

# Schmersal PROTECT SELECT Programmable Safety Relays



**PROTECT-SELECT-CC-AD**

The PROTECT SELECT compact safety module offers greater flexibility during installation and integration of safety systems into machine functions. Thanks to the four preloaded safety programs, programming skills are not required as with conventional safety PLCs. These programs can be selected and further modified via the rocker switch and screen. Program information, device status, warnings, and errors are shown on the graphic color display in plain text for quick and easy diagnostics.

The module provides monitoring of all common safety sensors:

- Emergency stop
- Safety light curtains
- Safety switches
- Four-wire safety mats
- Two-hand control

This saves time and money during project planning, wiring, programming, functional testing and maintenance.

## Features

- Simple and flexible parameter setting
- No programming skills required
- Up to 18 safety inputs (9 pairs) for redundant inquiry of all common safety sensors
- 4 safety semiconductor outputs
- 2 safety relay outputs
- Replaces up to 8 safety monitoring modules up to PLe/SIL 3
- Error and status messages in plain text
- Multilingual menu navigation via color display

### Safety Data Values per EN ISO 13849-1, EN 62061, IEC 61508

| Performance Level                | Up to e                                                        |
|----------------------------------|----------------------------------------------------------------|
| MTTF(d)                          | >100 years                                                     |
| DC Average                       | High                                                           |
| SIL CL                           | Up to 3                                                        |
| HFT (Hardware Failure Tolerance) | 1                                                              |
| SFF                              | >90                                                            |
| PFH(D)                           | 1.78x10 <sup>-8</sup><br>(valid for dual channel and 60% load) |

### Schmersal PROTECT SELECT Selection Chart

| Part Number                        | Price    | Number of Configurations | Safety Input Type | Outputs                                    | Status Outputs   | Connection                | Drawing             |
|------------------------------------|----------|--------------------------|-------------------|--------------------------------------------|------------------|---------------------------|---------------------|
| <b><u>PROTECT-SELECT-CC-AD</u></b> | \$477.00 | 4 programs               | 18 digital        | 2 NO and 4 OSSD<br>(2 pairs and 2 singles) | 4 status outputs | Removable cage terminals  | <a href="#">PDF</a> |
| <b><u>PROTECT-SELECT-SK-AD</u></b> | \$465.00 | 4 programs               | 18 digital        | 2 NO and 4 OSSD<br>(2 pairs and 2 singles) | 4 status outputs | Removable screw terminals | <a href="#">PDF</a> |

### Schmersal PROTECT SELECT Specifications

| Input/Output Specifications |                                                              |
|-----------------------------|--------------------------------------------------------------|
| Operating Temperature       | -25°C [-13°F] to 55°C [131°F]                                |
| Vibration Resistance        | Tested to EN 60068-2-6                                       |
| Degree of Protection        | IP20                                                         |
| Housing                     | Polyamide / V0                                               |
| Weight                      | 300g [10.6 oz]                                               |
| Agency Approvals            | CE, UL (listed number E57648)                                |
| Wire Fixing                 | Plug-in terminals                                            |
| Cable Section Min/Max       | 0.25 mm <sup>2</sup> [24 AWG] - 2.5 mm <sup>2</sup> [14 AWG] |
| Operating Voltage Range     | 19.2 to 28.8 VDC                                             |
| Maximum Consumption         | Max 500mA (plus load of semiconductor outputs)               |
| Input/Output Specifications |                                                              |
| Digital Inputs              | Up to 18 single channel; up to 9 dual channel                |
| Test Outputs                | 3                                                            |
| Safe Semiconductor Outputs  | 2 pairs and 2 single channel                                 |
| Safe Relay Outputs          | 2                                                            |
| Signaling Outputs           | Up to 4                                                      |
| Switching Frequency (Max)   | 0.1 Hz                                                       |
| Overvoltage Protection      | Category III                                                 |
| Operate Delay               | Semiconductor inputs: 30ms<br>Relay outputs: 50ms            |
| Release Delay               | Semiconductor inputs: 45ms<br>Relay outputs: 65ms            |
| Nominal Output Voltage      | 24VDC                                                        |

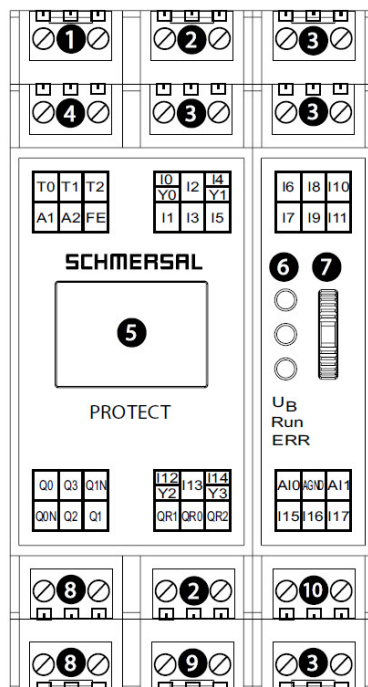
# Schmersal PROTECT SELECT

## Programmable Safety Relays

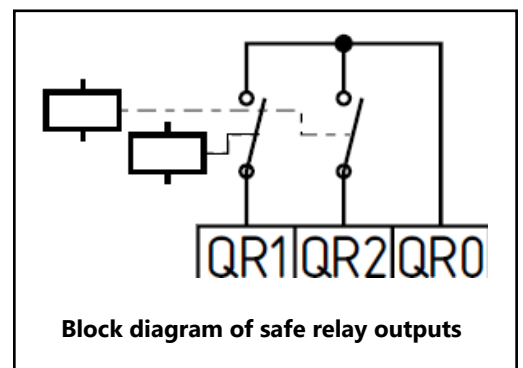


| Terminal Descriptions |          |                                                                                   |
|-----------------------|----------|-----------------------------------------------------------------------------------|
| Voltage               | A1       | +24VDC                                                                            |
|                       | A2       | 0VDC                                                                              |
|                       | FE       | Functional ground connection                                                      |
| Inputs                | I0 - I17 | Safety digital inputs                                                             |
| Outputs               | Q0, Q0N  | Safe semiconductor output p/n switching                                           |
|                       | Q1, Q1N  | Safe semiconductor output p/n switching                                           |
|                       | Q2       | Safe semiconductor output p-switching                                             |
|                       | Q3       | Safe semiconductor output p-switching                                             |
|                       | QR0      | Supply of safe relay output                                                       |
|                       | QR1      | Safe relay outputs                                                                |
|                       | QR2      | Safe relay outputs                                                                |
|                       | Y0-Y3    | Operational outputs (signalling output)                                           |
|                       | T0-T2    | Clock outputs for the supply of safe digital inputs for short-circuit recognition |

## Connection and operating elements



- 1 Cycle outputs T0...T2
- 2 Safe inputs / optional signalling outputs
- 3 Safe inputs
- 4 Supply voltage
- 5 Graphic colour display
- 6 Status LEDs
- 7 Rocker switch
- 8 Safe semi-conductor outputs
- 9 Safe relay outputs
- 10 Safe analog inputs

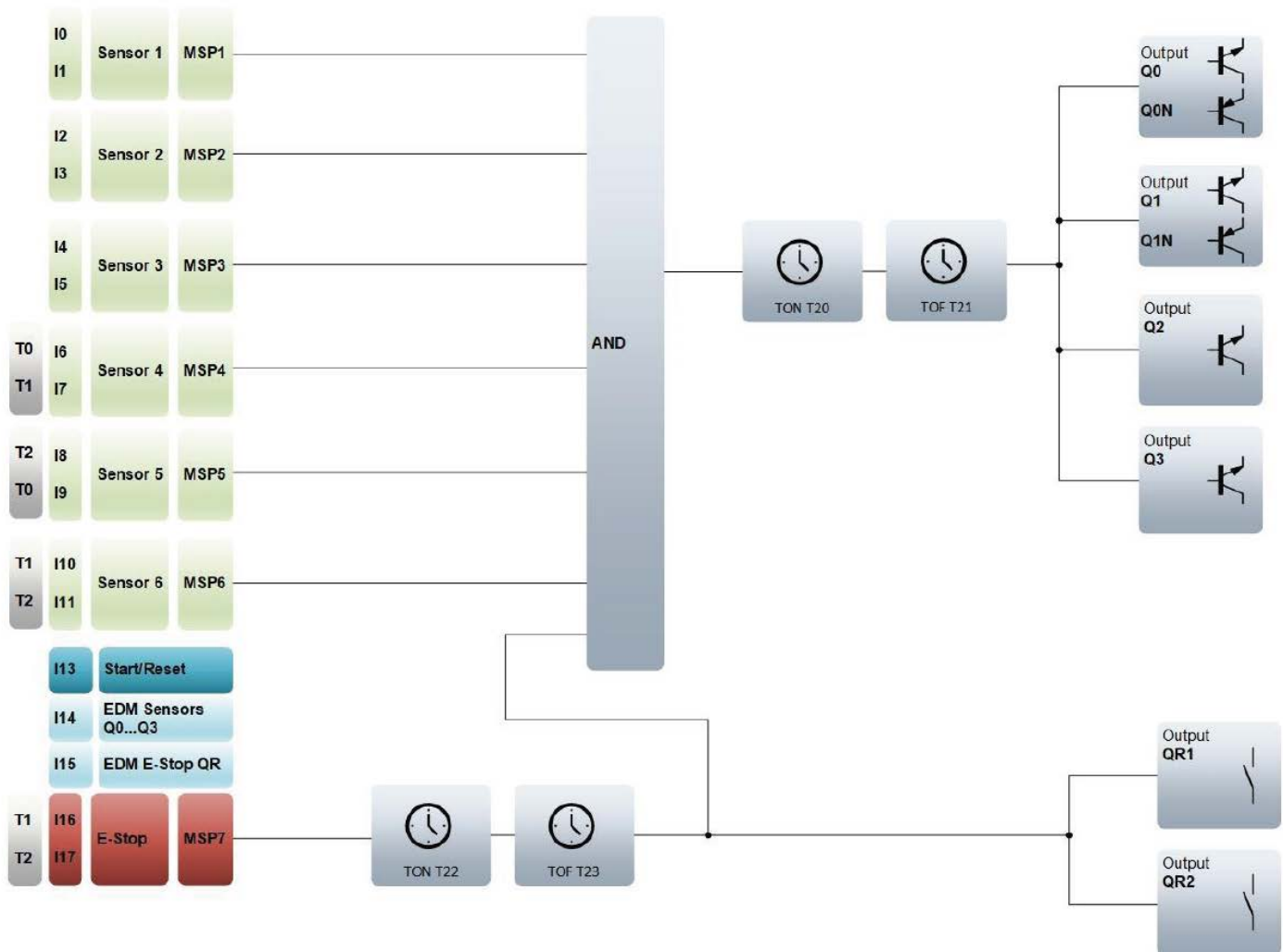


# Schmersal PROTECT SELECT Programmable Safety Relays



## Program 1 Functional Diagram

Collector module for six configurable safety devices with global E-Stop functionality



### MSP = Multifunctional Sensor Processor

A parameter assigned by a 3-digit hexadecimal number. The first digit describes the sensor. The second digit describes the additional function, and the third digit describes the contact properties. For further information, refer to the manual.

### TON = Timer ON delay

Switching ON delay

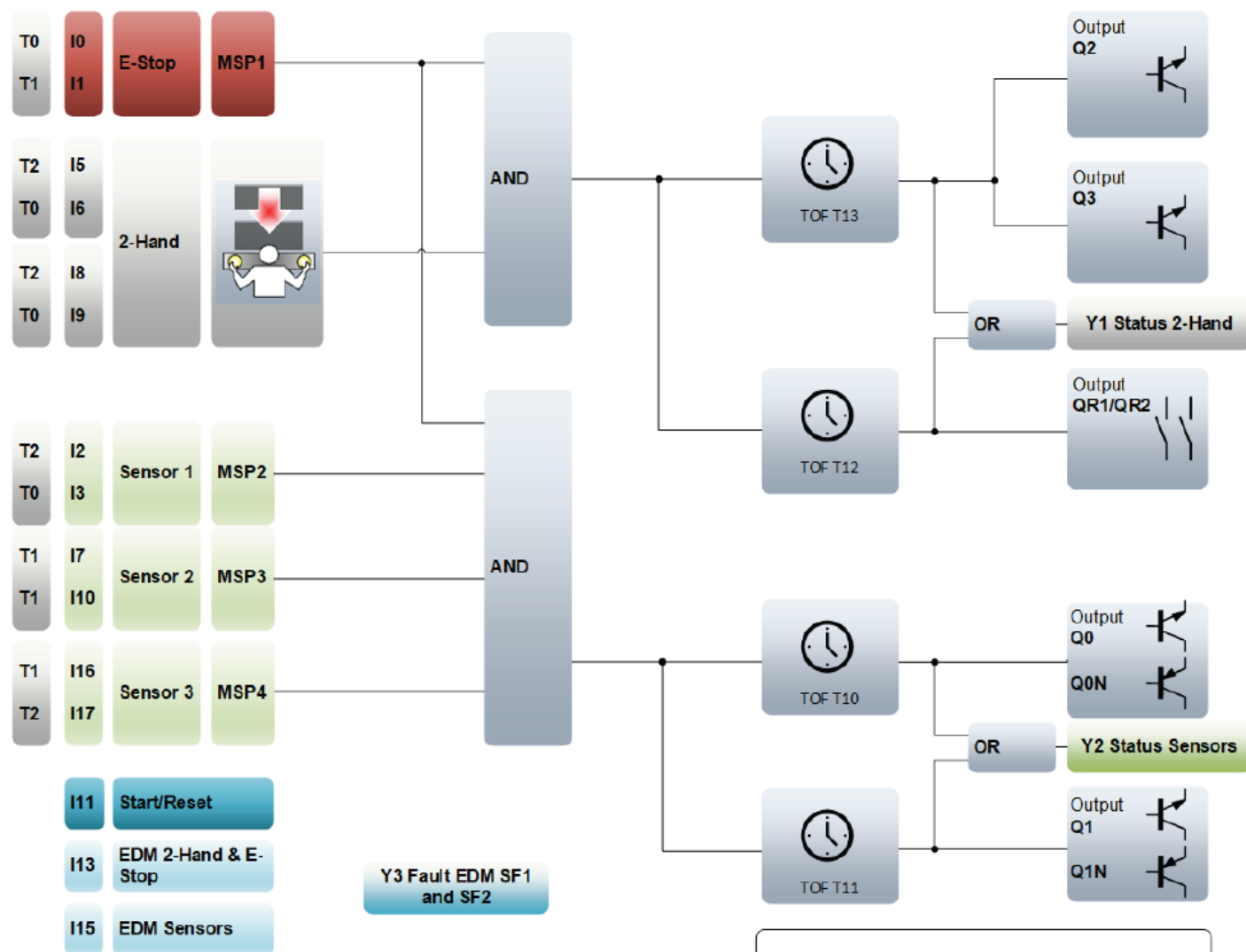
### TOF = Timer OFF delay

Switching OFF delay

# Schmersal PROTECT SELECT Programmable Safety Relays



## Program 2 Functional Diagram



### MSP = Multifunctional Sensor Processor

A parameter assigned by a 3-digit hexadecimal number. The first digit describes the sensor. The second digit describes the additional function, and the third digit describes the contact properties. For further information, refer to the manual.

### TON = Timer ON delay

Switching ON delay

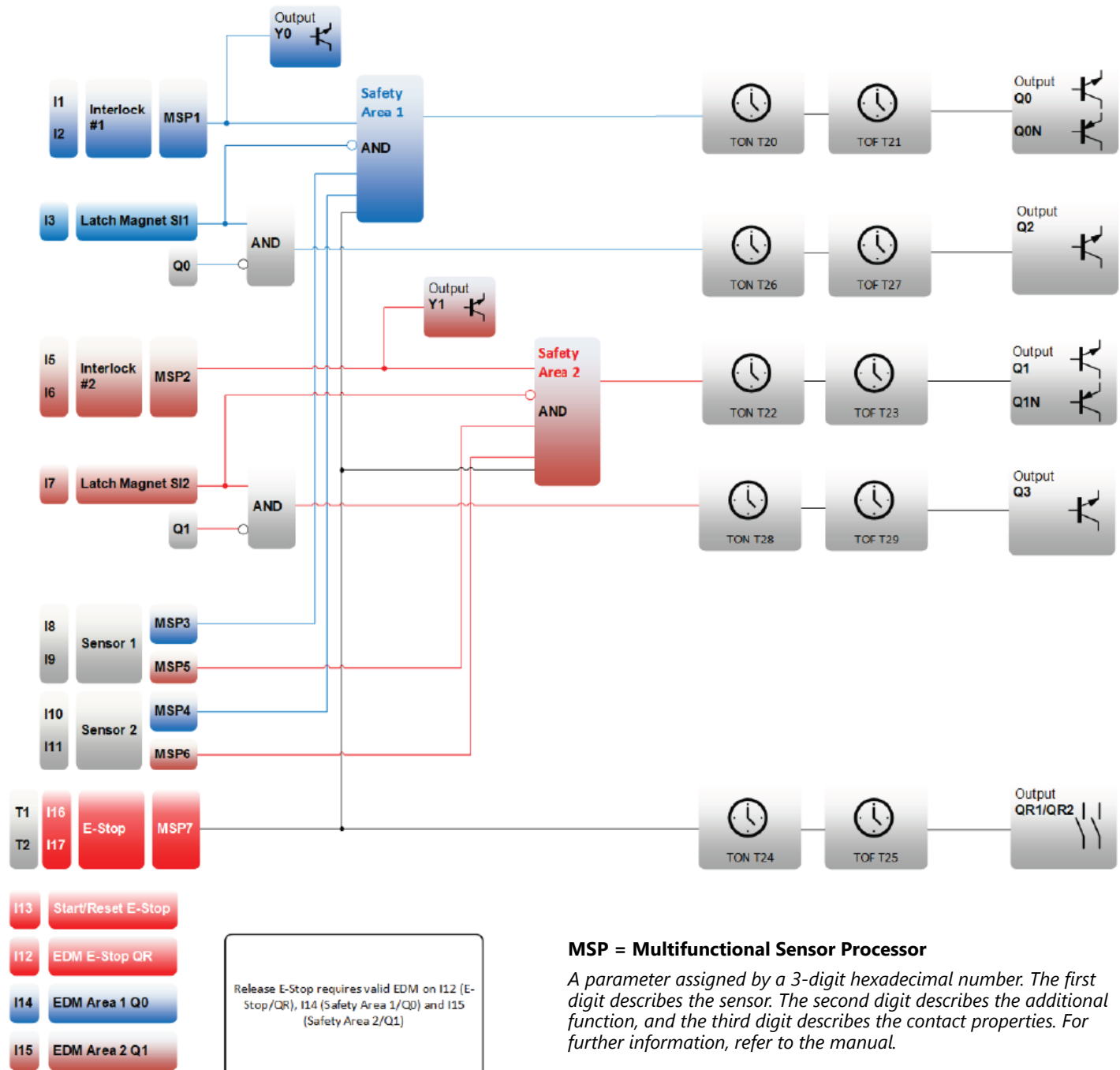
### TOF = Timer OFF delay

Switching OFF delay

# Schmersal PROTECT SELECT Programmable Safety Relays



## Program 3 Functional Diagram



### MSP = Multifunctional Sensor Processor

A parameter assigned by a 3-digit hexadecimal number. The first digit describes the sensor. The second digit describes the additional function, and the third digit describes the contact properties. For further information, refer to the manual.

### TON = Timer ON delay

Switching ON delay

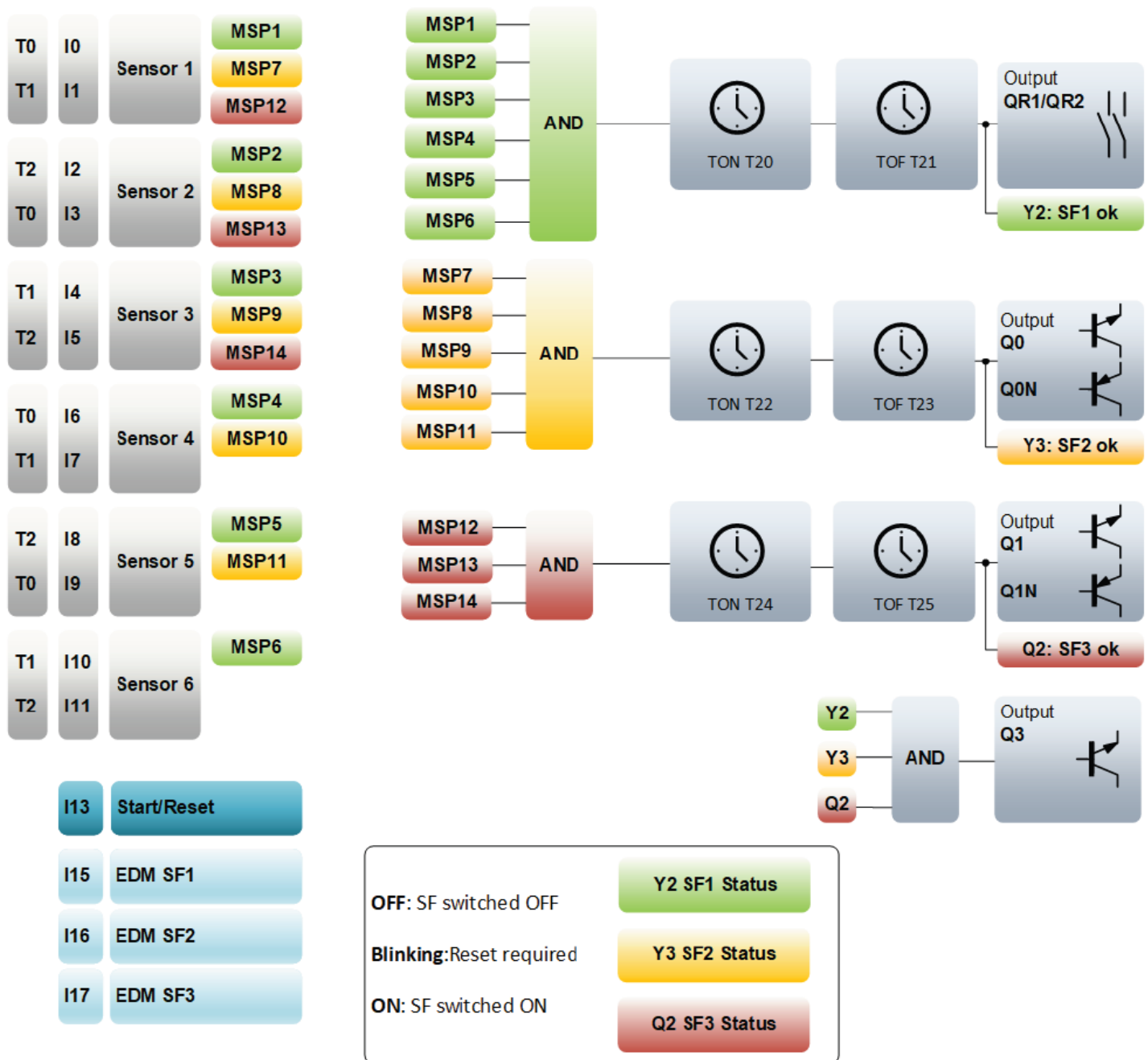
### TOF = Timer OFF delay

Switching OFF delay

# Schmersal PROTECT SELECT Programmable Safety Relays



## Program 4 Functional Diagram



### MSP = Multifunctional Sensor Processor

A parameter assigned by a 3-digit hexadecimal number. The first digit describes the sensor. The second digit describes the additional function, and the third digit describes the contact properties. For further information, refer to the manual.

### TON = Timer ON delay

Switching ON delay

### TOF = Timer OFF delay

Switching OFF delay

# Safety Products



*Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.*

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