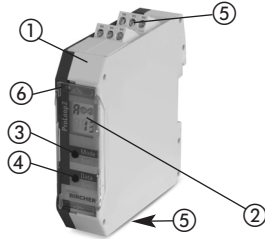# ProLoop2

Loop detector for industrial doors and gates, car parks and parking bollards

Translation of the original instructions

General

① ProLoop 2 loop detector DIN variant, mounting rail installation
② LCD display
③ «Mode» button
④ «Data»-button
⑤ Terminals
⑥ Info LED

1 Safety instructions

⚠
- Read these operating instructions thoroughly before putting the device into operation and keep them for future reference.
- Failure to follow these safety precautions may cause damage to device or objects, serious personal injury, or death.
- Do not use this product other than for its specified application.
- These devices and their accessories may only be commissioned by trained and qualified personnel.
- The 24 V AC/DC device may only be operated at safety extra-low voltages (SELV) according to EN 61558 with safe electrical isolation. The wiring must be protected against mechanical damage.

- Pay attention to all local relevant electrical safety regulations!
- Before commencing work, remove the power supply from the device/installations!
- If malfunctions occur that cannot be rectified, shut down the device and send it in for repair.
- These devices are only allowed to be repaired by the manufacturer. Tampering and alterations are not permitted. This will invalidate all guarantee and warranty claims.

2 Mechanical mounting in the switch cabinet

The ProLoop 2 is mounted on a 35 mm mounting rail acc. to EN 50 022 in the switch cabinet.
The terminals are pluggable and coded.

3 Electrical connection

ℹ The loop connection wiring to the loop detector must be twisted at least 20 times per meter.
Please ensure the unit is wired properly with correct input voltage and all terminals are connected according to the wiring diagram on the label.

3.1 ProLoop 2 terminal connection diagram

A: Supply voltage connection	B: Loop connection 1-channel device	C: Loop connection 2-channel device	D: Alarm output connection (optional)	E: Relay connection output 1	F: Relay connection output 2
AC — A1 AC — A2	L3 L4	① L3 L4 ② L5 L6	31 common 32 nc 34 no	11 common 12 nc 14 no	21 common 22 nc 24 no

Output connection options (depending on the options ordered):

1-loop device	Relay assignment:	Output connection diagram:
	Output 1	E
	Output 2	F
	Alarm output	D

2-loop device	Relay assignment:	Output connection diagram:
	Output 1+2	E, F
	Alarm output	D

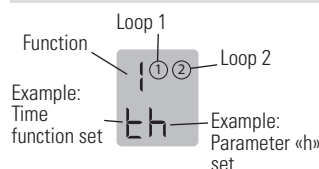### 4 Value and parameter setting options

General

The settings of the ProLoop devices in this chapter are shown and explained for the 1-loop device. The settings for loop 2 of a 2-loop device should be made using the corresponding method.

4.1 LCD display and controls

Standard display 1-loop device	Standard display 2-loop device	Control button	Control button
A① 11	A①②	● Mode Sim1	● Data Sim2

Explanation of the LCD display

Loop 1
Function
Loop 2
Example: Time function set
Example: Parameter «h» set

Explanation of the LED

○ Info	Red + green:	Start-up phase
	Green:	Operation
	Red + green:	Configuration
	Flashing green:	Output 1 and/or 2 activated
	Flashing red:	Error
	Flashing red + green:	Simulation

4.2 Basic functions *0* (see Table 4.11a for settings)

Parameters

1: Door and gate The assigned output relay picks up when the loop is activated and drops out when the loop returns to a non-activated condition.

2: Barrier The assigned output relay picks up when the loop is activated and drops out when the loop returns to a non-activated condition.

3: Quiescent current The assigned output relay drops out when the loop is activated and picks up again when the loop returns to a non-activated condition.

4: Direction logic Output 1 switches if an object moves from loop 1 to 2. Output 2 switches if an object moves from loop 2 to 1. **Both loops** must be activated for a short time. The outputs are reset again when loop 2 returns to a non-activated condition. Both loops must have returned to a non-activated condition for another direction detection.

0: Loop 2 Loop 2 can be deactivated in a 2-loop device.

Relay response to malfunctions (see chapter 6 Troubleshooting):

1. Door/gate systems	A malfunction causes the output relay to be released. The alarm relay drops out.	2. Barrier	A malfunction causes the output relay to pick up. The alarm relay drops out.	3. Quiescent current	A malfunction causes the output relay to be released. The alarm relay drops out.	4. Direction logic (2-loop device only)	A malfunction causes the output relays to be released. The alarm relay drops out.

4.3 Time functions *1*, time unit *2* and time factor *3* (Einstellungen siehe Tabelle 4.11a)

The relay picks up when the loop is activated and drops out when the loop is exited.	Loop / Relay	On delay: The relay picks up after the time t when the loop is activated and drops out when the loop is exited.	t / Loop / Relay	Off delay: The relay picks up when the loop is activated and drops out after the time t when the loop is exited.	t / Loop / Relay
Activation pulse: The relay picks up when the loop is activated and drops out again after the time t.	t / Loop / Relay	Impulse by leaving the loop: By leaving the loop, the relay picks up after the time t, relay drops out.	t / Loop / Relay	Max. presence: he relay picks up when the loop is activated and drops out again after leaving, but at least after the time t.	t / Loop / Relay

4.4 Sensitivity 4 (see Table 4.11a for settings)

The sensitivity *5* (=Sensitivity) of the loop detector can be adapted in 9 stages: *51* = Lowest sensitivity, *59* = Highest sensitivity, *54* = Factory setting.

4.5 Automatic Sensitivity Boost ASB *5* (see Table 4.11a for settings)

ASB (=**A**utomatic **S**ensitivity **B**oost). ASB is required in order to be able to recognise trailer drawbars after activation.

4.6 Frequency *6* (see Table 4.11a for settings)

Four different frequencies F1, F2, F3, F4* can be set in order to avoid interference when using several loop detectors.

4.7 Direction logic *7* (see Table 4.11a for settings)

The direction logic function can only be used with a 2-loop device. Direction logic must have been set in the basic function (see chapter 4.2). Detection can be performed from: → Loop 1 to loop 2 → From loop 2 to loop 1 → from both directions

4.8 Output 2 *8* (see Table 4.11b for settings)

In a device with 2 outputs, output 2 can be either activated or deactivated. In ProLoop 11, output 2 can also be set as an alarm output.

4.9 Protection against power failure *9* (see Table 4.11a for settings)

Note: The set parameter values are retained after a power failure, independent from the "Protection against power failure" function.

P 1 = Protection against power failure activated: The sensitivity is restricted to 1–5.

4.9.1 Signal characteristics with protection against power failure active (Function 9 = 1)

For Activation (e.g. Barriers)

Basic function 0 = **2 Barrier systems**

Output	Without power	Initialisation	Free	Occupied	Free
open (no) closed (nc)					

For Safeguarding (e.g. Barriers, bollards)

Basic function 0 = **3 Quiescent current**

Output	Without power	Initialisation	Free	Occupied	Free
open (no) closed (nc)					

4.10 Changeover from operation to configuration mode

1- loop device

Display after start-up:	*A①* *11*	Touch the «Mode» button once to change to configuration mode	●Mode Sim1	*0①* *1*

2- loop device

Display after start-up:	*A①②* *11*	Touch the «Mode» button once to change to configuration mode	●Mode Sim1	*0①* *1*	← ① Loop 1 is selected	●Mode Sim1	*0 ②* *1*	← ② Loop 2 is selected

*factory settings

2

Note on 2-loop device: After loop 1 has been set, the parameters for loop 2 are set (make the settings using the same procedure) and the settings are not shown in the table with the exception of the direction logic

Table 4.1a Settings
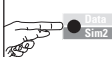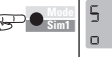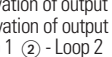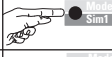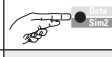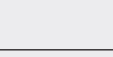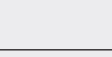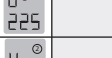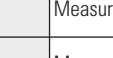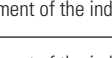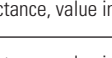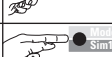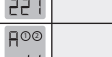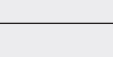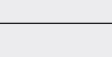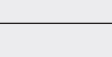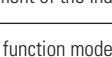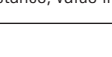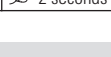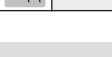
Function	LCD display	Button operation functions	Button operation parameter						Notes
0 - Basic function	0 --			Door/gate systems*	Barrier systems (0 2)	Quiescent current (0 3)	Direction logic (0 4)		With deactivation of Loop 2 the output 2 becomes configurable → 8
1 - Time function	t-h			∞*	On delay (t-h)	Off delay (t-F)	Activation pulse loop (t-J)	Time funct. pulse when loop is exited (t-P)	
2 - Time unit	t-h		This display does not appear with time function th (∞)	0.1 second (t-c)	1 second* (t-o)	1 minute (t-n)	1 hour (t-h)	Max. presence	The time unit multiplied by the time factor gives the set time.
3 - Time factor	C-J		This display does not appear with time function th (∞)	1*	Set value between 1 and 99 by touching or holding the «Data» button				
4 - Sensitivity	5-6		5 = Sensitivity	4*	Set value betw. 1 (lowest) and 9 (highest sensi.) by touching or holding the «Data» button				Setting restrictions: rotection against power failure (with P1): Value 1-5
5 - Automatic Sensitivity Boost ASB	A-1		ASB stands for Automatic Sensitivity Boost	Switched off*	Switched on (A-1)				
6 - Frequency	F4			Frequency F4*	Frequency F1	Frequency F2	Frequency F3		
7 - Direction logic	d--		This display appears only with a 2-loop device	Both directions*	Loop 2 to loop 1	Loop 1 to loop 2	d-		The direction logic function can only be implemented with 2 loops and a 2-loop device
8 - Output 2 configuration	o-0			Output 2 is switched off	Output 2 is activated				Loop 2 has to be deactivated «0»
9 - Protection against power failure	P-0			Switched off*	Switched on (P-0)				If parameter 9 = P 1 parameter 5 must be set to off (5 = A0).
A - Operating mode	--			Operating mode	Error memory slot 1 (000)	Error memory slot 2 (000)	Error memory slot 3 (000)	Error memory slot 3 (000)	Error memory slot 3 (000)	Error memory slot 5 (000)	Possible displays in case of error: see chapter 6 of these operating instructions

Only 2-loop device:
Loop 2 activated: «1»*
deactivated: «0»

* Factory setting

Table 4.11b Different product variants (setting options)

ProLoop 2		Output 2	Notes
1-loop device, 2 relays	–	1*/0	1 = Output 2 on; 0 = Output 2 off
	active	–	Parameter 8 is not possible and is not displayed
2-loop device, 2 relays	deactivated	1/0*	1 = Output 2 on; 0 = Output 2 off

5 Simulation mode

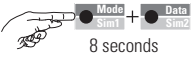| Changeover to simulations mode	Press «Sim1» button	Press «Sim2» button	Press «Sim2» button	Press «Sim2» button	Notes
Changeover to simulation mode: Press the Sim1 + Sim2 buttons simultaneously for 2 seconds.	Mode Sim1 2 seconds +	Data Sim2 2 seconds	5 LO		
Simulation mode:					
Activation of the loop	5 LO	Data Sim2 → 5 L1	Mode Sim1 → 5 L 0	Data Sim2 → 5 L 1	L0 -No loop activation (time functions are active) L1 -Loop activation (time functions are active) ① - Loop 1 ② - Loop 2
Activation of the output relay	Mode Sim1 → 5 o0	Data Sim2 → 5 o1	Mode Sim1 → 5 o 0	Data Sim2 → 5 o 1	o0 - Activation of output o1 - Activation of output ① - Loop 1 ② - Loop 2
Alarm output activation	Mode Sim1 → 5 A 0	Data Sim2 → 5 A 1			A0 -Switch off alarm relay A1 -Switch on alarm relay
Inductance of loop 1	Mode Sim1 → u 225				Measurement of the inductance, value in µH
Inductance of loop 2	Mode Sim1 → u 221				Measurement of the inductance, value in µH
Exiting simulation mode	Mode Sim1 2 seconds → A 11				Return to function mode

6 Troubleshooting

E 001   If an error occurs, operating mode «A» and error display «E» light up alternately and an error code such as E 012 is displayed. The LED changes to flashing red, the 4 most recent errors are stored and can be interrogated.

Display	E001	E002	E011	E012	E101	E102	E201/E202	E301	E302	E311	E312
Error	Interruption Loop 1	Interruption Loop 2	Short circuit Loop 1	Short circuit Loop 2	Under-voltage	Over-voltage	Saving error	Loop 1 too large	Loop 2 too large	Loop 1 too small	Loop 2 too small

I 001   Briefly pressing the «Data» button shows the last of 4 errors on the display. Another short press switches to the error before that, and so on. When the button is pressed for the 5th time, the device switches back to automatic mode. If you press the «Data» button for 4 seconds during the query, all error messages are deleted. The figure shows memory slot 1 in which error 001, Interruption loop 1, has been stored (example).

7 Reset

Mode Sim1 2 seconds	**Reset 1 (recalibration)** The loop(s) is/are recalibrated.	Mode Sim1 + Data Sim2 8 seconds	**Reset 2 (factory setting)** All values (except the error memory) are reset to the factory settings (see Table 4.11a). The loop(s) is/are recalibrated.

8 Most important technical data

	ProLoop2
Supply voltage / Power consumption	• 24ACDC: 24 V AC -20% to +10%, 50/60 Hz, max. 2 W 24 V DC -10% to + 20%, max. 1.5 W • LVAC: 100-240 V AC ±10%, 50/60 Hz, max. 2.9 W
Loop inductance	max. 20 to 1000 µH, ideally 80 to 300 µH
Loop connection wiring	At 20-40 µH: max. 100 m at 1.5 mm^2 At >40 µH: max. 200 m with 1.5 mm^2 min. twisted 20x/m
Loop resistance	< 8 Ohm with connection wire
Output relay (loop)	AC-1: max. 240 V AC, 50/60 Hz; 2 A / DC-1: max. 30 V DC; 1 A
Output relay (alarm)	AC-1: max. 40 V AC, 50/60 Hz; 0.3 A / 40 V DC; 0.3 A
Dimensions	22.5 x 94 x 88 mm (B x H x T)
Housing mounting	Direct DIN rail mounting
Connection type	Plug-in terminals
Protection class	IP 20
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +70°C
Air humidity	<95% non-condensing

9 EU Declaration of Conformity

CE   See attachment

10 WEEE

Devices with this symbol must be treated separately during disposal. This must be done in accordance with the laws of the respective countries for environmentally sound disposal, processing and recycling of electrical and electronic equipment.

11 Contact

BBC Bircher Smart Access, BBC Bircher AG, Wiesengasse 20, CH-8222 Beringen, www.bircher.com

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