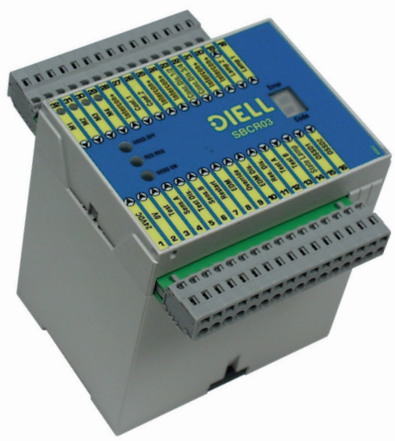
Multiple beam safety control unit (category 2)

for accident prevention in dangerous areas



- System composed of a control unit that accept the connections from one to six pairs of M18 (SH), M30 (TH) through beams and up to two SBA multiple through beams
- Control unit mountable on DIN rail:
  the same control unit can use 3 different M18 and M30 sensor models and 6 different SBA through-beam models or 8 different SBH through-beams
- Body or hand protection, according to the connected devices
- The SBCR03 safety system is certified as a category 2 protection device, in accordance with the EN61496 standard from the TÜV Rheinland™ Institute for Certification
- Two PNP static outputs (500mA)
- Models with Muting, double Muting and Override functions
- Response time less than 5ms

Ordering system

S B C R 0 3 / S - A 0

serie

control unit for multiple through beam

SBCR03

operating voltage

24VDC

S

type

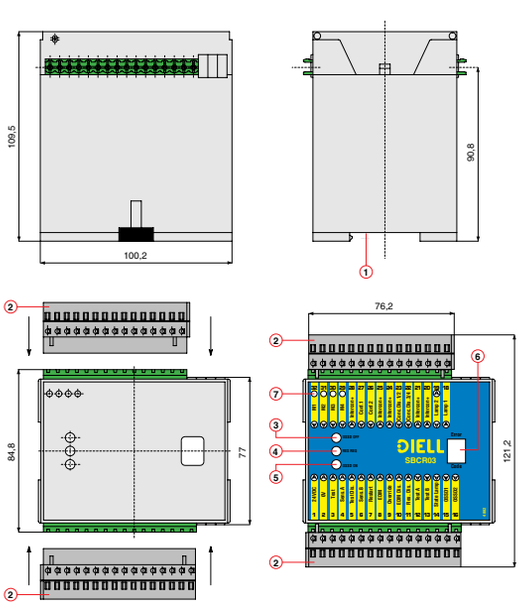
0 standard

M with Muting and Override functions

inputs

A inputs foe single trough beams or multiple trough beams

Dimensions



1. DIN rail (EN50022-35) mounting
2. Removable terminal board
3. Red LED (outputs OFF)
4. Yellow LED (restart request)
5. Green LED (outputs ON)
6. Error code display indicator
7. Yellow LED (4 indicators for Muting sensors status)

Specifications

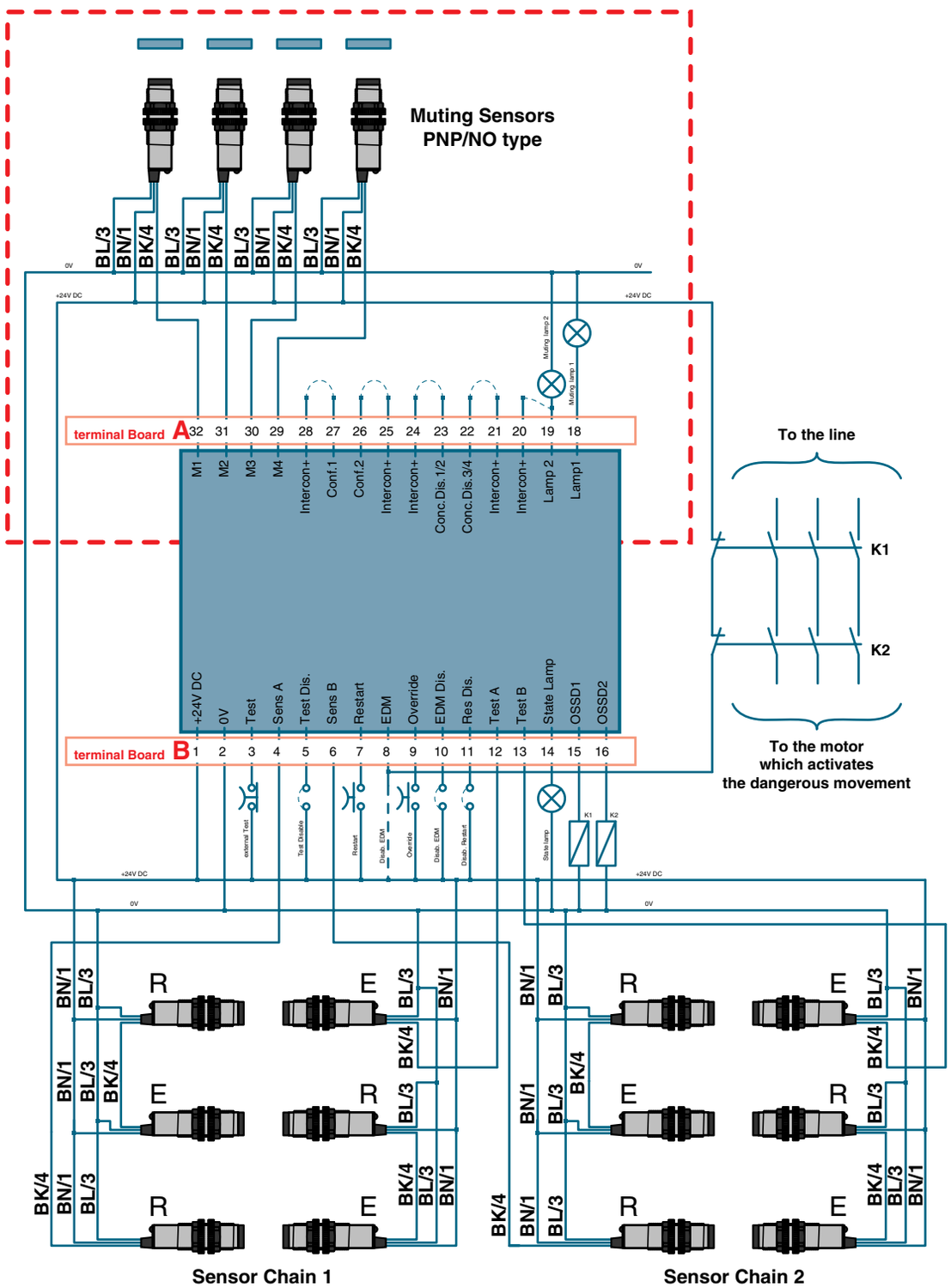
Model	SBCR03/S-A0	SBCR03/S-AM
Type	DC	DC
Operating voltage	24VDC	24VDC
Toleranc	-30...+20%	-30...+20%
Ripple	5Vpp	5Vpp
No-load supply current	100mA	150mA
Periodic test period	8ms	
Functions available	Automatic restart only	
	EDM (with switching monitoring time: 300ms)	
		Muting
		Double Muting
Muting sensors time concurrence	-	3s (excl. function)
Test for max. muting endurance	-	3min(excl. function)
Muting sensors type	-	4xPNP, NO
Muting lamp outputs	-	2 bulbs , from 1 to 10W, 24VDC
Status lamp output	-	from 1 to 10W, 24VDC
Safety output	2 static, PNP 500mA nominal (short circuits protection)	
Output voltage drop	2,5V a 500mA	
Response time	≤5ms + sensor response time [1]	
Restart time	≥100ms	
Protection degree	IEC IP20 (to install inside an electrical panel with at least an IP54 protection degree)	
Temperature range	-20°...+60°C	
Storage temperature	-25°...+75°C	
Housing material	ABS UL V0	
Weight (approx.)	370g	

[1] 12ms with SH, TH or SBA

The following sensors can be connected to the SBCR03 safety control unit:

SH serie: SH2 models	M18 through-beam	optical protection guard up to 10m
TH serie: TH2 model	M30 through-beam	optical protection guard up to 30m
TH serie: TH4 model	M30 through-beam	optical protection guard up to 60m
SBA serie: SBA*/2B model S,T	2 optics through-beam (500mm step)	optical protection guard up to 10m
SBA serie: SBA*/2E model S,T	2 optics through-beam (500mm step)	optical protection guard up to 60m
SBA serie: SBA*/3B model S,T	3 optics through-beam (400mm step)	optical protection guard up to 10m
SBA serie: SBA*/3D model S,T	3 optics through-beam (400mm step)	optical protection guard up to 40m
SBA serie: SBA*/4B models S,T	4 optics through-beam (300mm step)	optical protection guard up to 10m
SBA serie: SBA*/4D models S,T	4 optics through-beam (300mm step)	optical protection guard up to 40m

Wiring diagrams



Example of connections for the SBCR03 safety system with Muting function
N.B. In the version without Muting, the A terminal board is not present, therefore also pins from 18 to 32 are absent.

System description

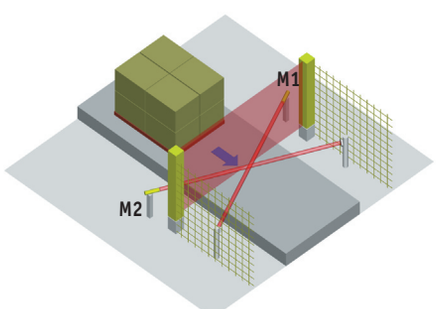
The SBCR03 safety system is made up of a microprocessor control unit and a maximum of 6 single through beam sensors or 2 multiple through beams. This system meets the EN61496 regulation requirements, category 2, and has been certified by the TÜV Rheinland™.
The full optional model is composed of two serie (one serie per access) comprising three pairs each of single cascade emitters/receivers, the SBCR03 safety system and four Muting sensors (one pair per access). The photoelectric safety systems halt the dangerous movement as soon as a person crosses one of the two accesses to the protected area. If however, an object like for example a pallet transporting material enters the danger zone through one of the accesses, the machine continues to function without any interruption. The SBCR03 safety unit carries out a periodic TEST every 8ms of the photocells connected to it, and provides the Restart Interlock and external contact monitoring (EDM) functions.
The two safety outputs are static type and are capable of supplying a maximum current equal to 0.5 A.
If the current is not sufficient or it is necessary to pilot an AC load, or potential free contacts are needed it is possible to connect a relay module (SB300).
To allow an accurate diagnosis of an eventual system error, there are seven LEDs on the SBCR03 control unit and a seven section display which provide the required information.

Muting function

The extended version of the SBCR03 has a sophisticated Muting function which is capable, with the use of suitable sensors, of differentiating people from certain objects, allowing only the latter to enter into the danger area without causing the machine to shutdown.
2, 3 or 2+2 muting sensors can be connected to the control unit, in this way the muting can be realised
as follows:

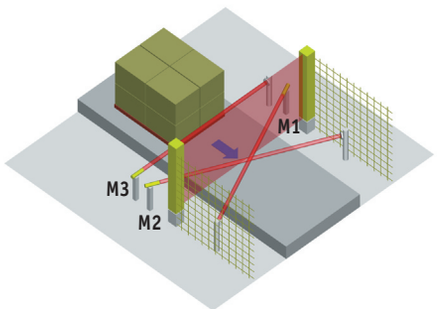
2 sensors configuration

In this configuration, the M1 and M2 pair of sensors must be installed so that the material in transit is capable of activating the Muting sensors at the same time. The Muting function is activated the moment in which the second of the two sensors is obscured, and it stops when one of the two is once again free.



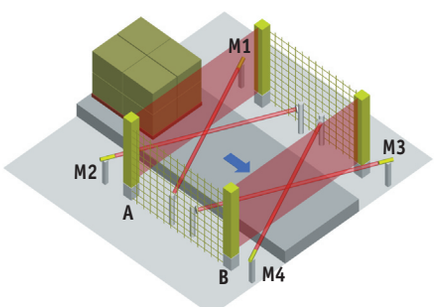
3 sensors configuration

In this configuration, the M1 and M2 sensors are installed as above; M3 is set so that it is activated before M1
and M2. The M3 sensor has the function of recognising
the direction from which the material is coming and it
must be therefore will be activated following the
rules described above.



2+2 sensors configuration

In this configuration, the Sensor A and Sensor B inputs are respectively related to the pair of Muting sensors M1-M2 and M3-M4.
The M1-M2 and M3-M4 muting sensors must respect the same rules as the 2 sensor configuration, just as if they were fitted on two separate units.
Using the configuration with double Muting, it is possible to produce systems with partial Muting. Connecting only sensors M1 and M2, a system of two channels A and B is obtained; the first one serves for protecting an access using the Muting function and the second is for side protection.



Applications

The SBCR03 optic-electronic safety system has a specific application as a safety component in the following fields:
Access protection using the double Muting function
for protections on machines with two separate accesses.
Some examples can be:
palletizers and unloaders;
packaging machines in general;
material assembly or transport machines.
Combined access and side protection
where both the control of the sides and the entry through which material must be transported is necessary.
Some examples can be:
machines for the ceramic industry;
wrapping machines;
packaging machines.