

Description

- Operation mode and max sensing range:
Thru-beam: 0-47 m
- 10-30 V dc and 24 V ac supply voltage
- Sensor LED-drive
- 2 opto-isolated solid state outputs
- Test input
- Alarm output
- Power, output, alarm, signal level and master or slave status indicators
- DIN rail mounting with bus function
- Communication interface for remote programming and diagnostics with PC software
- Wide range of configurable parameters and settings
- RS-485 communication interface with RJ45 socket



The PABP 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.

The PABP amplifier series is fully programmable with the use of Telco's PC software via an RS-485 communication interface. The graphical user interface of the software allows a wide range of parameters and settings to be remotely programmed and monitored for each individual channel of the Master amplifier and its Slave amplifier modules connected in bus connection, via bus rail connector positioned on the DIN rail. The PABP 20 M master amplifier includes an RJ45 socket for the RS-485 interface. Up to 10 slave amplifiers from the PABP series can be connected to the master amplifier to form a complete modular system with up to a total of 32 channels.

The bus connection ensures communication and data link between the master and all the slave amplifier modules enabling programming and monitoring of the complete modular system. The modules can be configured into virtual groups, with multiplexing within each group. This feature allows the total cycle time of the multiplexing to be reduced. The bus connection allows a shared power supply between all connected modules.

The PABP 20 series provides 2 individual opto-isolated solid state outputs. 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		
Supply voltage		10-30 V dc or 24 V ac
Voltage tolerance		+/- 10 %
Power consumption		Max. 3,6 VA
Output	Solid State	30 V dc / 100 mA
Alarm output	Solid State	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 sensor failure indicator		Yellow LED
LT sensor failure indicator		Red LED
Master status indicator		Green LED
Slave status indicator		Orange LED
Sensor monitor LED drive		Green monitor LED on receiver indicates 'Power ON' Yellow monitor LED on the transmitter indicates 'PABP output activated'
Hysteresis		Approx. 35 %
Operation frequency	Short range*	18 Hz
	Long range*	9 Hz
Response time t _{ON} / t _{OFF}	Short range*	27 ms / 27 ms
	Long range*	57 ms / 57 ms
Communication interface		RS-485
Housing material		Polyamide

Note: * Response times and operation frequencies for Long and Short range are applicable if selected for both channels.

Environmental Data

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

Available Types

Model	Master / Slave Module	Connection	Bus Function	Supply Voltage	10-30 V dc / 24 V ac
				Output	Order Reference
PABP 20 M	Master	Removable screw terminals	Master/Slave communication and Power Supply	2 individual solid state	PABP 20 M 309
PABP 20 S	Slave				PABP 20 S 309

Note: Remote sensors and bus rail connector to be ordered separately.

Applicable Remote Sensors and Ranges

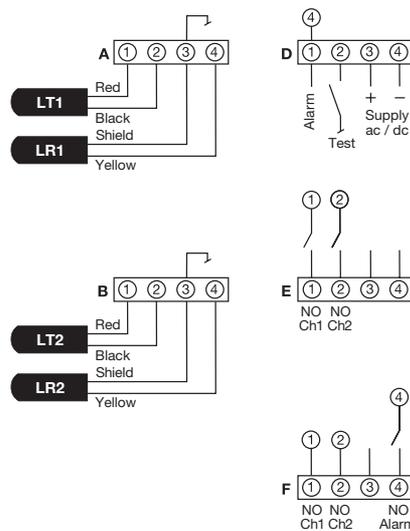
Series	Thru-beam			
	Manual Gain Mode		Automatic Gain Mode	
	Short range	Long range	Short range	Long range
100	4 m	12 m	0,4 – 4 m	1,0 – 10 m
110	9 m	27 m	0,9 – 9 m	2,2 – 22 m
120	16 m	47 m	1,6 – 16 m	3,9 – 39 m

Response Times in Bus Connection

	Short range	Long range	Long and Short range
Response time t_{ON}	$(N_{short}+1) \times 9 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$	$(N_{long}+1) \times 19 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$	$N_{short} \times 9 \text{ ms} + (N_{long}+1) \times 19 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$
Response time t_{OFF}	$(N_{short}+1) \times 9 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$	$(N_{long}+1) \times 19 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$	$N_{short} \times 9 \text{ ms} + (N_{long}+1) \times 19 \text{ ms} + (N_{mod}-1) \times 3,2 \text{ ms}$
Operation frequency	500 Hz / $(N_{short}+1) \times 9 + (N_{mod}-1) \times 3,2$	500 Hz / $(N_{long}+1) \times 19 + (N_{mod}-1) \times 3,2$	500 Hz / $N_{short} \times 9 + (N_{long}+1) \times 19 + (N_{mod}-1) \times 3,2$

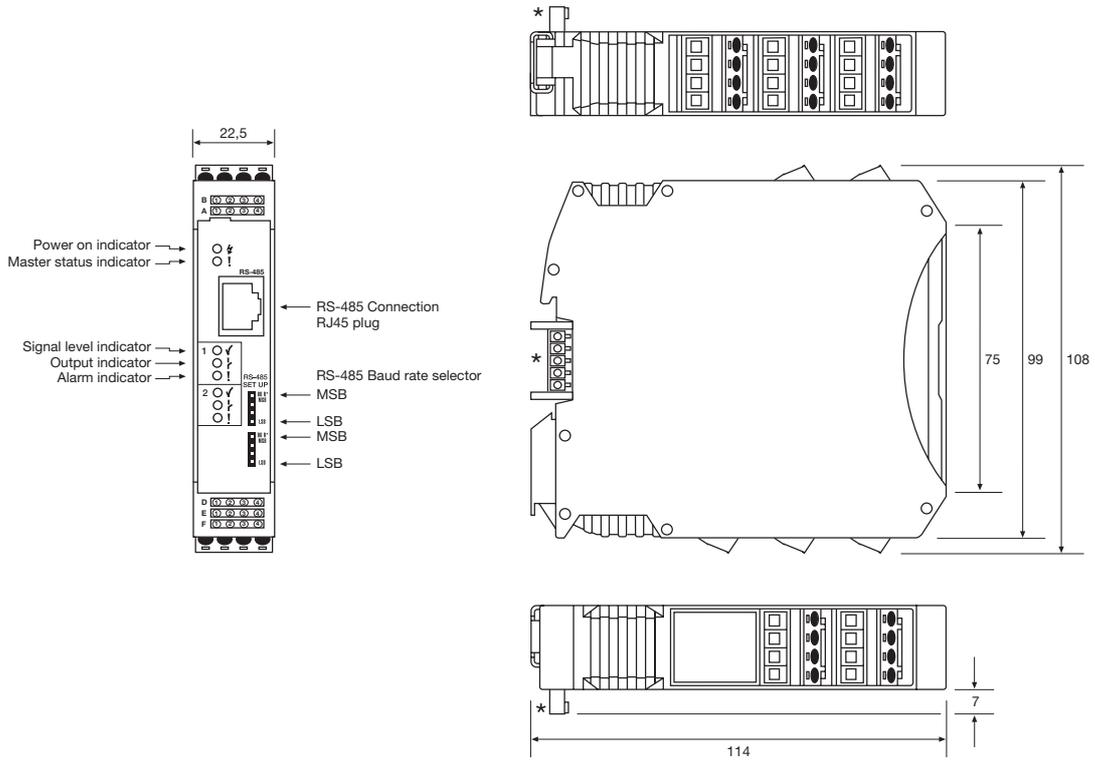
Note: 'Nshort' is equal to the total number of channels connected in the bus connection set in Short Range mode
 'Nlong' is equal to the total number of channels connected in the bus connection set in Long Range mode
 'Nmod' is equal to the total number of amplifier modules connected in bus connection group (including Master module)

Wiring Diagrams



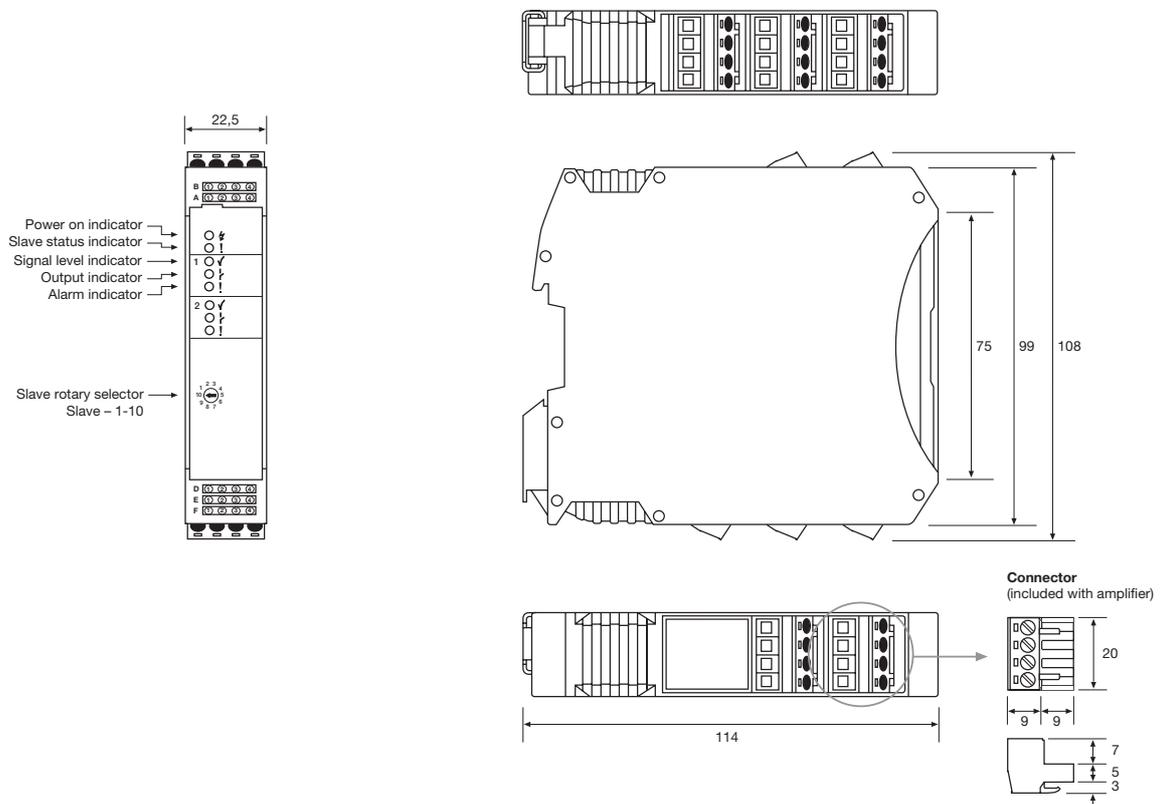
Solid State Output

Dimensions and Descriptions



PABP 20 M

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



PABP 20 S

(Units in mm)

PABP PC Programming and Monitoring

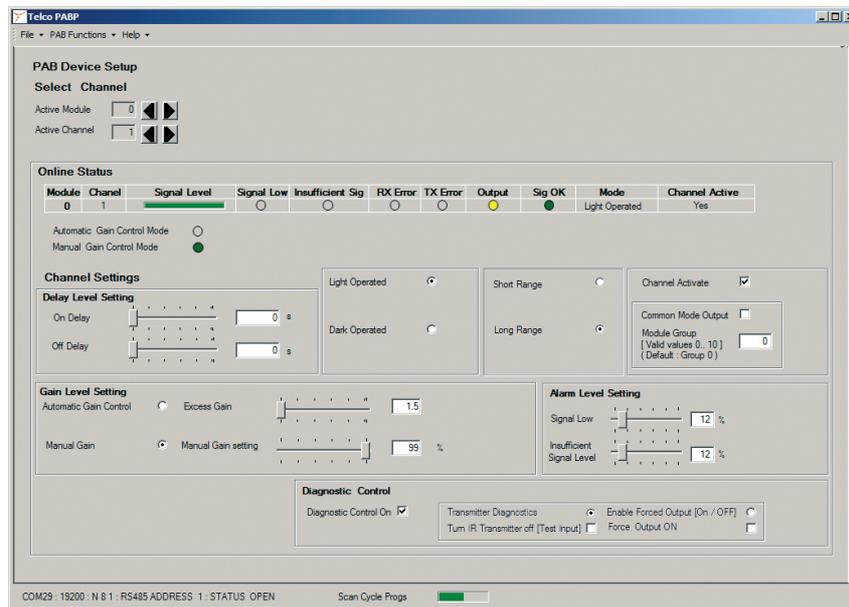
Settings and Parameters

	Settings	Function	Parameters
1	Channel Active	Selection of channel to be active or inactive in operation	Active / Inactive
2	Active Module	Selection of amplifier module to be configured	M or 1-10
3	Active Channel	Selection of channel number of the selected amplifier module to be configured	1, 2 or 3
4	Gain Level	Selection of gain setting mode	Automatic / Manual
5	Automatic Gain	Adjustment of sensitivity of detection / excess gain of auto gain adjustment	1,5 – 3,2
6	Manual Gain	Adjustment of range and sensitivity of detection	0-100%
7	Output Mode	Selection of output operation mode	Light / Dark
8	Long/Short Range Mode	Selection of the range and response time of channel	Long / Short
9	Time Delay On	Adjustment of t_{ON} time delay of output	0-10 sec
10	Time Delay Off	Adjustment of t_{OFF} time delay of output	0-10 sec
11	Signal Low Level	Adjustment of low signal level for (early) pre-warning alarm	0-100%
12	Insufficient Signal Level	Adjustment of insufficient signal level for loss of function alarm	0-100%
13	Common Output	Selection for common output – beam broken in one of amplifiers	On / Off
14	Module Group	Designation of group index of amplifier module for multiplexing in sequence within group	0-10
15	Diagnostic Control	Activates display and access to diagnostic controls	On / Off
16	Transmitter Diagnostics	Test control of correct function of detection circuitry and output (requires free optical beam path)	Active / Inactive
17	Test Input	Temporary switching of LT transmitter power OFF	Off
18	Forced Set Output	Test control of correct function of output or functional simulation (does not require free beam path)	Active / Inactive
19	Force Output	Forced ON / OFF switching of output	On / Off

Indications

	Indication	Description	Indicators
1	Signal Level	Indication of operating signal level	Green bar (0-100%)
2	Signal Low	Indicates pre-warning of low signal level (alarm level is user defined)	Red
3	Insufficient Signal	Indicates warning for loss of function (alarm level is user defined)	Orange
4	Signal OK	Indicates when signal is OK due to no: LT / LR error, signal low alarm and insufficient signal alarm	Green
5	LR Error	Indicates hardware error of receiver LR sensor	Yellow
6	LT Error	Indicates hardware error of transmitter LT sensor	Red
7	Output	Indicates when the output is activated	Yellow
8	Mode	Indicates output is light or dark operated	Light / Dark
9	Channel Active	Indicates the channel is active or non-active (ignored)	Yes / No

PC Software Screenshot Device Set-Up



Telco reserves the right to change specifications without notice.