

Selection table for safety modules ESM-F

Safety module	
BSN	Base unit
BMN	Base unit with diverse inputs
ISI	Input module 1-channel or 2-channel
IMI	Input module 2-channel with diverse inputs
I3I	Input module 2-channel
ILI	Input module 2-channel, without short circuit/earth fault/ground fault monitoring
OSN	Output module
OTN	Output module time-delayed, time adjustable
OT05N	Output module time-delayed, fixed time 0.5 s

Category according to EN 954-1

K Category according to EN 954-1

Inputs

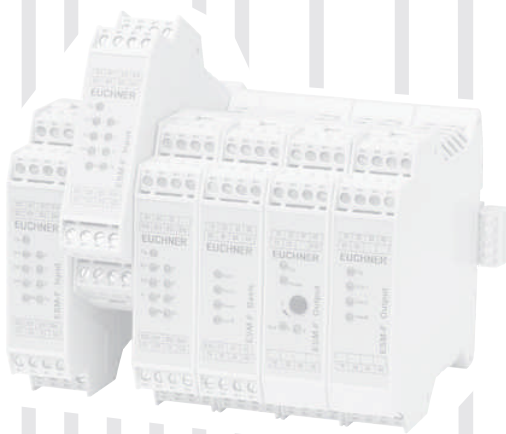
E1 1-channel
E2 2-channel

Outputs

SU Safety contacts non-time-delay
SV Safety contacts time-delay
M Monitoring outputs and auxiliary contacts
G Group outputs

Monitoring

R Feedback loop
Q Short circuit monitoring
E Earth fault monitoring
M Ground fault monitoring



Devices									K	Inputs		Outputs				Monitoring				Comment	Page	
BSN	BMN	ISI	IMI	I3I	ILI	OSN	OTN	OT05N		E1	E2	SU	SV	M	G	R	Q	E	M			
●											4		2	3		6	●	●	●	●		16
	●										4		2	3		6	●	●	●	●	Diverse inputs	16
		●									4		2		2	●	●	●	●			17
		●								6	4		6		3		●	●	●	●		17
			●								4		3		3		●	●	●	●	Diverse inputs	17
				●							4		3		3		●	●	●	●		17
					●						4		3		3		●	●	●	●		17
						●					4			4		●						18
							●				4			3		●						18
								●			4		4	1		●					Time adjustable	19
									●		4		4	1		●					Fixed time 0.5 s	19

Input modules ESM-F-I..

- ▶ Up to category 4 according to EN 954-1
- ▶ 2-channel control
- ▶ 1-channel control optional
- ▶ 2 semiconductor outputs
- ▶ Group outputs (only ESM-F-ISI-2C2)
- ▶ Short circuit and earth fault/ground fault monitoring (not on ESM-F-ILI-3C2)
- ▶ LED status and diagnostic indicators



Function

Safety components with NC contacts such as safety switches, emergency stop buttons, etc. can be connected to the input modules ESM-F-ISI.... The version ESM-F-IMI... is suitable for the connection of safety switches with NC/NO contacts, e. g. CMS-safety switches. The input modules detect the switch state of each safety component connected and signal this information to the base unit.

They have:

- ▶ Six 1-channel or three 2-channel inputs with short circuit and ground fault monitoring
- ▶ 3 semiconductor outputs
- ▶ LED indicators for device status as well as the state of the inputs and outputs

On ESM-F-ISI-2C2 also:

- ▶ Outputs for forming groups (see section *Setting up safety groups*, page 5)

ESM-F-ILI-3C2 has no short circuit/earth fault/ground fault monitoring and is suitable for safety sensors that have internal monitoring with pulsed signals. These sensors are primarily non-contact optical safety sensors.

Monitoring outputs

The On state of the related monitoring output corresponds to the following signals:

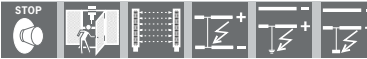
- ▶ O1, O2, O3 input circuit 1 or 2 or 3 is closed (safe)

On ESM-F-ISI-6C1:

- ▶ O1, O2, O3 input circuits 1 and 2 or 3 and 4 or 5 and 6 are closed (safe)

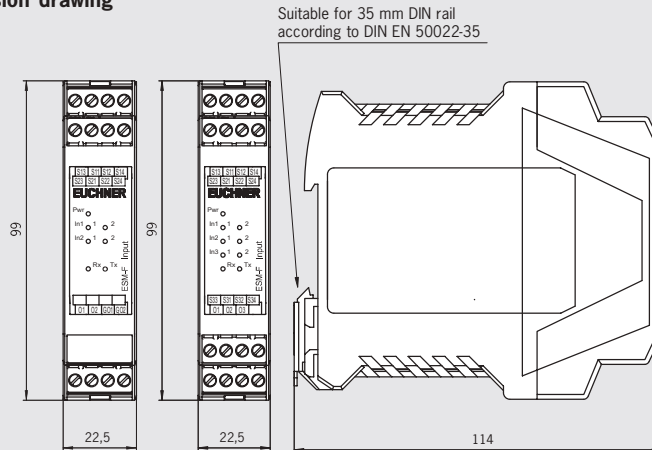
Important: one connection set must be ordered for each input module (see page 20).

Input modules ESM-F-I..

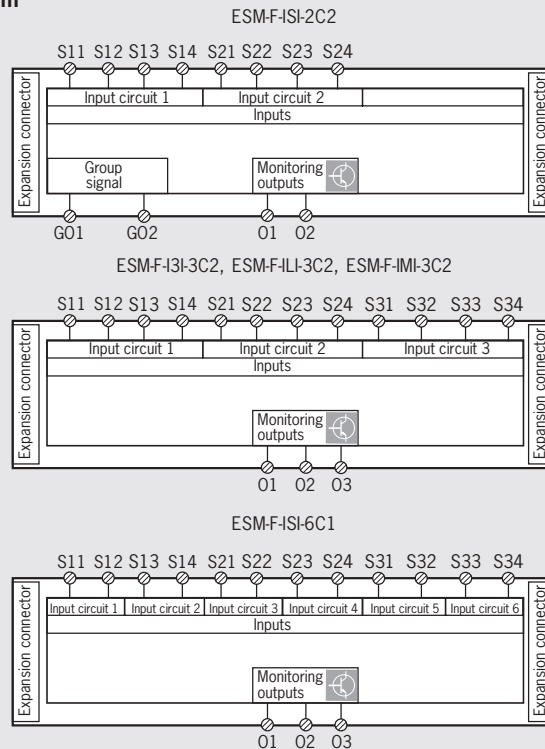


Cat. 4

Dimension drawing



Block diagram



Ordering table

Series	Version	Inputs	24 V DC
ESM-F	ISI Input module	2C2 2, 2-channel, with group signal	095 122 ESM-F-ISI-2C2
		6C1 6, 1-channel, without group signal	095 123 ESM-F-ISI-6C1
	IMI Input module	3C2 3, 2-channel diverse, without group signal	095 124 ESM-F-IMI-3C2
	I3I Input module	3C2 3, 2-channel, without group signal	095 916 ESM-F-I3I-3C2
		3C2 3, 2-channel, without short circuit/earth fault/ground fault monitoring	097 577 ESM-F-ILI-3C2

1) BG approval pending