safety mat on UE410-8DI	
Data interface		Via field bus	

UE410-8DI Program Configuration

Each UE410-8DI has two rotary DIP switches. The top rotary DIP switch corresponds to Inputs I1...I4 and intermediate logic value QA. The bottom rotary DIP switch corresponds to Inputs I5...I7 and intermediate logic value QB.. Each setting is independent

of the other with the exception of Program 9. The input descriptions provided below apply to Inputs I1...I4 or Inputs I5...I7 when the corresponding rotary DIP switch setting is implemented to select the associated Program.

	Input description	Response time
Program 0	Input connections not monitored - inactive	—
Program 1 - AND Logic	Single-channel equivalent device with corresponding test outputs	34 ms
Program 2 - AND Logic	Dual-channel equivalent device with corresponding test outputs	Safety Mat: 134 ms Other Devices: 34 ms
Program 3 - AND Logic	Dual-channel equivalent device with corresponding test outputs Synchronization is monitored - 800 ms maximum value.	34 ms
Program 4 - AND Logic	Dual-channel complementary device with corresponding test outputs	34 ms
Program 5 - AND Logic	Dual-channel complementary device with corresponding test outputs (e.g. RE300) Synchronization is monitored - 800 ms maximum value	34 ms
Program 6 - AND Logic	Single-channel normally closed contact externally tested (tied to two inputs); or dual-channel equivalent device with corresponding external testing (e.g. semiconductor OSSDs)	17 ms
Program 7 - OR Logic	Dual-channel equivalent device with corresponding external testing (e.g. semiconductor OSSDs) ; or single-channel normally closed contact externally tested (e.g. safety interlock tied to 2 inputs)	17 ms
Program 8 - BYPASS	Dual-channel equivalent device with corresponding test outputs and synchronization monitoring of 800ms (e.g. enabling switch or key-operated switch). Maximum duration is 60 s.	—
Program 9 - Mirror mode	The inputs corresponding to this switch setting will mirror the configuration of the other rotary DIP switch, including which outputs will be affected on the UE410-MU or UE410-XU.	same as mirrored program

Relay module

General data

	UE410-2R03	UE410-2R04	UE410-4R03	UE410-4R04										
Galvanised decoupling	<table border="0"> <tr> <td style="text-align: right;">yes</td> <td colspan="4">Supply circuit – output circuit and input circuit – output circuit</td> </tr> <tr> <td style="text-align: right;">no</td> <td colspan="4">Supply circuit – input circuit</td> </tr> </table>				yes	Supply circuit – output circuit and input circuit – output circuit				no	Supply circuit – input circuit			
yes	Supply circuit – output circuit and input circuit – output circuit													
no	Supply circuit – input circuit													
Ambient operating temperature	-25 °C ... +55 °C													
Storage temperature	-25 °C ... +70 °C													
Air humidity from ... to	15 % ... 95 %, non-dewing													
Climate conditions according to	EN 61131-2													
Vibration resistance	5 Hz ... 500 Hz													
Vibration resistance (checked to)	EN 60068-2-64, EN 61131-2													
Enclosure rating	EN/IEC 60529													
	<table border="0"> <tr> <td style="text-align: right;">Clamps</td> <td colspan="4">IP 40</td> </tr> <tr> <td style="text-align: right;">Housing</td> <td colspan="4">IP 20</td> </tr> </table>				Clamps	IP 40				Housing	IP 20			
Clamps	IP 40													
Housing	IP 20													
Electromagnetic compatibility (EMC)	Class A (EN 61131-2, EN 61000-6-2, EN 55011)													
Protection class	III													
Connection conductor cross-section	Single-wire or fine-wire conductor: 1 x 0.14 mm ² ... 2.5 mm ² or 2 x 0.14 mm ² ... 0.75 mm ² / fine-wire with terminal crimp according to EN 46288: 1 x 0.25 mm ² ... 2.5 mm ² or 2 x 0.25 mm ² ... 0.5 mm ²													
Connector technology	Pluggable screw terminals	Pluggable spring clamp terminals	Pluggable screw terminals	Pluggable spring clamp terminals										
Dimensions (W x H x D)	22 mm x 96.5 mm x 120.8 mm													
Weight	160 g		190 g											



Electrical data

	UE410-2R03	UE410-2R04	UE410-4R03	UE410-4R04
Supply voltage	24 V DC (19.2 V DC ... 30 V DC)			
Type of supply voltage	PELV (electrical output circuit on UE410-4R0/UE410-2R0 > 25 V AC/60 V DC), PELV or SELV (electrical output circuit on UE410-4R0/UE410-2R0 < 25 V AC/60 V DC)			
Power consumption	1 W		2 W	
Short-circuit protection	6A, fuse characteristic gG (per circuit)			
Safety outputs (Q1, Q2, Q3, Q4)				
Number of normally open contacts	2		4	
Number of application diagnostic outputs	1		2	
Type of output	Potential free, positively-driven			
Switching voltage	230 V DC (5 V DC ... 275 V DC) 250 V AC (5 V AC ... 275 V AC)			
Output current	6 A			
Total current	12 A			
Response time	<30 ms			
Contact material	AgSnO2			
Surface treatment	Au (1µM)			
Usage category	AC-15/DC-13			
Rated operating current (voltage)	3 A (250 V AC), 3 A (24 V DC)			
Response time	<30 ms			
Data interface	Via field bus			

Diagnosis module

General data

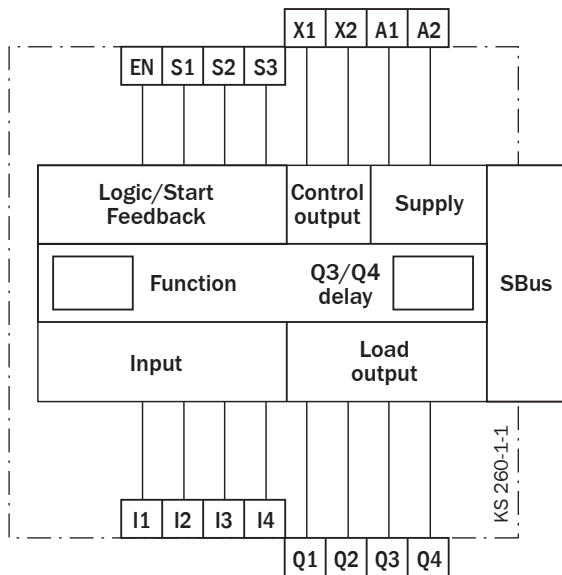
	UE410-PR03	UE410-PR04	UE410-DEV3	UE410-DEV4
Ambient operating temperature	-25 °C ... +55 °C			
Storage temperature	-25 °C ... +70 °C			
Air humidity from ... to	15 % ... 95 %, non-dewing			
Climate conditions according to	EN 61131-2			
Vibration resistance	5 Hz ... 500 Hz			
Vibration resistance (checked to)	EN 60068-2-64, EN 61131-2			
Enclosure rating	EN/IEC 60529			
Clamps	IP 40			
Housing	IP 20			
Electromagnetic compatibility (EMC)	Class A (EN 61131-2, EN 61000-6-2, EN 55011)			
Protection class	III			
Connection conductor cross-section	Single-wire or fine-wire conductor: 1 x 0.14 mm ² ... 2.5 mm ² or 2 x 0.14 mm ² ... 0.75 mm ² / fine-wire with terminal crimp according to EN 46288: 1 x 0.25 mm ² ... 2.5 mm ² or 2 x 0.25 mm ² ... 0.5 mm ²			
Connector technology	Pluggable screw terminals	Pluggable spring clamp terminals	Pluggable screw terminals	Pluggable spring clamp terminals
Dimensions (W x H x D)	22.5 mm x 96.5 mm x 120.8 mm			
Weight	160 g			

Electrical data

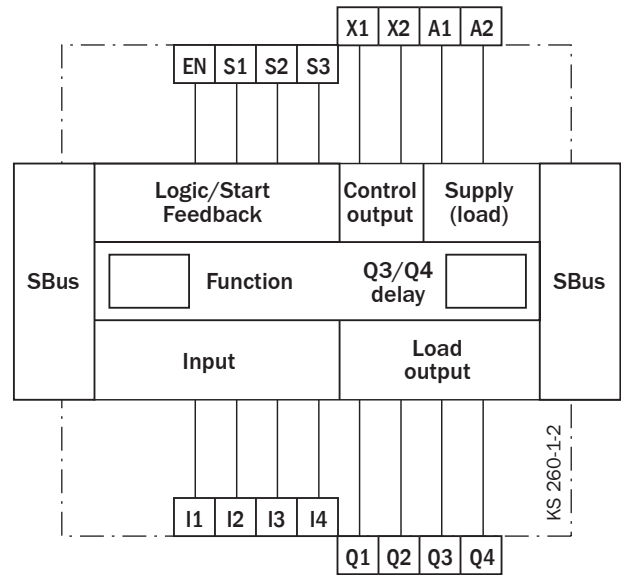
	UE410-PRO3	UE410-PRO4	UE410-DEV3	UE410-DEV4
Supply voltage	24 V DC (19.2 V DC ... 30 V DC)			
Power consumption	1.6 W			
Control outputs (X1 - X4)	Number of outputs: 4 Type of output: PNP semiconductors, short-circuit protected Output voltage: 18 V DC ... 30 V DC Output current: Max. 100 mA Load capacity: Max. 100 nF			
Data interface	Field bus: RS-485, PROFIBUS-DP, VO Communication behavior: SUB-D 9 pole, female Connector technology: 0 ... 99 Slave address: 12 Mbaud Transmission rate: 1200 m (9,6 Kbit/s, 19,2 Kbit/s, 93,75 Kbit/s), 1000 m (187,5 Kbit/s), 400 m (500 Kbit/s), 200 m (1500 Kbit/s), 100 m (12000 Kbit/s)		ISO-DIS 11898: DeviceNet, Group 2 Only Server Plug-in terminal 5 pole: 0 ... 63 Transmission rate: 125 Kbit/s, 250 Kbit/s, 500 Kbit/s Cable length (transmission rate): —	

Internal circuitry

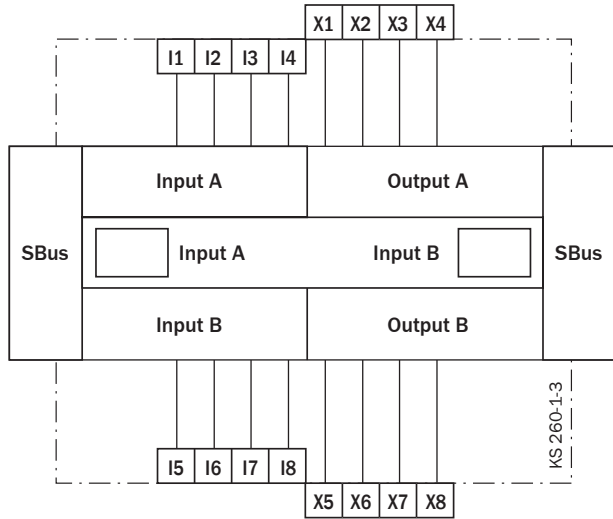
Main unit UE410-MU



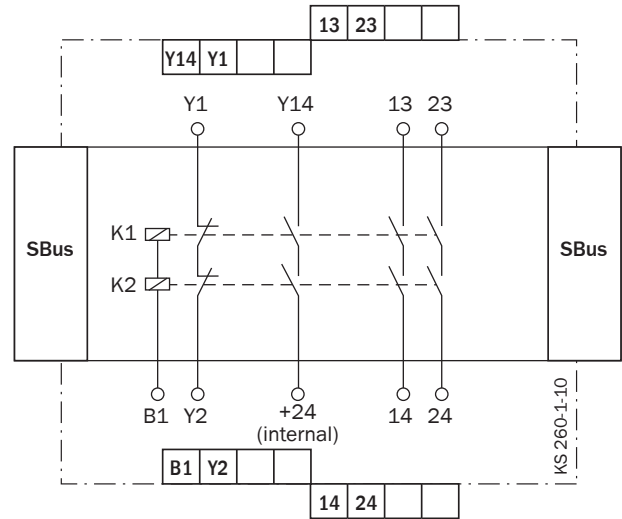
Extension unit UE410-XU



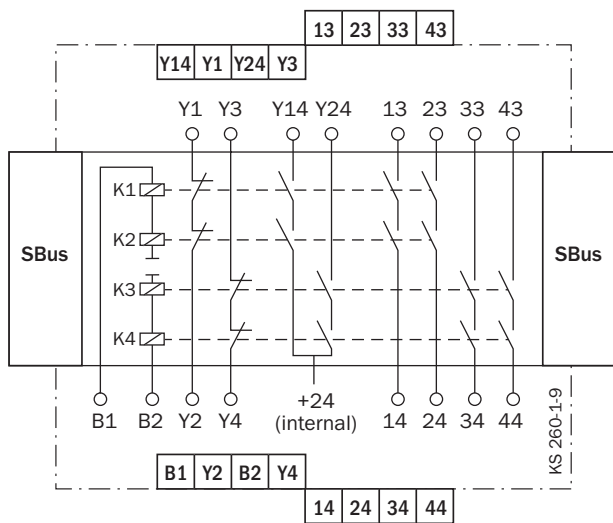
Input expansion unit UE410-8DI



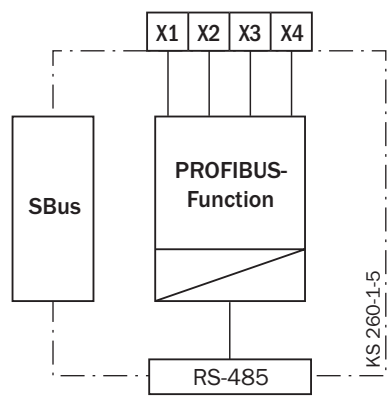
Relay module UE410-2R0



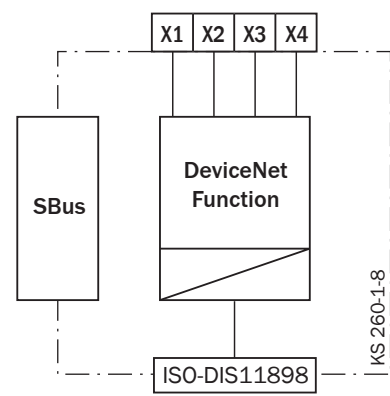
Relay module UE410-4R0



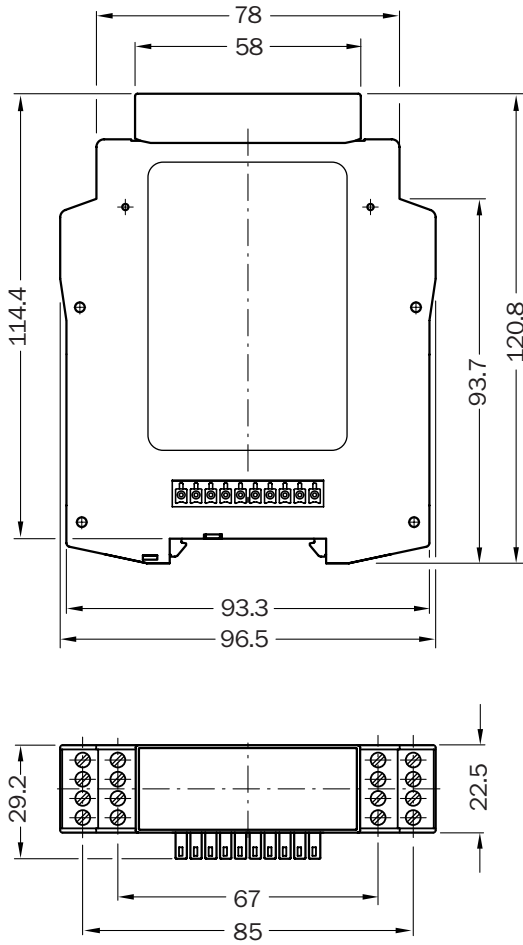
Diagnosis module UE410-PRO for PROFIBUS-DP



Diagnosis module UE410-DEV for DeviceNet



Dimensional drawings

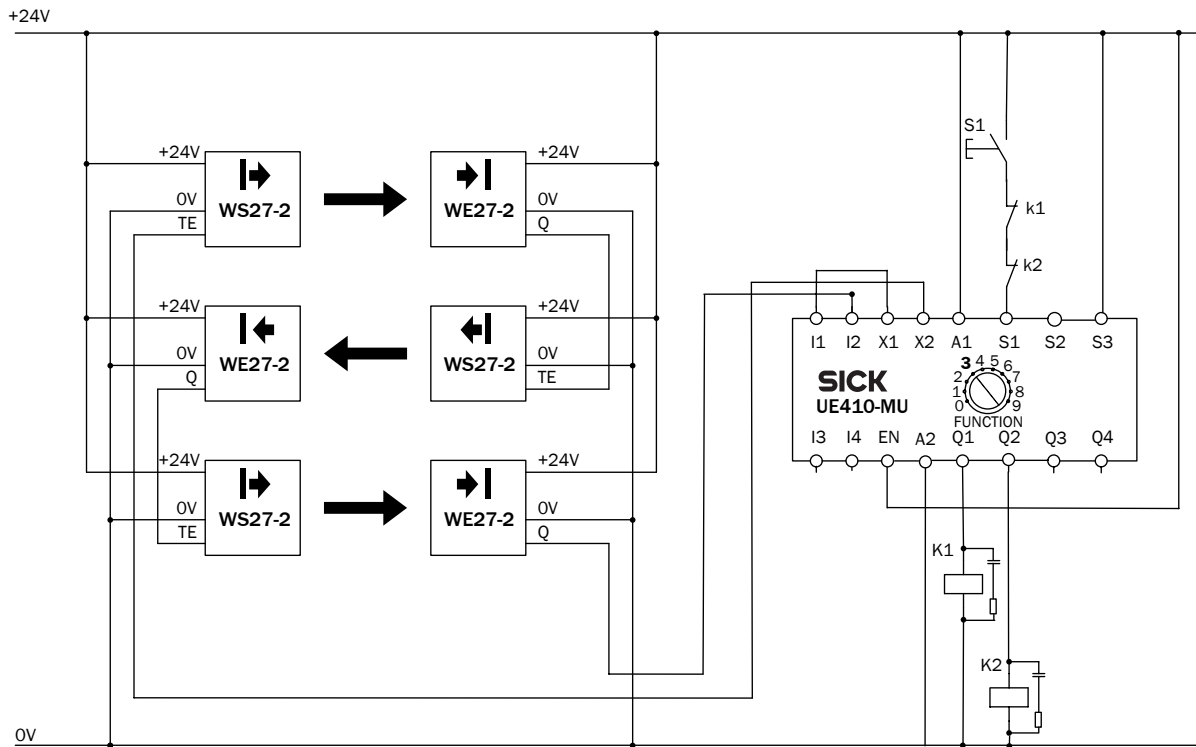


Dimensions in mm

Connection diagrams

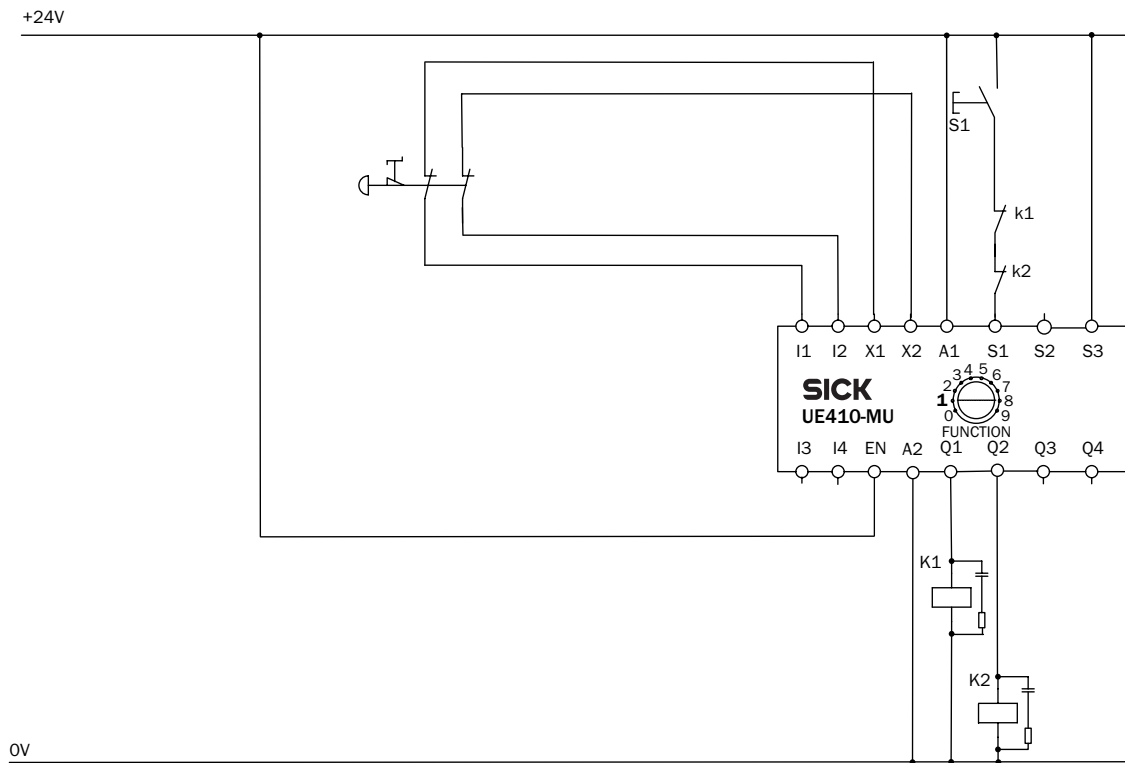
→ You can find connection diagrams at www.sickusa.com/connectiondiagrams

3 single-beam photoelectric safety switches WS/WE27-2 on UE410-MU



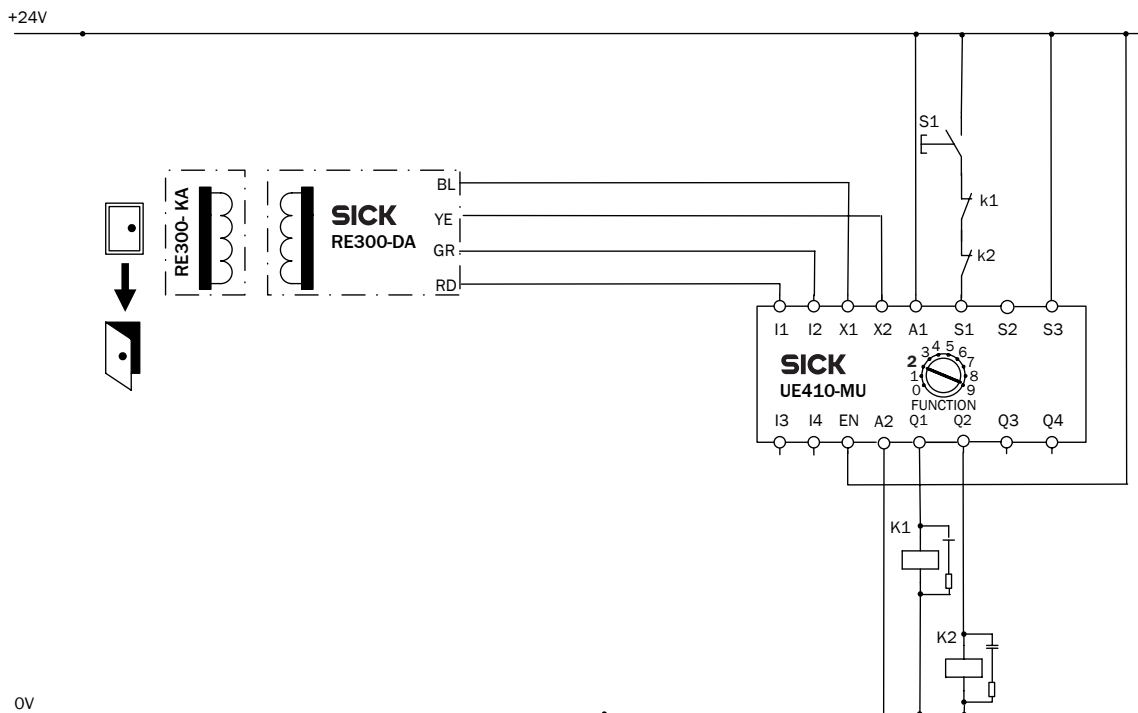
Program 3.2 with restart interlock and external device monitoring (EDM)

Emergency stop on UE410-MU



Program 1 with restart interlock and external device monitoring (EDM)

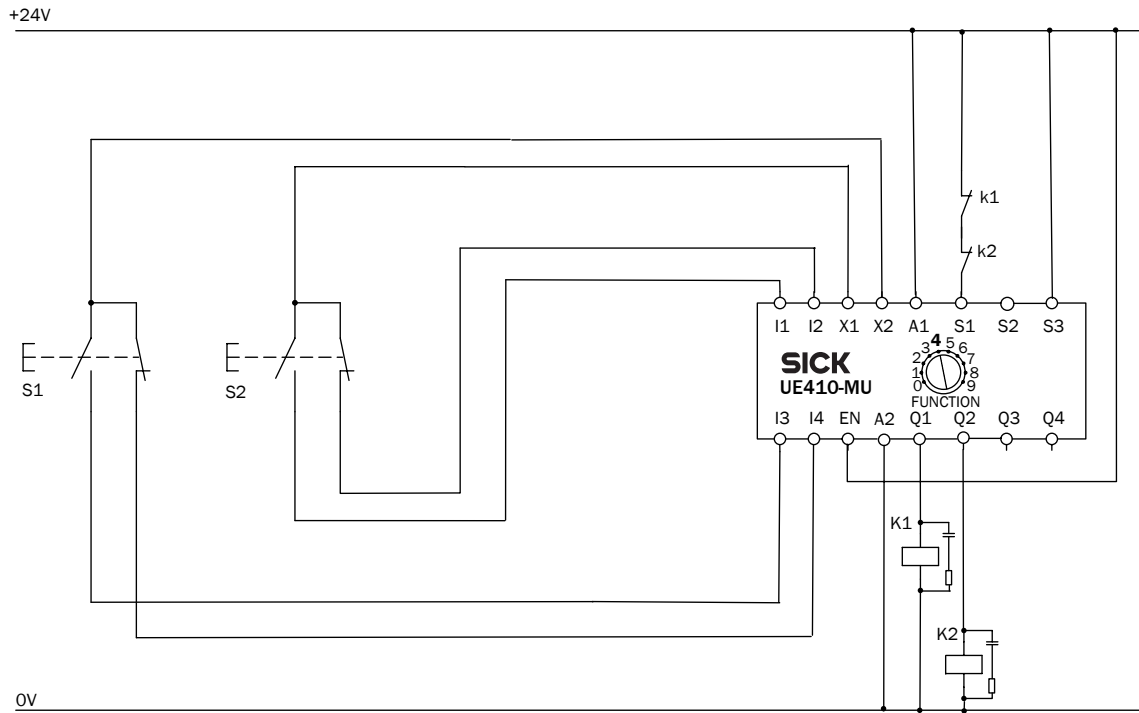
Non-contact safety switch RE300 on UE410-MU



Program 2 with restart interlock and external device monitoring (EDM)

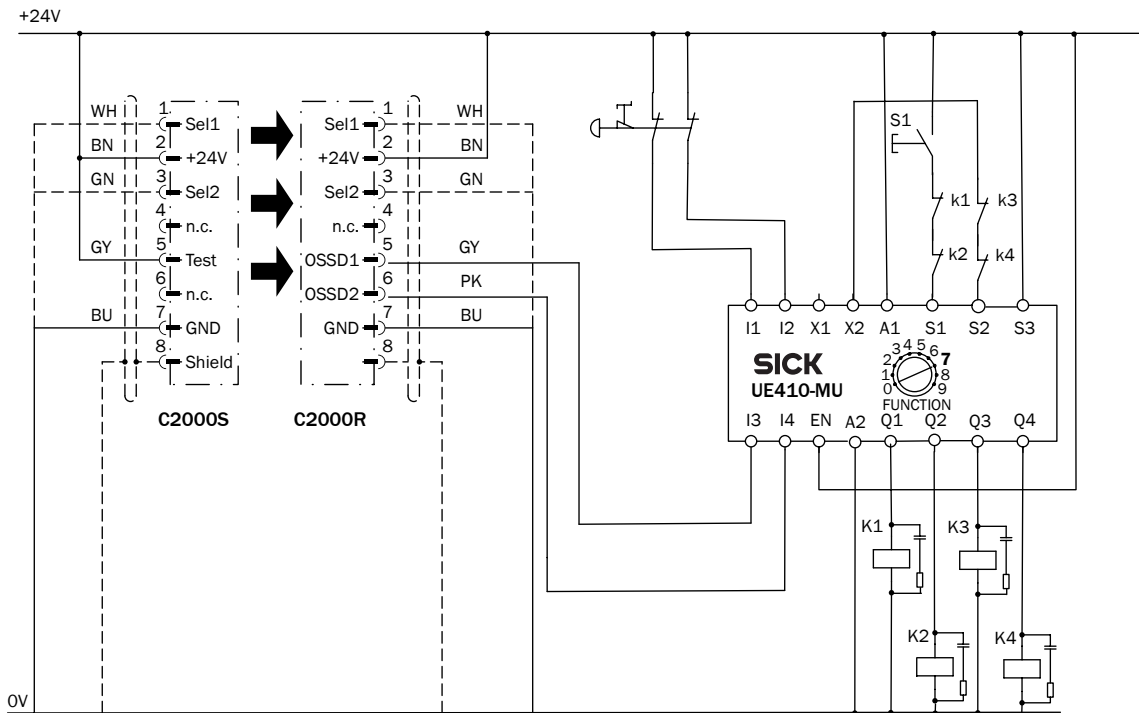
0

Two-hand control type III C on UE410-MU



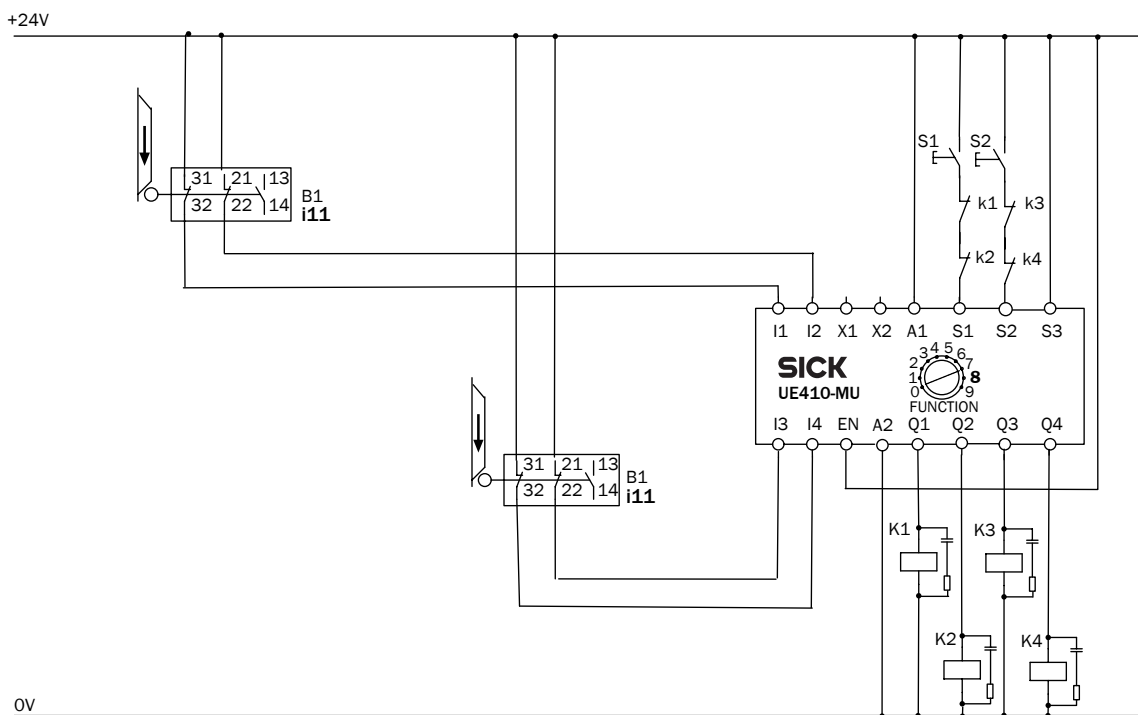
Program 4 without restart interlock and with external device monitoring (EDM)

Safety light curtain C2000 and emergency stop on UE410-MU



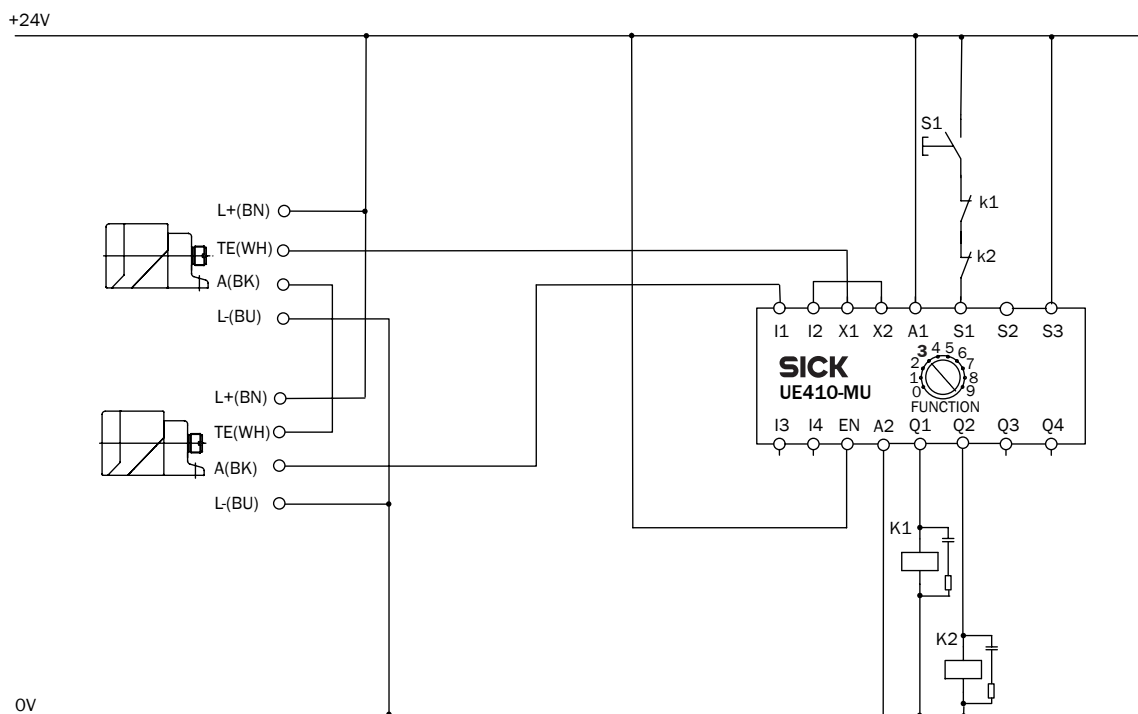
Program 7 with restart interlock and external device monitoring (EDM)

2 safety switches with separate actuator i11, 2 separate hazardous areas on UE410-MU



Program 8 with restart interlock and external device monitoring (EDM)

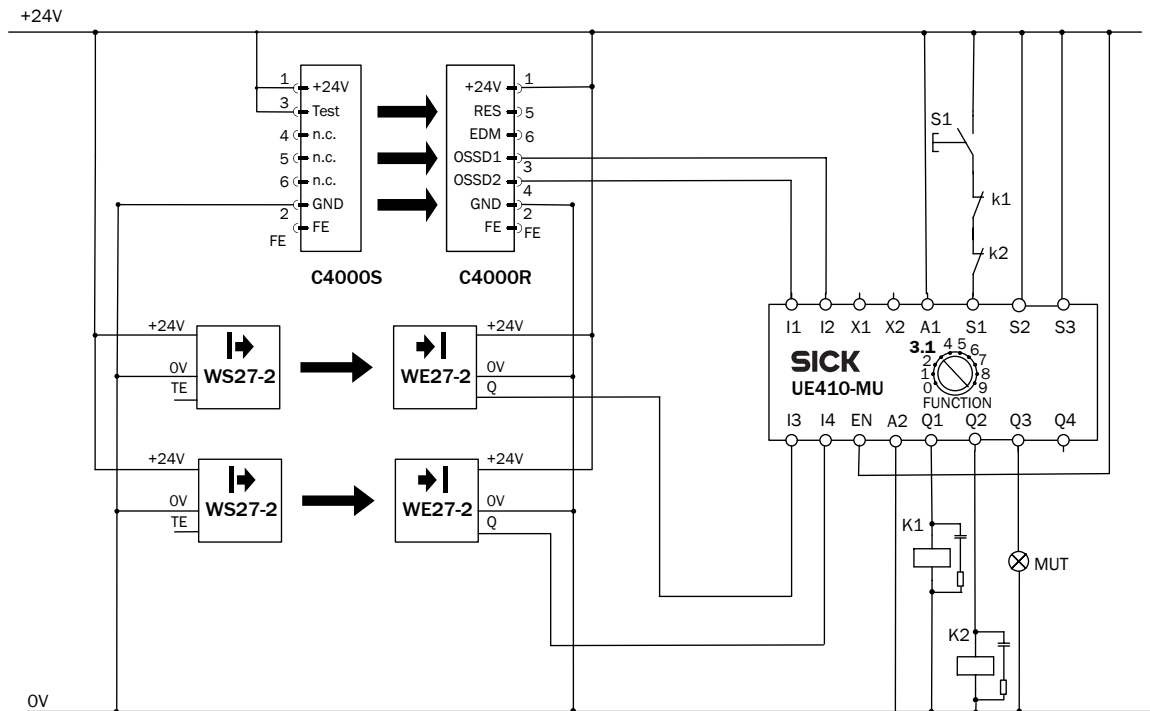
2 non-contact safety switches IN4000 on UE410-MU



Program 3.2 with restart interlock and external device monitoring (EDM)

0

Safety light curtain C4000 with 2 muting sensors on UE410-MU



Program 3.1 with restart interlock and external device monitoring (EDM)

Accessories

Muting indicator lamp

Type of muting indicator	Cable length	Description	Remark connection cable	Part number
LED lamp	2 m	Incl. mounting kit	Incl. connection cable	2019909
	10 m			2019910
Indicator lamp (bulb)	—		Connecting cable not included	2020743

Antimanipulation covers

Description	Package Quantity	Part number
Antimanipulation covers for use with version C.x housings or later	10	5319789

→ Configuring UE410 Flexi modules: www.ue410flexi.com