



## SafetyBUS p Fiberoptic Router

# SBR-FL1000/CMD

# SBR-FL4000/CMD

## User Manual

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User manual for SafetyBUS p Fiberoptic Router  
SBR-FL/CMD

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announcement.

**WARNING:** SBR-FL/CMD hardware and software may  
not be used in applications where damage  
to life, health or private property may result  
from failures in or caused by these compo-  
nents.

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## 1 Overview

### 1.1 Attributes

- Optical fiber based CAN router for the connection of SafetyBUS p subnetworks
- Powerful 32-bit microcontroller Philips LPC2119 with internal CAN controller
- Abolition of the extension/datarate restrictions between two CAN bus segments
- Supports CAN protocol 2.0A
- Optical fiber extensions up to 4 km
- Automatic detection of the used baudrate

### 1.2 General Description

The router SBR-FL/CMD transmits data between SafetyBUS p networks using optical fiber. Extensions up to 4km are possible depending on the version of the product.

SBR-FL/CMD includes a CAN interface that supports 11-Bit CAN identifiers as well as a 32-bit microcontroller of type LPC2119 with 128kByte Flash and 16kByte RAM.

SBR-FL/CMD automatically detects the baudrate on the controlling side. The I/O side can be run with the baudrate detected on the controlling side or an independently customized baudrate.

### 1.3 Ordering Information

<b>12-20-520-20</b>	<b>SBR-FL1000/CMD</b> SafetyBUS p fiberoptic router, range up to 1km
<b>12-20-521-20</b>	<b>SBR-FL4000/CMD</b> SafetyBUS p fiberoptic router, range up to 4km

## 2 Electrical Characteristics

### 2.1 Absolute Limiting Values

Parameter	Min.	Max.	Unit
Storage temperature	- 25	+ 70	°C
Operating temperature	0	+ 60	°C
Supply voltage	0	+ 7	V
Voltage on the bus connections	- 30	+ 30	V

Any (also temporary) stress in excess of the limiting values may cause permanent damage on SBR-FL/CMD and connected devices. Exposure to limiting conditions for extended periods may affect the reliability and shorten the life cycle of the device.

### 2.2 Nominal Values

Nominal Values SBR-FL1000/CMD:

Parameter	Min.	Typ.	Max.	Unit
Current consumption	-	60	75	mA
Supply voltage	4,6	5	6,5	V
Switchable termination resistor	118,8	120	121,2	Ω
Optical damping	-	-	7	dB
Admissible fibre length	-	1000	-	m

Nominal Values SBR-FL4000/CMD:

Parameter	Min.	Typ.	Max.	Unit
Current consumption	-	60	75	mA
Supply voltage	4,6	5	6,5	V
Switchable termination resistor	118,8	120	121,2	Ω
Optical damping	2	-	12	dB
Admissible fibre length	-	4000	-	m

SBR-FL1000/CMD and SBR-FL4000/CMD are equipped with ST connectors and intended for use with multimode fibers.

### 3 Operating Instructions

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#### 3.1 Pin Configuration of CAN Connector

The CAN Interface connector (D-Sub 9 male) complies to SafetyBUS p Physical Layer Concept. The pin usage is detailed in the following table:

Pin 1	–	Connector pins linked, no internal connection
Pin 2	CAN_L	CAN bus line, dominant low
Pin 3	GND	Ground
Pin 4	GND	Ground
Pin 5	–	Connector pins linked, no internal connection
Pin 6	GND	Ground
Pin 7	CAN_H	CAN bus line, dominant high
Pin 8	VCC	Power Supply +5V
Pin 9	–	Connector pins linked, no internal connection