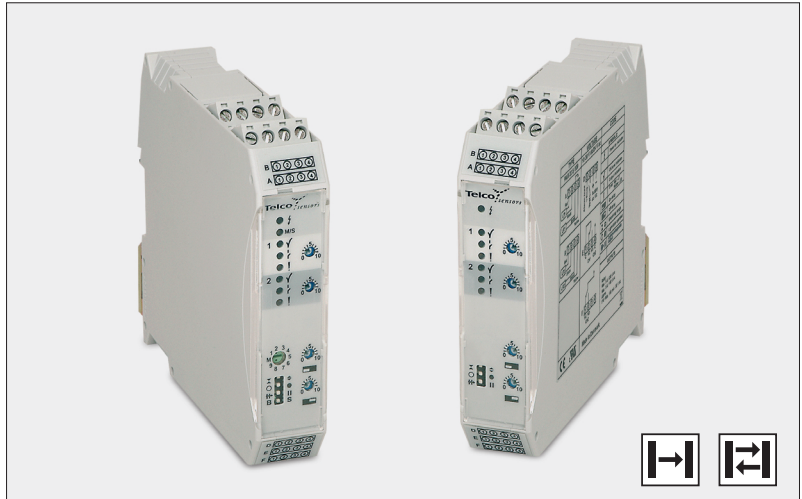


**Description**

- Operation mode and max sensing range:  
**Thru-beam: 0-47 m**  
**Diffuse proximity: 0-2,6 m**
- 24 V ac/dc or 90-240 V ac supply voltage
- Manual sensitivity adjustment
- Sensor LED-drive
- Automatic sensor test
- Adjustable on/off time delay
- 2 relay or 2 transistor outputs
- Switch selectable light or dark function
- Switch selectable long or short range
- Test input
- Power, output, alarm, signal level and master/slave indicators
- Alarm output
- DIN rail mounting with bus function



The PAB 20 is a 2-channel, multiplexed, photoelectric amplifier, which is to be used in conjunction with 2 sets of remote transmitters LT and receivers LR from the series 100, 110 and 120. The 2 channels operate independently of each other with their own set of remote transmitter and receiver. The multiplexing function ensures that optical cross talk between channels is prevented.

This amplifier series offers manual sensitivity adjustment, for each individual channel, via an integral potentiometer located on the front panel of the amplifier. The series offers a choice between 2 individual relay or 2 individual transistor outputs, with an adjustable 0-10 sec on/off time delay. Light or dark function and long or short range are switch selectable.

The amplifiers from the PAB 20 A series can be connected together with up to 9 amplifiers from the PAB series via a bus rail connector positioned

on the DIN rail, to form a modular master/slave system with up to a total of 29 channels. The bus connection enables communication between the amplifiers, which allows the channels of all the amplifiers to be multiplexed ensuring that optical cross talk between channels is prevented and allows a common output from the amplifier modules. Both the PAB 20 A and PAB 20 S can share power supply via the bus connection (except 90-240 V ac types).

The amplifier offers a test input, which is used for either disabling or enabling the transmitting power temporarily for test purposes. The amplifier includes an alarm output, which is used to indicate if the signal level is insufficient or if a sensor is faulty. The sensor LED drive powers the optional monitor LEDs available on the remote sensors – output (LT) and power (LR).

Technical Data			10-30 V dc or 24 V ac	90-240 V ac
Supply voltage			10-30 V dc or 24 V ac	90-240 V ac
Voltage tolerance	ac			+/- 10 %
Current consumption				Max. 2,3 W
Output	Relay		250 V ac / 3 A, 120 V ac / 5A	
	Transistor		30 V dc / 100 mA	
Alarm output	Transistor		30 V dc / 100 mA	
Power on indicator			Green LED	
Output indicator			Yellow LED	
Signal level indicator			Green LED	
Alarm indicator			Red / yellow LED	
LR receiver failure indicator			Yellow LED	
LT transmitter failure indicator			Red LED	
Master/slave indicator	PAB 20 A		Green / orange LED	
Sensor monitor LED drive			Green monitor LED on receiver indicates 'Power ON' Yellow monitor LED on the transmitter indicates 'PAB output activated'	
Hysteresis			Approx. 35 %	
Operation frequency	Relay	Short range	17 Hz	
		Long range	9 Hz	
	Transistor	Short range	28 Hz	
		Long range	11 Hz	
Response time $t_{ON} / t_{OFF}$	Relay	Short range	33 ms / 26 ms	
		Long range	60 ms / 53 ms	
	Transistor	Short range	18 ms / 18 ms	
		Long range	45 ms / 45 ms	
Delay $t_{ON} / t_{OFF}$			0-10 sec, adjustable	
Housing material			Polyamide	

**Environmental Data**

Temperature, operation	-10 to +50 °C
Temperature, storage	-40 to +80 °C
Sealing class	IP 40
Approvals	CE UK c RA US

**Available Types**

Model	Connection	Time Delay	Supply Voltage	10-30 V dc / 24 V ac	90-240 V ac
			Output	Order Reference	
PAB 20 A	Removable screw terminals	On/Off delay	2 individual relays	PAB 20 A 009 <sup>1,2</sup>	PAB 20 A 008 <sup>2</sup>
			2 individual NPN	PAB 20 A 109 <sup>1,2</sup>	PAB 20 A 108 <sup>2</sup>
			2 individual PNP	PAB 20 A 209 <sup>1,2</sup>	PAB 20 A 208 <sup>2</sup>
PAB 20 S			2 individual relays	PAB 20 S 009 <sup>1</sup>	PAB 20 S 008
			2 individual NPN	PAB 20 S 109 <sup>1</sup>	PAB 20 S 108
			2 individual PNP	PAB 20 S 209 <sup>1</sup>	PAB 20 S 208

- Note: 1. Amplifiers marked <sup>1</sup> can share power supply via bus connection.  
 2. Amplifiers marked <sup>2</sup> can form modular master/slave via bus connection.  
 3. Remote sensors and bus rail connector to be ordered separately.

**Applicable Remote Sensors and Ranges**

Series	Thru-beam		Diffuse Proximity	
	Short range	Long range	Short range	Long range
100	4 m	12 m	0,4 m	0,8 m
110	9 m	27 m	0,7 m	1,7 m
120	16 m	47 m	1,2 m	2,6 m

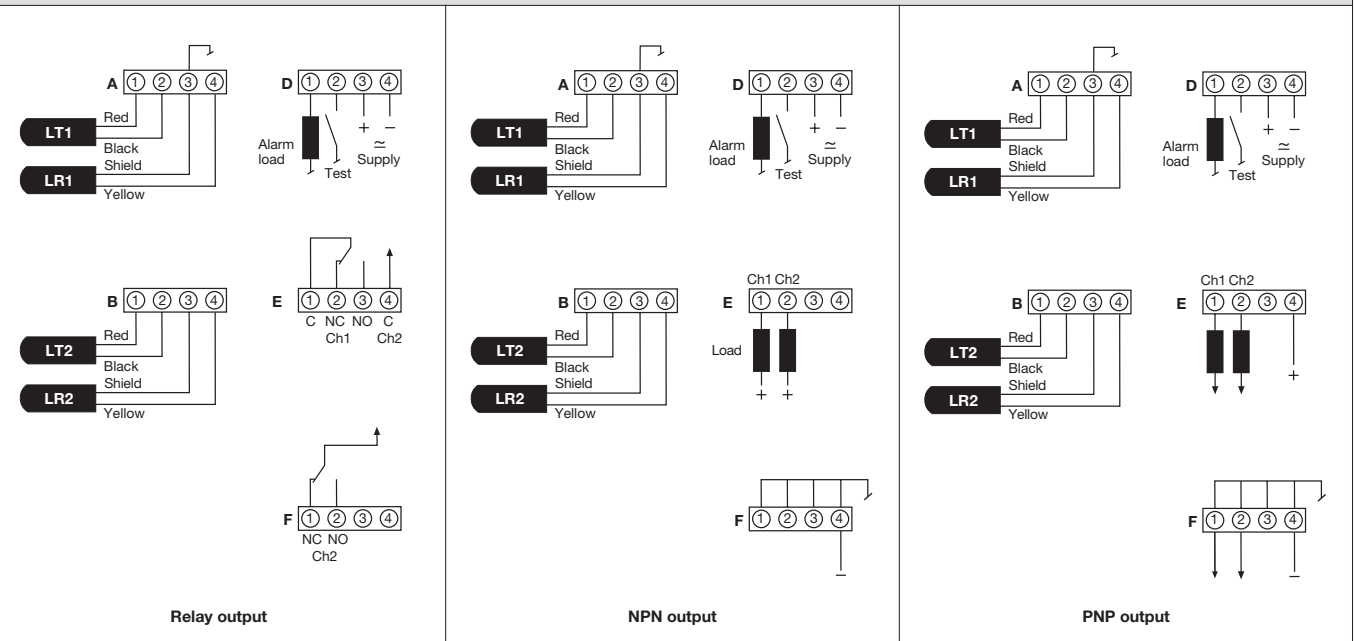
**Response Times in Bus Connection**

PAB 20 A

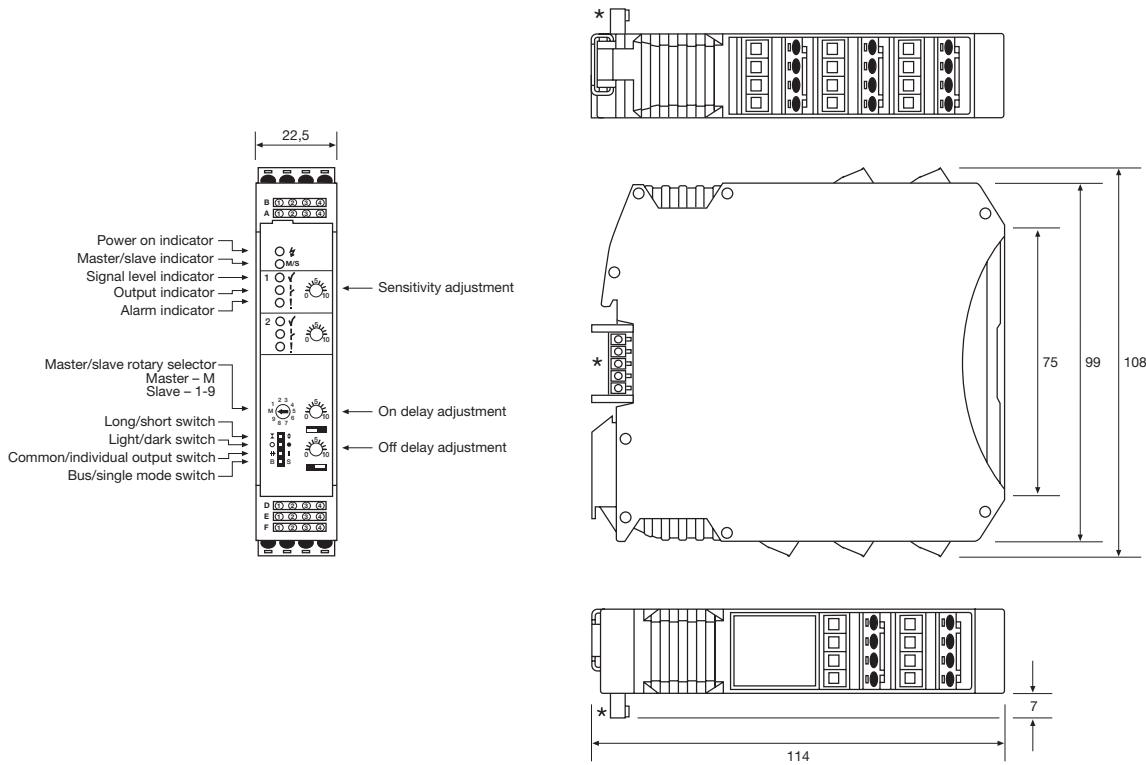
Response time	t <sub>ON</sub> t <sub>OFF</sub>	Relay		Transistor	
		Short range	Long range	Short range	Long range
		6 ms x (N + 1) + 15 ms	15 ms x (N + 1) + 15 ms	6 ms x (N + 1)	15 ms x (N + 1)
6 ms x (N + 1) + 8 ms	15 ms x (N + 1) + 8 ms	6 ms x (N + 1)	15 ms x (N + 1)		
Operation frequency		83 Hz / (N + 2,9)	33 Hz / (N + 1,8)	83 Hz / (N + 1)	33 Hz / (N + 1)

Note: "N" is equal to the total number of channels connected in the bus connection.

**Wiring Diagrams**

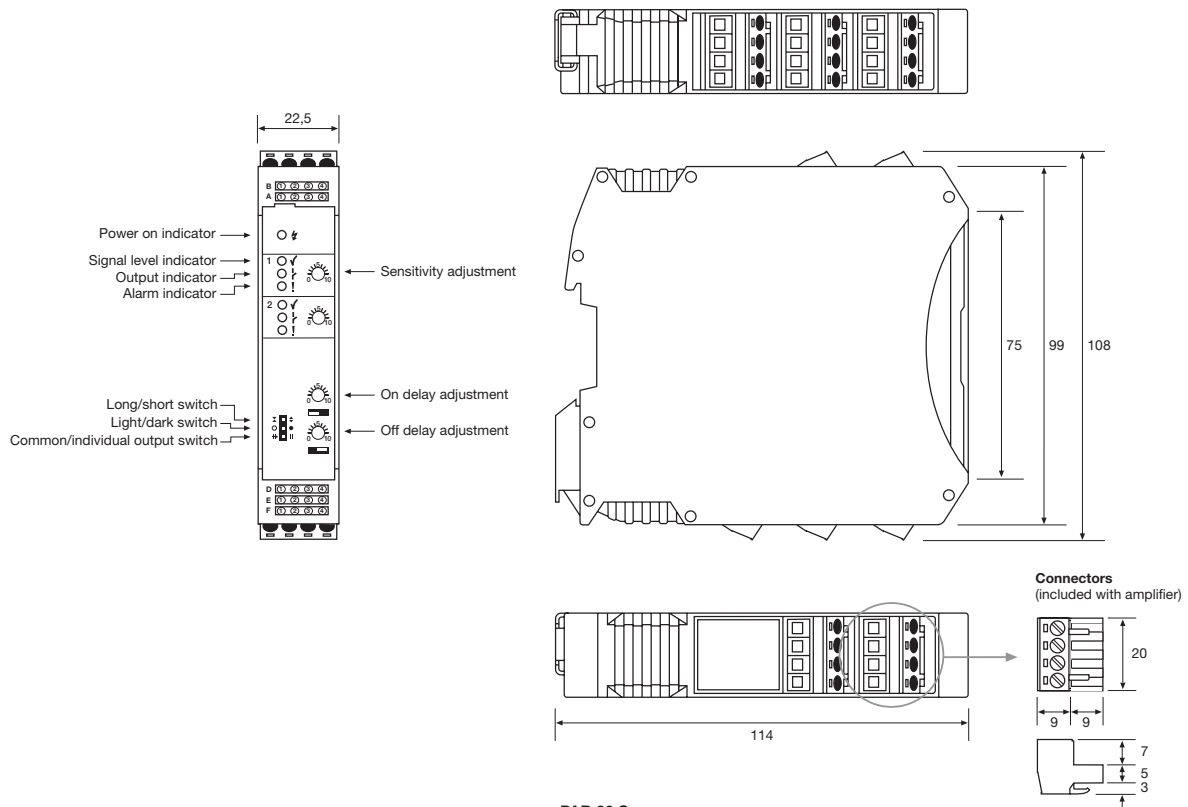


Dimensions and Descriptions



PAB 20 A

\* Shown with Bus Rail Connector 22,5 connected in position (to be ordered separately).



PAB 20 S

(Units in mm)

Telco reserves the right to change specifications without notice.