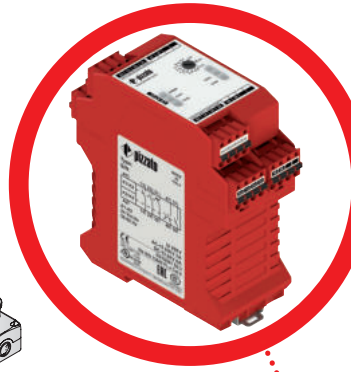
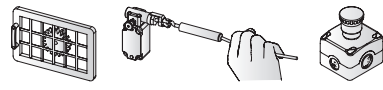


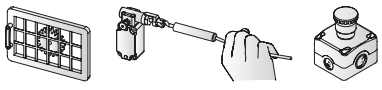
## CS AR

For emergency stops and end position monitoring on movable guards



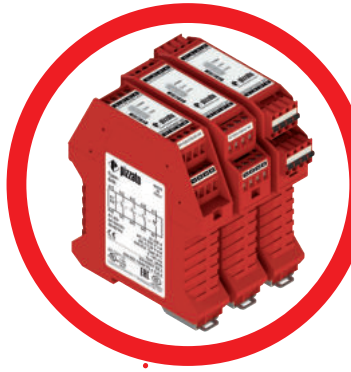
## CS AT

For emergency stops and end position monitoring on movable guards with delayed contacts upon opening of the inputs



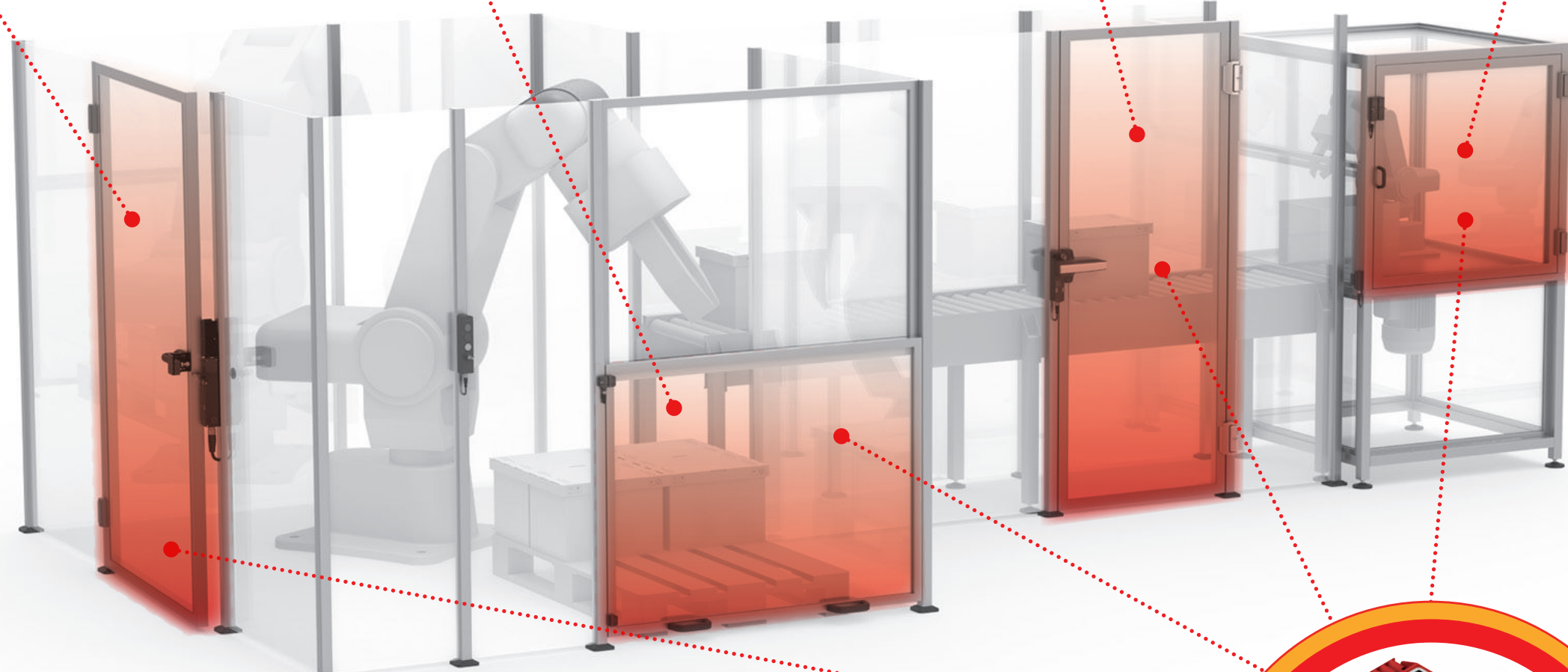
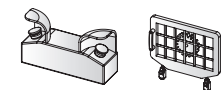
## CS FS

Safety timer modules



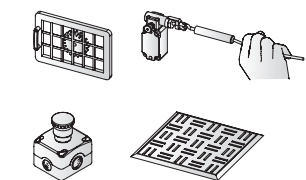
## CS DM

For two hand operation or synchronism monitoring



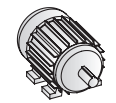
## CS AR-51

For emergency stops, end position monitoring on movable guards, safety mats and safety bumpers with 4-wire technology



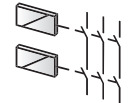
## CS AM

For motor standstill monitoring



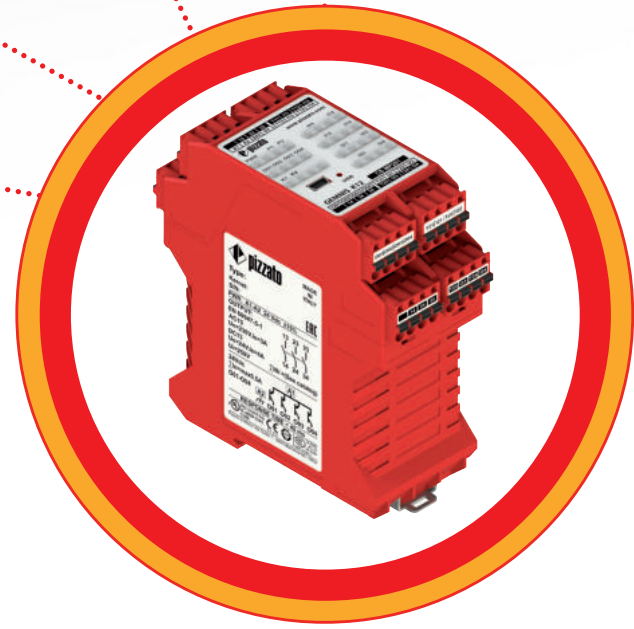
## CS ME

Expansion modules with instantaneous contacts or delayed contacts at de-energizing



## CS MF

Pre-programmed multifunction safety modules



## CS MP

Programmable multifunction safety modules



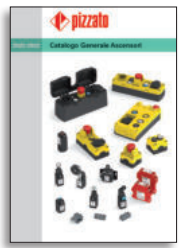
General Catalogue Detection



General Catalogue HMI



General Catalogue Safety



General Catalogue Lift



Website  
www.pizzato.com



Pizzato Elettrica s.r.l. via Torino, 1 - 36063 Marostica (VI) Italy  
Phone: +39 0424 470 930  
E-mail: info@pizzato.com  
Website: www.pizzato.com

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# Single-function modules

Product code	Supply voltage	For applications up to			Output contacts			Housing dimensions	Autom. & manual start	Monitored start	Inputs of opposite potentials	Equipotential inputs	Parallel start (24 Vdc only)	Input type (2)	Connection type (4)			
		PL	SIL	Safety category	instantaneous	delayed	feedback								V	M	X	
<b>Safety modules for emergency stops and end position monitoring for movable guards</b>																		
CS AR-01	24 Vac/dc; 120 Vac; 230 Vac 10...30 Vdc	e	3	4	2 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	■	⑦	-	■	■
CS AR-02	24 Vac/dc; 120 Vac; 230 Vac 10...30 Vdc	e	3	4	3 NO	-	-	22.5 x 114 mm	■	■	■	■	■	⑦	-	■	■	
CS AR-04	24 Vac/dc; 120 Vac; 230 Vac	e	3	4	3 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	⑦	-	■	■	
CS AR-05	24 Vac/dc; 120 Vac; 230 Vac	e	3	4	3 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	⑦	-	■	■	
CS AR-06	24 Vac/dc; 120 Vac; 230 Vac	e	3	4	3 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	⑦	-	■	■	
CS AR-07	24 Vac/dc	e	3	4	4 NO + 1 NC	-	-	22.5 x 129 mm	■	■	■	■	■	-	-	■	■	
CS AR-08	12 Vdc; 24 Vac/dc; 120 Vac; 230 Vac	e	3	4	2 NO	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-20	24 Vac/dc; 120 Vac; 230 Vac	e	3	3	2 NO	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-21	24 Vac/dc; 120 Vac; 230 Vac	e	3	3	2 NO	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-22	24 Vac/dc; 120 Vac; 230 Vac	e	3	3	3 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-23	24 Vac/dc; 120 Vac; 230 Vac	e	3	3	3 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-24	24 Vac/dc	e	3	3	4 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-25	24 Vac/dc	e	3	3	4 NO + 1 NC	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	
CS AR-40	24 Vac/dc	d	2	2	2 NO	-	-	22.5 x 91 mm	■	■	■	■	■	-	-	■	■	
CS AR-41	24 Vac/dc	d	2	2	2 NO	-	-	22.5 x 91 mm	■	■	■	■	■	-	-	■	■	
CS AR-46	24 Vac/dc	c	1	1	1 NO	-	-	22.5 x 91 mm	■	■	■	■	■	-	-	■	■	
CS AR-91	24 Vac/dc	e	3	4	2 NO + 1 OPT	-	-	22.5 x 114 mm	■	■	■	■	■	-	-	■	■	

<b>Module for emergency stops, end position monitoring for movable guards, safety mats and safety bumpers with 4-wire technology</b>																	
CS AR-51	24 Vac/dc	e	3	4	2 NO	-	-	22.5 x 114 mm	■	■	■	■	■	■	■	■	■

<b>Safety modules for emergency stop and end position monitoring for movable guards with delayed contacts upon opening of the inputs</b>																	
CS AT-0③	24 Vac/dc; 120 Vac; 230 Vac	e	3	4 (2)	2 NO + 1 NC	2 NO	-	45 x 114 mm	■	■	■	■	■	■	■	■	■
CS AT-1③	24 Vac/dc; 120 Vac; 230 Vac	e	3	4 (2)	3 NO	2 NO	-	45 x 114 mm	■	■	■	■	■	■	■	■	■
CS AT-3③	24 Vac/dc	e	3	4 (2)	2 NO	1 NO	-	45 x 114 mm	■	■	■	■	■	■	■	■	■

<b>Safety timer modules</b>																	
CS FS-1③	24 Vac/dc; 120 Vac; 230 Vac	①	①	①	-	1 NO + 2 NC	-	45 x 114 mm	-	-	-	-	-	■	-	-	■
CS FS-2③	24 Vdc; 120 Vac	d	2	3	-	1 NO + 1 NC + 1 CO	-	45 x 114 mm	-	-	-	-	-	■	-	-	■
CS FS-3③	24 Vdc; 120 Vac	d	2	3	-	1 NO + 1 NC + 1 CO	-	45 x 114 mm	-	-	-	-	-	■	-	-	■
CS FS-5③	24 Vdc; 120 Vac	d	2	3	-	1 NO + 1 NC + 1 CO	-	45 x 114 mm	■	■	■	■	■	-	-	-	■

<b>Safety modules for two-hand controls or synchronism monitoring</b>																	
CS DM-01	24 Vac/dc; 120 Vac; 230 Vac	III C in compliance with EN ISO 13851			3 NO + 1 NC	-	-	22.5 x 114 mm	-	-	■	-	-	■	-	-	■
CS DM-02	24 Vac/dc; 120 Vac; 230 Vac	III C in compliance with EN ISO 13851			2 NO	-	-	22.5 x 114 mm	-	-	■	-	-	■	-	-	■
CS DM-20	24 Vac/dc; 120 Vac; 230 Vac	III A in compliance with EN ISO 13851			2 NO	-	-	22.5 x 114 mm	-	-	■	-	-	■	-	-	■

<b>Safety modules for motor standstill monitoring</b>																	
CS AM-01	24 ... 230 Vac/dc	d	2	3	2 NO + 1 NC	-	-	45 x 114 mm	-	-	-	-	-	■	-	-	■

<b>Expansion modules with instantaneous contacts or delayed contacts at de-energizing</b>																	
CS ME-01	24 Vac/dc	①	①	①	5 NO + 1 NC	-	1 NC	22.5 x 114 mm	-	-	①	①	-	■	-	-	■
CS ME-02	24 Vdc	①	①	①	4 NO + 2 NC	-	1 NC	22.5 x 114 mm	-	-	①	①	-	■	-	-	■
CS ME-03	24 Vdc	①	①	①	3 NO	-	1 NC	22.5 x 91 mm	-	-	-	■	-	■	-	-	■
CS ME-20VU24-⑤	24 Vdc	①	①	①	-	4 NO + 2 NC	1 NC	22.5 x 114 mm	-	-	①	①	-	■	-	-	■
CS ME-31VU24-TS12	24 Vdc	①	①	①	-	4 NO + 2 NC	1 NC	45 x 114 mm	-	-	①	①	-	■	-	-	■

- Available for this article
- Not available for this article
- ① Depending on the base module
- ② Category 4 for instantaneous contacts, category 3 for delayed contacts
- ③ Release times for delayed contacts
  - 0 fixed time
  - 1 adjustable, 0.3 ... 3 s, 0.3 s steps
  - 2 adjustable, 1 ... 10 s, 1 s steps
  - 3 adjustable, 3 ... 30 s, 3 s steps
  - 4 adjustable, 30 ... 300 s, 30 s steps
- ④ Connection type
  - V Screw terminals
  - M Connector with screw terminals
  - X Connector with spring terminals
- ⑤ Release time in absence of power supply
  - TF0.5 0.5 s fixed time
  - TF1 1 s fixed time
  - TF2 2 s fixed time
  - TF3 3 s fixed time
- ⑥ Release time in absence of power supply
  - TF1 1 s fixed time
  - TF12 12 s fixed time
- ⑦ Input type
  - ⚡ electromechanical contacts
  - ⚡ semiconductor outputs (e.g. light barriers)
  - ⚡ magnetic safety sensors
  - ⚡ 4-wire safety mats and safety bumpers
- ⑧ Modules compatible with magnetic sensors from June 2014

# GEMNIS multifunction programmable modules

A Gemnis series module is a programmable safety device, which allows several functions to be carried out simultaneously. The logic functions of a number of electromechanical modules can be managed using a single module. Dozens of different inputs can be connected.

The modules can be programmed and managed using the **GEMNIS STUDIO** software, developed entirely by Pizzato Elettrica, and freely downloadable by the user.



- User-programmable safety device
- Allows implementation of multiple safety functions with a single module
- Internal switching cabinet space saving
- Safety module purchase cost saving
- Wiring operation saving
- Integrated safety solution
- For safety circuits up to: SIL 3 acc. to EN 62061 and PL e acc. to EN ISO 13849-1
- **GEMNIS STUDIO** programming software, with free licence
- Continuous updates to hardware and software by Pizzato Elettrica
- **Simplified graphical interface** for fast programming
- Ability to add support information and notes to aid full program comprehension
- **Simulation environment**, integrated for program verification and debugging
- **Monitor** for real-time program function monitoring
- Compatible with competitor sensors and safety devices

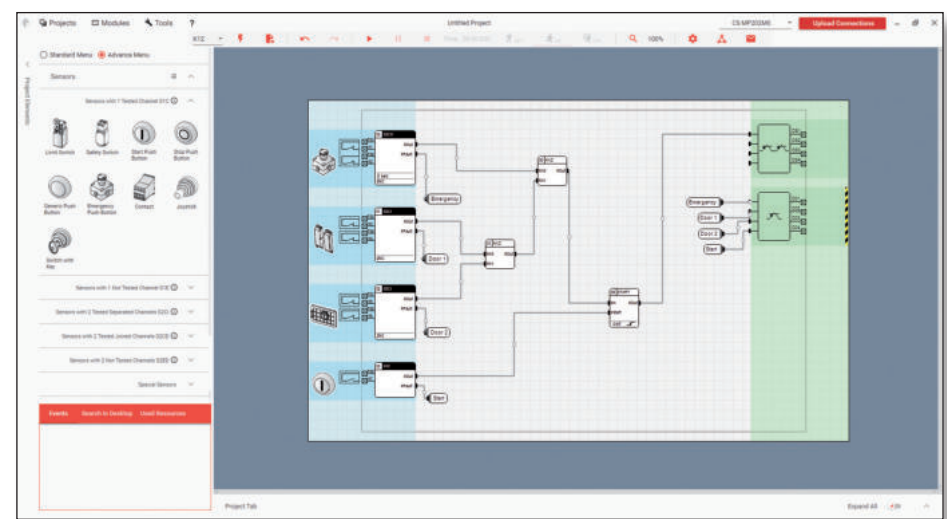
## Desktop

Makes security module functionality immediate and visual.

Divided into **sensors** area (blue), **function blocks** area (white), **outputs** area (green).

Sensors and function blocks are inserted and connected by simply **dragging and dropping**.

The **Validation Report** and **User Program Report** can be printed.

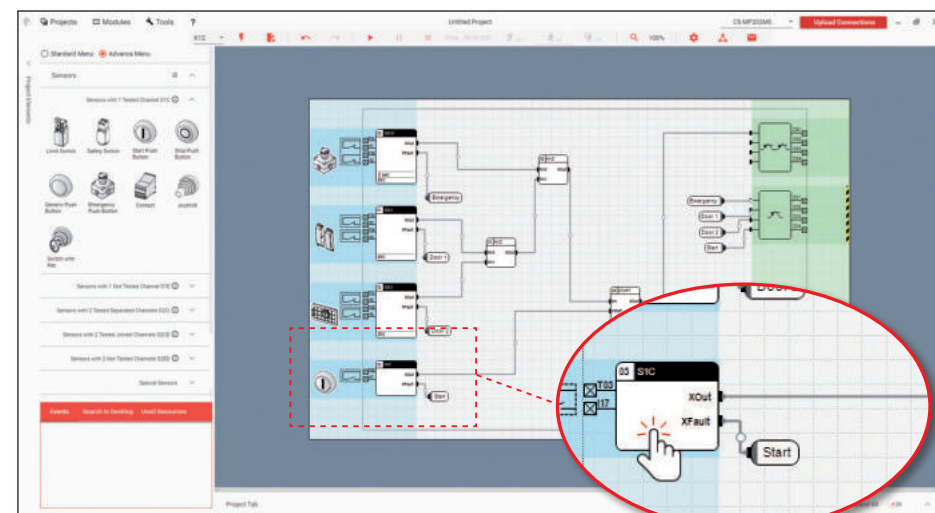


## Simulation

The simulation environment allows testing to be performed on the Application Program that is being created, checking its operation before it is sent to the module.

**Real-world operations** can be simulated by simply clicking the icon for the sensor to be tested.

Information transmission can be seen by the **colour change** of the connections.

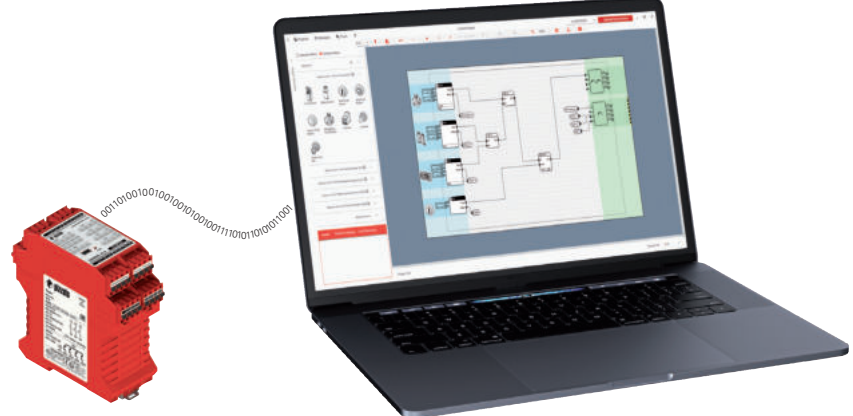


## Monitor

You can perform **real-time analysis** of one or more Gemnis modules using the monitor function.

You can observe the overall operation state of the module and various data relating to the program being executed, including a list of most recently saved programs.

The **execution status of the program** can be viewed in real time.



## Function blocks

Thanks to the **sensor and function block libraries**, the user can execute all logical combinations needed to connect the inputs to the safety module outputs.

The function blocks contain **elementary logic functions** or **specific complex functions** for the management of safety circuits.

When new function blocks are implemented, Pizzato Elettrica provides **library updates** to all users.

AND Basic Boolean function	DELAY Returns a signal of type Delay Off or Delay On	ERROR Filters the module into Error State	FILTER Filters a signal from interference for a duration lower than set time	EDM External device monitoring
OR Basic Boolean function	SET/RESET Basic logical memory function	LKTLB Conversion table between data of the same type	LDC Upstream function block for monitoring of a door-locking system	SERIAL Dialog between safety module and external PLC to monitor the state of sensors, logic blocks or general inputs connected to the module
NOR Basic Boolean function	TRUE / FALSE Basic Boolean function	GEQ/EQU/LEQ Carries out a numerical comparison between two values of type B or W and displays the result in Boolean format (X)	WAVE Generates a waveform with variable period and ON time	SUM Calculates the mathematic addition between two values
NAND Basic Boolean function	POWER ON Active signal at first execution cycle	MESSAGE Transmits a message on the USB and COM ports	MUTE2 Upstream function block for monitoring of a 2-beam muting system	ADIFF Calculates the mathematic absolute difference between two values
NOT Basic Boolean function	PULSE Returns a signal of type Delay Off on the preselected input edge	COUNTER Pulse counter	WTOB Converts data from W format to B format	AVG Calculates the mathematic average between two values
NXOR Basic Boolean function	CLOCK Generates pulses at pre-established fixed intervals	TRIGGER Detects the edge, either rising or falling, of an input signal	MUL Mathematical multiplication function	BTST Sends the value of the bit in the position predetermined by the input data to the XOut output bit
START Control function				
MEM Generic memory function				

## Website: www.gemnis.com

At www.gemnis.com, you can find:

- **online support** for Gemnis products
- **Gemnis Studio installation package**, free of charge
- **support files**
- most up to date version **of the instruction manual**
- **video tutorial** on Gemnis Studio program functionality

## Hardware structure of the modules

Module	Inputs	Test signals T	OS safety outputs	O signalling outputs	Width (mm)	Module	Inputs	Test signals T	OS safety outputs	O signalling outputs	Width (mm)
CS MP201M0	8 type I	8	3NO	4	45	CS MP306M0	20 type I	4	3NO + 1NO	12	67.5
CS MP202M0	16 type I	4	4 PNP	4	45	CS MP307M0	8 type I 4 type J 2 type C 4 type F	4	4 PNP	4	67.5
CS MP203M0	12 type I	4	3NO + 1NO	4	45	CS MP308M0	24 type I	4	8 PNP	8	67.5
CS MP204M0	12 type I	4	3NO	4	45	CS MP309M0	32 type I	4	8 PNP	-	67.5
CS MP205M0	4 type I 4 type J 4 type F	4	4 PNP	4	45	CS MP310M0	8 type I 8 type J 8 type F	4	4 PNP	4	67.5
CS MP206M0	8 type I	4	4 PNP	12	45	CS MP311M0	20 type I 4 type J 4 type F	4	4 PNP	4	67.5
CS MP207M0	4 type I 2 type C	4	4 PNP	4	45	CS MP312M0	16 type I 4 type J 4 type F	8	8 PNP	-	67.5
CS MP208M0	16 type I	4	8 PNP	-	45	CS MP401M0	40 type I	4	4 PNP	12	90
CS MP301M0	24 type I	8	3NO	4	67.5	CS MP402M0	32 type I	12	8 PNP	8	90
CS MP302M0	24 type I	12	4 PNP	4	67.5	CS MP403M0	40 type I	4	8 PNP	8	90
CS MP303M0	32 type I	4	4 PNP	4	67.5	CS MP406M0	32 type I	4	4 PNP	20	90
CS MP304M0	28 type I	4	3NO + 1NO	4	67.5						
CS MP305M0	24 type I	4	4 PNP	12	67.5						

I = Digital inputs  
D = Digital inputs, decoupled  
C = Inputs for 4-20 mA analogue signals  
F = Inputs for 0 ... 4 kHz frequency signals

T = Test signals  
OS = OSSD safety outputs (PNP)  
n = Relay safety outputs  
O = signalling outputs (PNP)