Proximity reader
PR2000

Art. No.: 460002 (black)
Art. No.: 460015 (white)

Installation manual

C E

PR2000_manual_ENGmay15

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1. Introduction

PR2000 is a advanced waterproof, multifunction proximity reader, equipped with antitamper switch. It can work outside as welle as inside. The unit has the following features:

• Easy to use.
• Waterproof.
• Vandal proof
      • Massive.
      • Tamper security.
• Capacity up to 100 user tags (Atmel).
• Programmable LED's for indication of modes.
• Advanced RS485 communication.
• Programmable outputs (timer or On/Off toggle).
• 12 cores cable as an option.
• Mastertransponder (MT) as an option

Typical applications:

• Remote element in an alarm system.
• Stand alone work (for example: operation of an electric lock).
• Time registration.
• Access control.
• Switching On/Off alarm systems.

Proximity tag indentification:

The proximity reader PR2000 is activated by proximity tags, which are part of the system.

A tag shall be placed in front of the reader near the word "Prox". The tag is identified form a maximum distance of 25mm. in a time period of 0.4 seconds.

Note: While the identification is going on, no other objects than a tag shall be placed within the field of the proximity reader's operation. You must avoid especially metal objects (for example keys), as the can interfere correct identification of tags.

2. Programming

PCI2000 is a communication interface between a computer and other item(s) of the 2000 family, for example PR2000 proximity reader.

PCI2000 is used for programming of the 2000 family equipment and for scanning the system for new elements.

The DB9 plug is used to plug into one of the PC's COM port (with a USB converter).

The other end of the PCI2000 shall be connected as follows:
• **Red**   connect to **+12V DC**.
• **Black**   connect to **0V DC**.
• **Blue**   connect to **A** on the RS485 bus.
• **Orange**   connect to **B** on the RS485 bus.
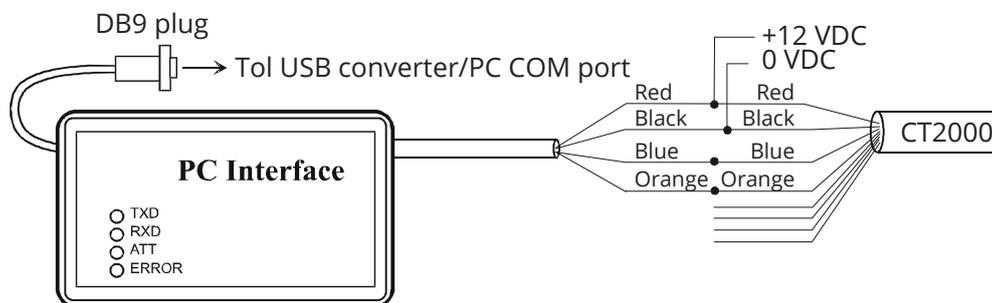
Programming of the proximity reader is made by means of changing, via the PCI2000 (or LogBox3), values of one or more of programming positions.

Positions from 00 to 99 can each contain information about one tag. Other programming positions can contain information about how the proximity reader shall operate.

LogBox3 (Art. No.: 460017) is a PC Interface with log function and report generator to save up to 10.000 logs.

There follows 2 cables for connections with a PC and a assembly box.

4
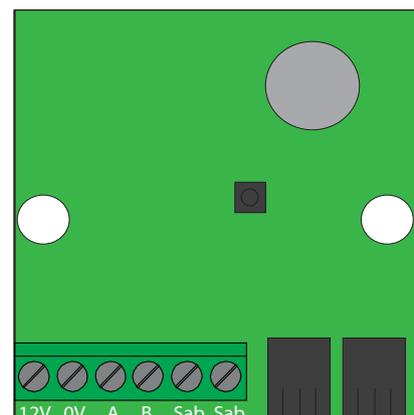
Conlan eXPress:

User window

Users and their positions; Enter codes here

Change windows

Proximity information: ID and location

Read tags from proximity reader

Double-click on a positions line activates users' management list (see 2.5)

Different colors indicate different users' groups

Receive or transmit information to/from proximity

Submit settings and close the window

Settings window

Change windows

Proximity information

Enter proximity location and name

Service code and proximity ID

Select LED settings for normal and activated mode

Proximity mode, output selection and open time

Groups' number, names and coded open time

Transmit and receive data from/to proximity reader

Submit settings and close the window

Overview of programming positions:

Position: **Function:**
00 - 99   User positions (for proximity tags)
100   Stand alone address
101   Servicecode
102   ID number
103   Output selection
104   Delay between code and tag or reverse
105   LED settings
110   Output time for user position 00 - 07
111   Output time for user position 08 - 15
112   Output time for user position 16 - 23
113   Output time for user position 24 - 31
114   Output time for user position 32 - 39
115   Output time for user position 40 - 47
116   Output time for user position 48 - 55
117   Output time for user position 56 - 63
118   Output time for user position 64 - 71
119   Output time for user position 72 - 79
120   Output time for user position 80 - 87
121   Output time for user position 88 - 95
122   Output time for user position 69 - 99

Default settings:

Position: **Value:** **Description:**
00 - 99   not programmed
100   0   Stand alone proximity reader
101   12347890   Servicecode
102   50   ID number 50
103   1   Timer function on open collector output
104   0   No delay
105   0   Yellow LED indicates standby mode and green LED indicates activation with a proximity tag
110 - 122   5   Open collector output is activated in 5 seconds

2.1 Programming with Mastertransponder (MT)

Mastertransponder (MT) to be used to:
1.   Programming tags in the proximity readers (in 2 blocks).
2.   To delete tags in the proximity readers.

To activate the Mastertransponder:
• Start Conlan eXPress:
• Each MT has a unique code (16 digits) see the label on MT (E6E9).
• Key in the number at position 99 in those proximity reader/s where you want to acti-
  vate the MT for programming.

Important!!!
Follow the delete routine before use:
Follow point C in the programming overview.

Info: (Block 1 position 00 - 71) and (block 2 position 72 - 97).

2.2 Stand alone address (100)

This programming position defines if the proximity reader works as a stand alone reader or it mates with a CT2000 keypad. Setting the value of this position to 0 means stand alone operation. Any other value (1 to 255) will be intepreted as an ID number of keypad in the system which shall be "looked for" by the proximity reader. It means that the same programming position on the CT2000 shall be activated and approved, thereafter a proximity tag presented and approved within the time programmed in position 104. Activation of both programming positions results in activation of the PR2000 output.

2.3 Servicecode (101)

The Servicecode is the code you must typer in the Conlan eXPress software of the PC Interface (PCI2000 or LogBox3) if you want to access the proximity reader's settings. The Servicecode enables you to change programming positions and functions of the proximity reader. The Servicecode is by default set to 12347890 (note that the digits 5 and 6 are let out of the Servicecode).
If you forget the Servicecode or you cannot communicate with the proximity reader of any other reason, it is possible to set a new code, new proximity tags and settings by downloading new settings to the PR2000 (providing the ID number is known. Alternatively, you can seek assistance of you equipment supplier.

2.4 ID number (102)

This programming position can contain a number between 1 and 255 and it indicates the ID number of the proximity reader (f.ex. if it is a part of a larger system). The programming position 102 is by default set to 50, which means ID number 50.
Note: There must not be 2 proximity readers with the same ID number on the same data bus.

2.5 Output selection (103)

Value of this programming position defines how the proximity reader shall react to a proximity tag. Choosing digit 1 means activation of the open collector output of proximity reader (open collector, max. 500 mA) with 0 VDC in relation to the programmed time (programming position 110 to 122, f.ex. 5 seconds). See figure 2.
Choosing digit 2 means 0 VDC removed from the proximity reader's open collector output in relation to the programmed time (programming positions 110 to 122, f.ex. 5 seconds). See figure 1.

Value:	Function:
0	Open collector output **active** in *timer period* (stand alone)
1	Open collector output **inactive** in *timer period* (stand alone)

Timer function (0)

Approved tag

0V

Figure 1

Reverse timer function (1)

Approved tag

0V

Figure 2
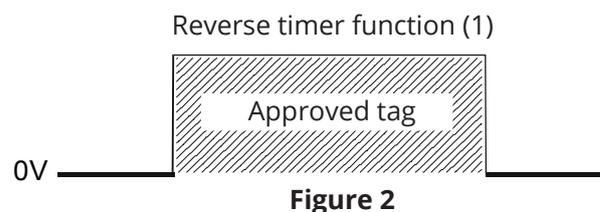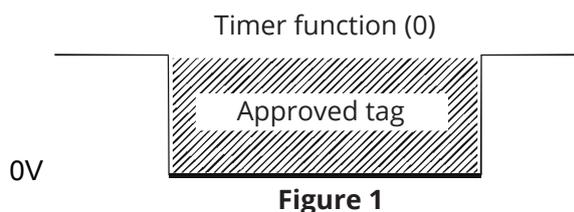
2.6 Delay (104)

This programming position is only relevant if position 100 is set to a value between 1 and 255, it is if the proximity reader is programmed to work together with a CT2000 keypad. Value programmed in position 104 defines the longest time allowed between valid activation of 2 related items, it means time between activation of the proximity reader and entering a valid user code on a CT2000 keypad, or vice versa. Programming position 104 is by default set 0, which means "no delay".

2.7 LED indication (105)

It is possible to program how the 3 LED's on the upper part of the proximity reader must react.

Standby refers to which LED illuminates when the proximity reader is on standby and ready (default programming, constant light on the yellow LED).

Activated refers to which LED illuminates when the proximity reader is acitvated by a valid identification (by default: green LED flashes shortly when identification is going on and a "bip" sound can be heard).

LED's refers to how the LED's illuminate.

Value	Standby		Activated		LED's
0	yellow		yellow	green	Constant
1	yellow		yellow	red	Constant
2	yellow	red	yellow	green	Constant
3	yellow	green	yellow	red	Constant
4				green	Constant
5				red	Constant
6		red		green	Constant
7		green		red	Constant
8	yellow		yellow	green	Pulse (½ second)
9	yellow		yellow	red	Pulse (½ second)
10	yellow	red	yellow	green	Pulse (½ second)
11	yellow	green	yellow	red	Pulse (½ second)
12				green	Pulse (½ second)
13				red	Pulse (½ second)
14		red		green	Pulse (½ second)
15		green		red	Pulse (½ second)

Programming position 105 is by default set

2.8 Output time for activation with a proximity tag (110-122)

These programming positions refer to position 103, which can either be set to value 1 (timer function) or 2 (reverse timer function). Values in positions 110 - 122 specify how long the open collector output of the proximity reader shall be activate when a valid proximity tag is presented.

Each of these 13 positions can carry a value between 0 and 255. By default these programming positions are set to 5, which means 5 seconds.

See the tables for presice overview on page 21 - 22.

It is not possible to set the time of activation of the open collector output for each proximity tag individually. Therefore the proximity tags have been divided in 12 groups of 8 programming positions and 1 group of 4 programming positions. Consequently, tags programmed in positions 00 to 07 create group 0. It means that each time a tag programmed in positions 00 to 07 is identified , value from the programming position 110 (group 0) defines how long the output shall be activated.

2.9 Programming of position referring to proximity tags

All the programming of PR2000 is made with use of the PC Interface (PCI2000) or Log-Box3..

3. Mechanical mounting

The PR2000 shall be mounted on an as even and flat surface as possible. With use of the drilling cardrigde mark the positions of screws, hole for the mechanical tamper switch and opening through the wall for the cable. **If the mounting surface is not even, the PR2000 must under no circumstances be screwed so hard that it bends. An alternative is using an mounting plate (Art. Nr.: 460081).**
Note: In case your mount two or more PR2000 proximity readers next to each other, you must keep a distance of minimum 35 cm. between each two items.

Figure 3 shows side view of mounting. The proximity reader shall be fixed to the wall with four screws and additionally one screw for the mechanical tamper switch.
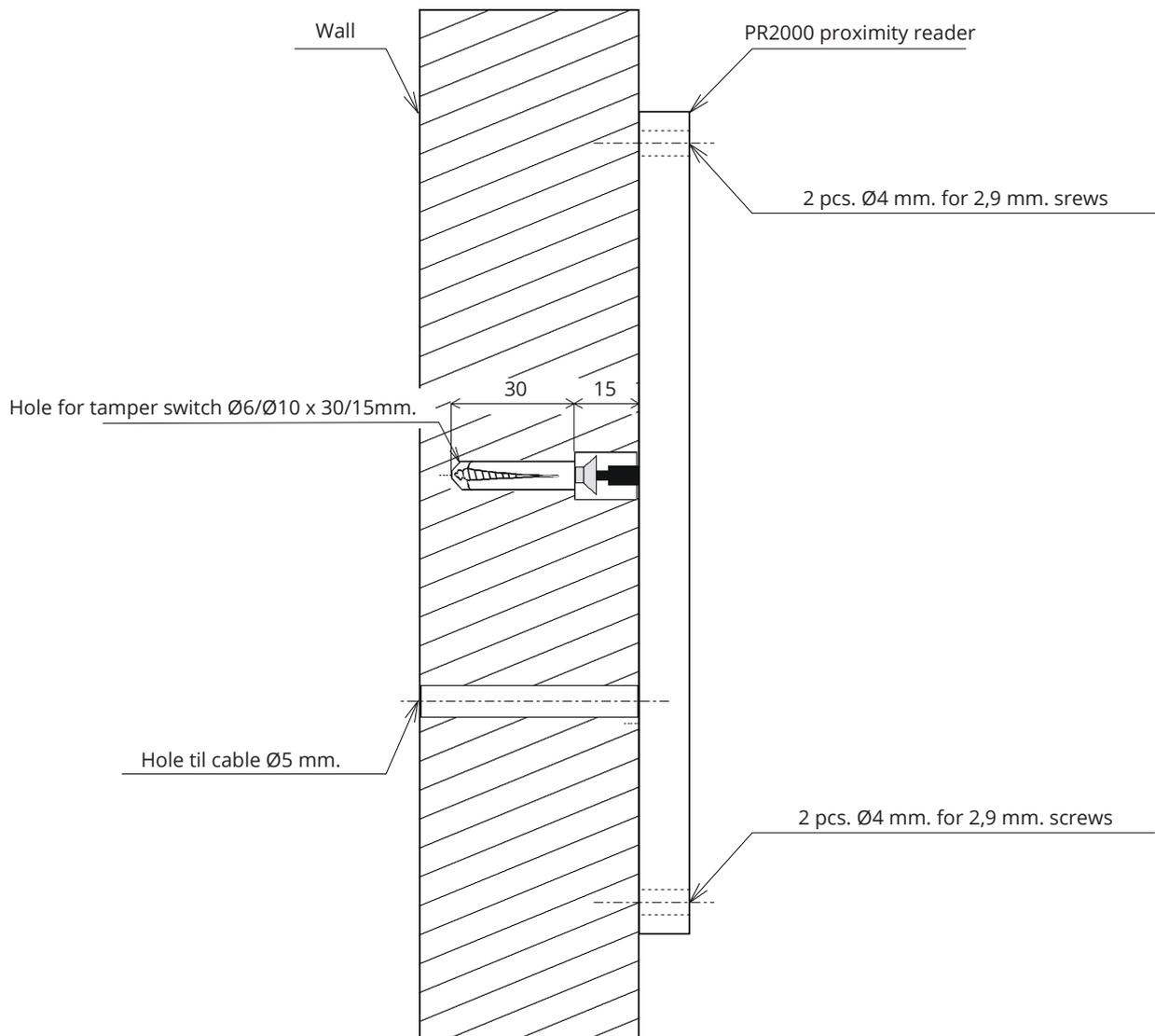
Figure 3: Mounting, side view

# 4. Electrical connection

The PR2000 has 4 meters of 8/12 cores cable mounted. The following show how the keypad is to be connected.

PR2000 proximity reader

2 pcs. Ø4 mm. for 2,9 mm. screws

Red
Black
Orange
Blue
Light green

Yellow
Green
White
Brown
Pink

2 pcs. Ø4 mm. for 2,9 mm. screws

Figure 4

Colour scheme

Blue	A
Orange	bus B
Red	+12/24 VDC; 9 - 27 VDC
Yellow	Output max. 500 mA
Black	0V DC
White	Tamper switch
Green	Tamper switch
Brown	not used
Pink	External control of red LED
L. green	External control of green LED
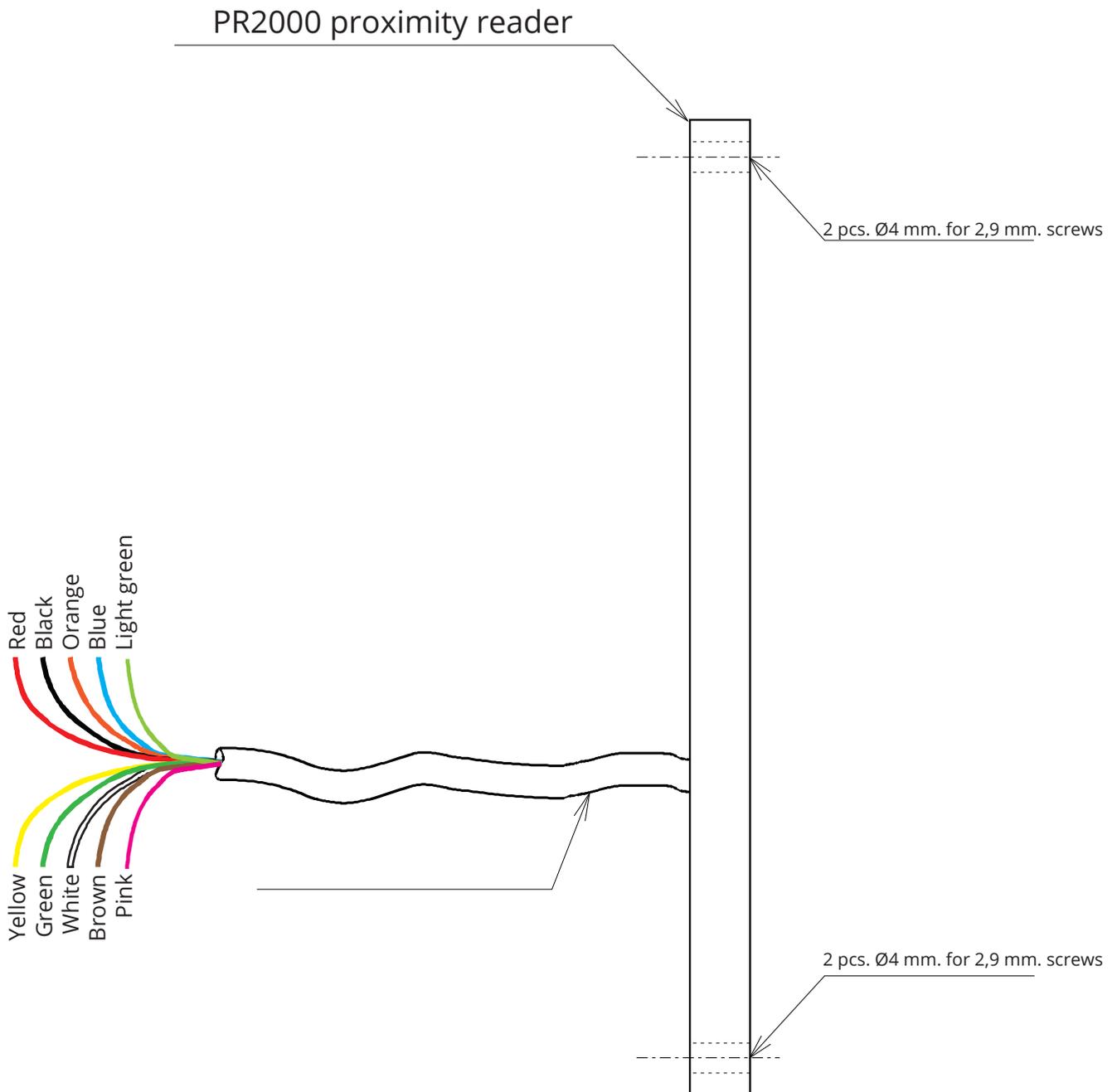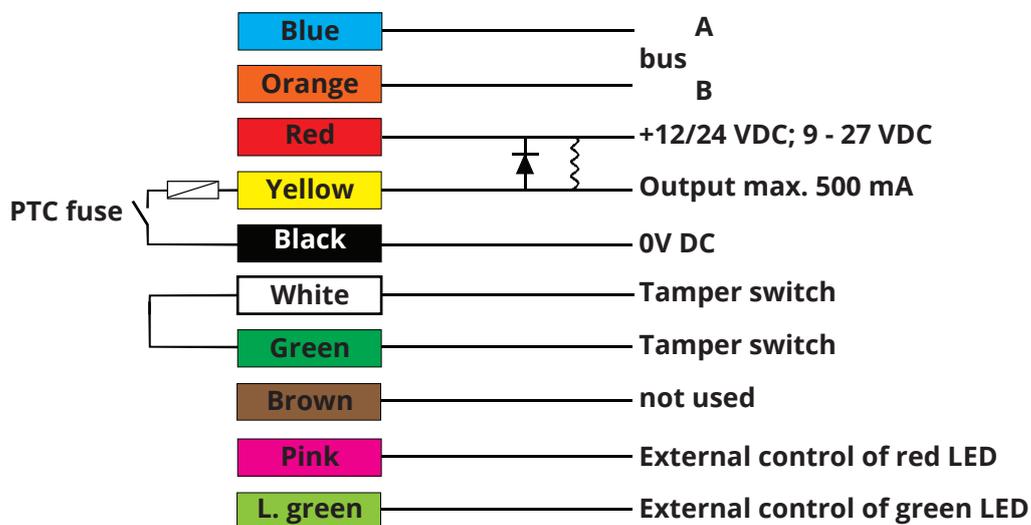
PTC fuse

The proximity reader has a PTC fuse connected to the yellow core, which protects the item against overload or incorrect installation (consumption over 500 to 750 mA). In such case the yellow core shall be disconnected, the fault corrected, and the yellow core connected again.

> **The yellow core is the open collector output, which gives a 0 VDC!**
> If the PR2000 is connected into a system, there can be a need for use of a relay.

For connection to an electric lock, electricity consumption under 500mA - use figure 5.
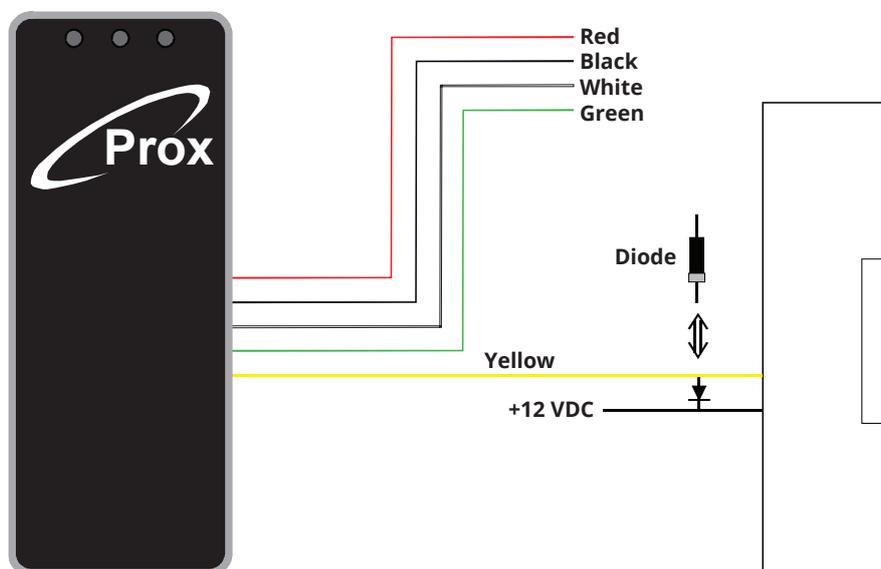

Figure 5: Connection to an electric lock.

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For connection to an electronic lock that uses more than 500mA - use figure 6.
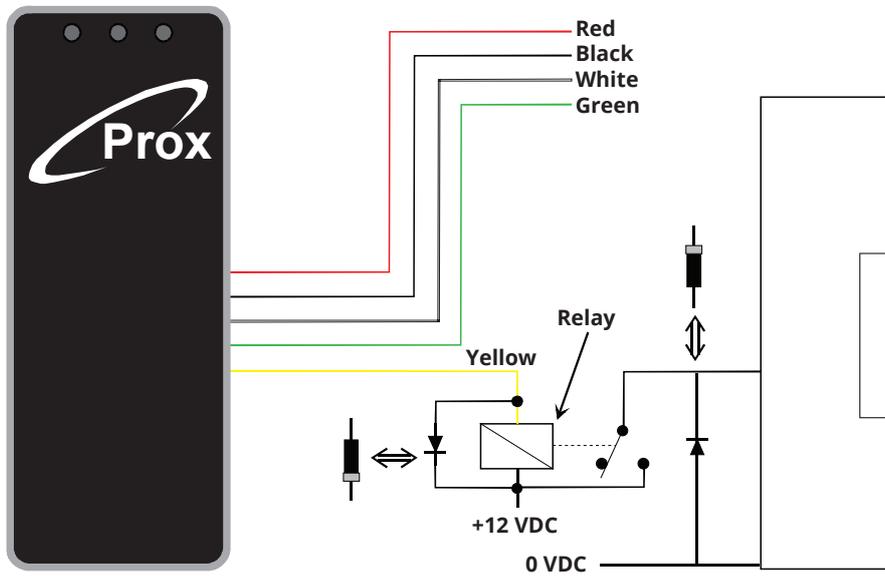
Figure 6: Connection to an electric lock by means of a relay.

For connection to a relay (ex. as remote element in alarm system) - use figure 7.
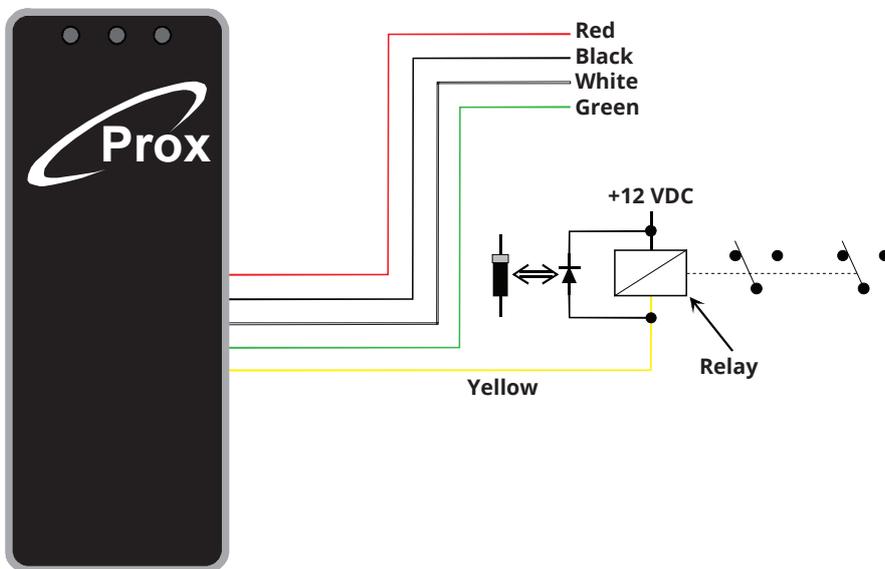

Figure 7: Connection to a relay for general purposes.

The PR2000 can be connected to assembly (CVT3). Please consult the manual for CVT3 for further informations (Art. No.: 460089 - see figure 8).

Normalt lukket - NC — 12
Normalt åben - NO — 11
Fælles - C — 10
Relæ - 0V DC — 9
8
7
Sabotage — 6
Sabotage — 5
Bus B (RS485) — 4
Bus A (RS485) — 3
0 VDC — 2
+12 VDC — 1

20
19
18
17
16 — Bus B (RS485)
15 — Bus A (RS485
14 — 0 VDC
13 — +12 VDC
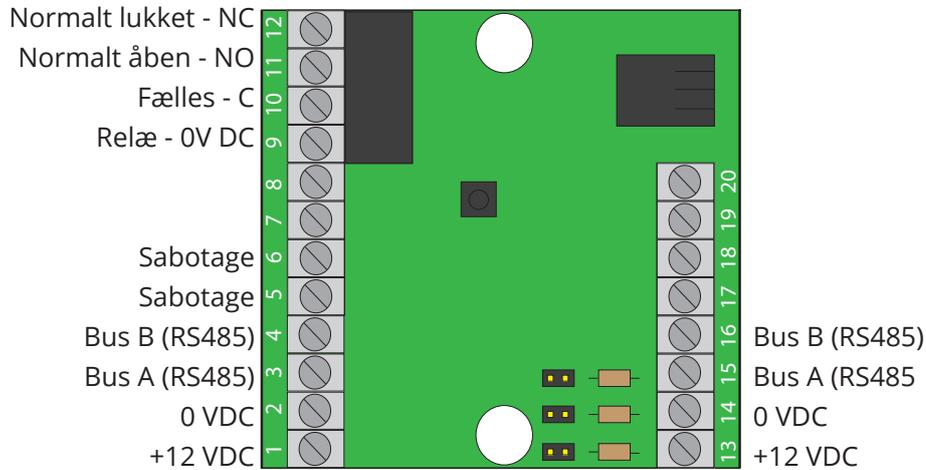
Figur 8: CVT3

The PR2000 can also be connected to data-bus (Box 485-T). Please consult the manual for Box 485-T for further informations (Art. No.: 460004 - se figure 9).

12V GND A B I1 I2 I3 SAB SAB RI NO C
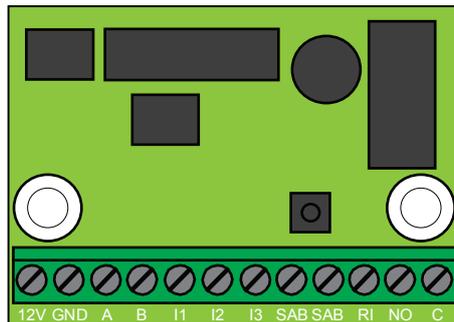
Figur 9: Box 485-T

The 2000 system can be controlled through the internet with the LANbox (Art. Nr.: 460018 - see figure 10), for a more flexible control of the 2000 system.
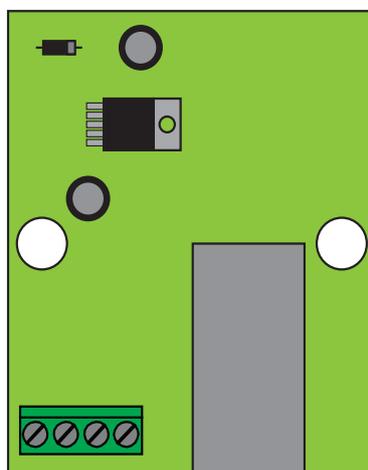
Figur 10: LANbox

5. RS485 Communication

The whole 2000 family equipment, herein also the PR2000, uses the RS485 communication method.
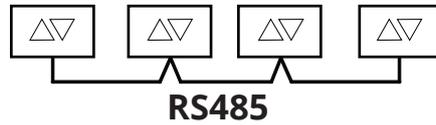
RS485

There is a danger of damaging the RS485 data-bus if different items of a 2000 system, each supplied by a separate 12V DC, are connected to different phases of 230V AC power supply. To prevent this, make sure that all items have the same potential.

This is typically made by connecting the items' ÷ (DC minus) to each other. In case of power supply common to all items, this is made automatically.

RS485
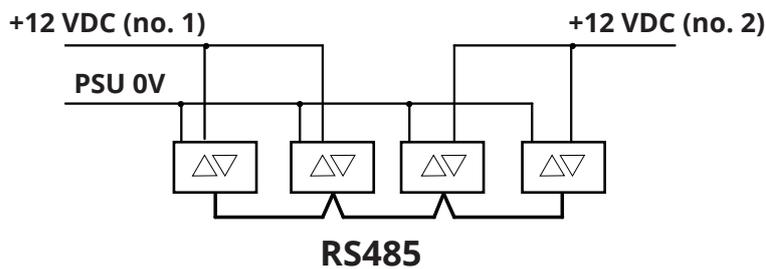
5.1 Screened cable

Twisted pair cables gives some scurity against electrical noises, but if a local noise level is high or if system is vulnerable to noises, it is advisable to use screened cable.
If all items in a sytem are supplied from one source, the cable shall be screened on its' whole length.
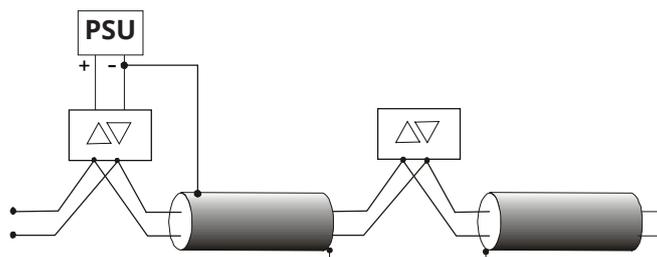
5.2 Cabling method

Items mounted to a system shall look like beads on a string (see illustration below).
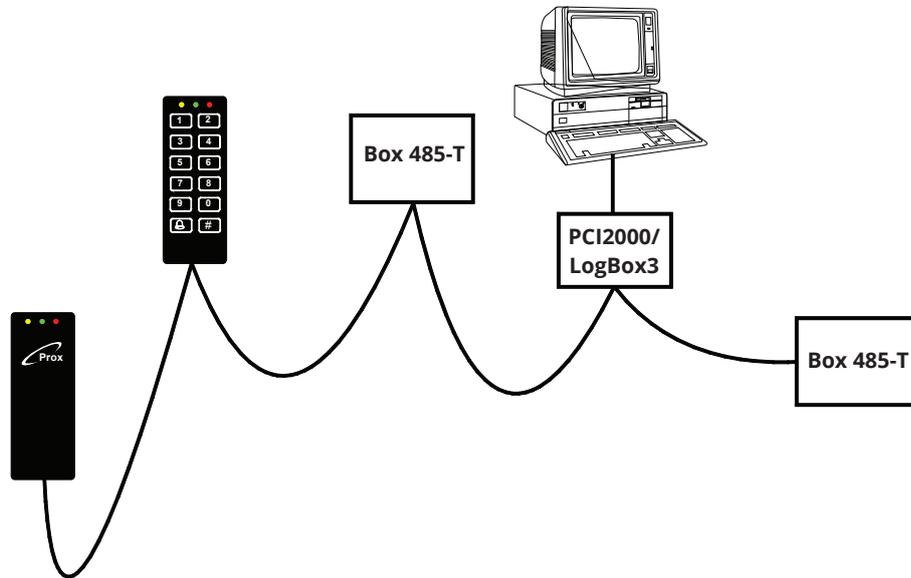
Star installations must NOT be made under any circumstances. If using T-connections, such connection shall be as short as possible.

Ignoring this rule can result in shortening the maximum cable length and slowing down the transmission speed by up to factor 100 per each forbidden connection in the system.

FORBIDDEN - star connection - FORBIDDEN
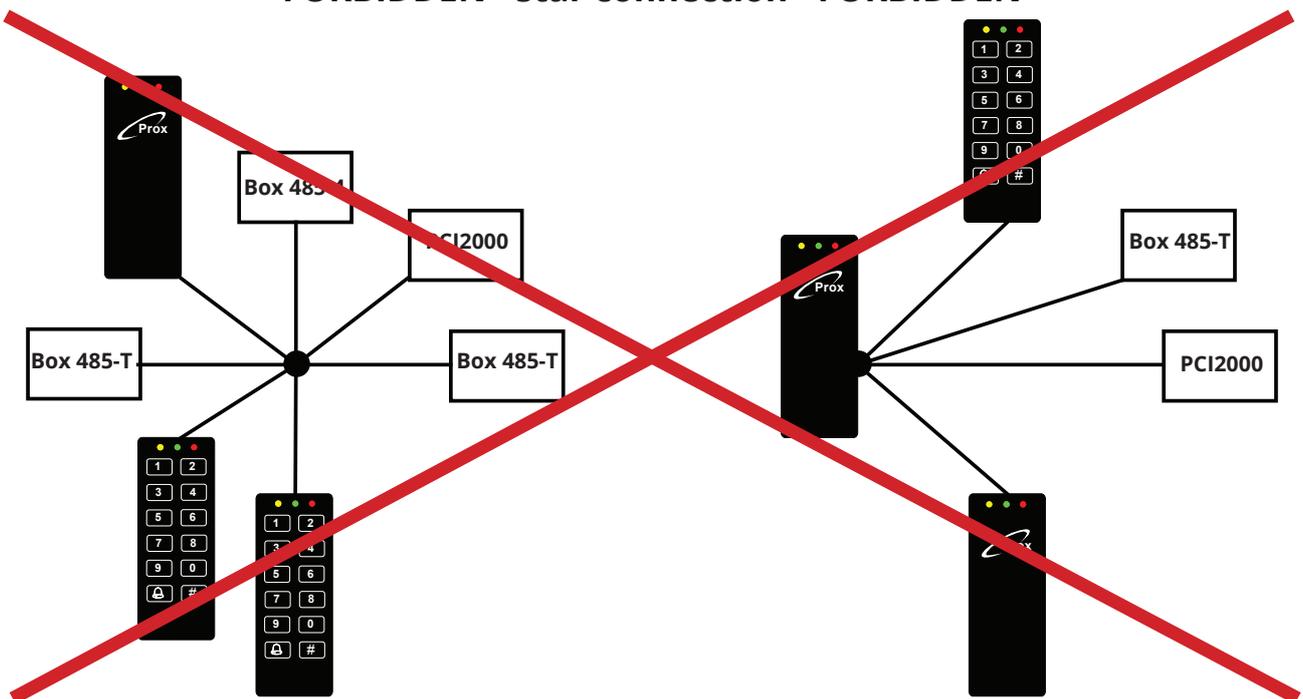
RS485 mounting principle
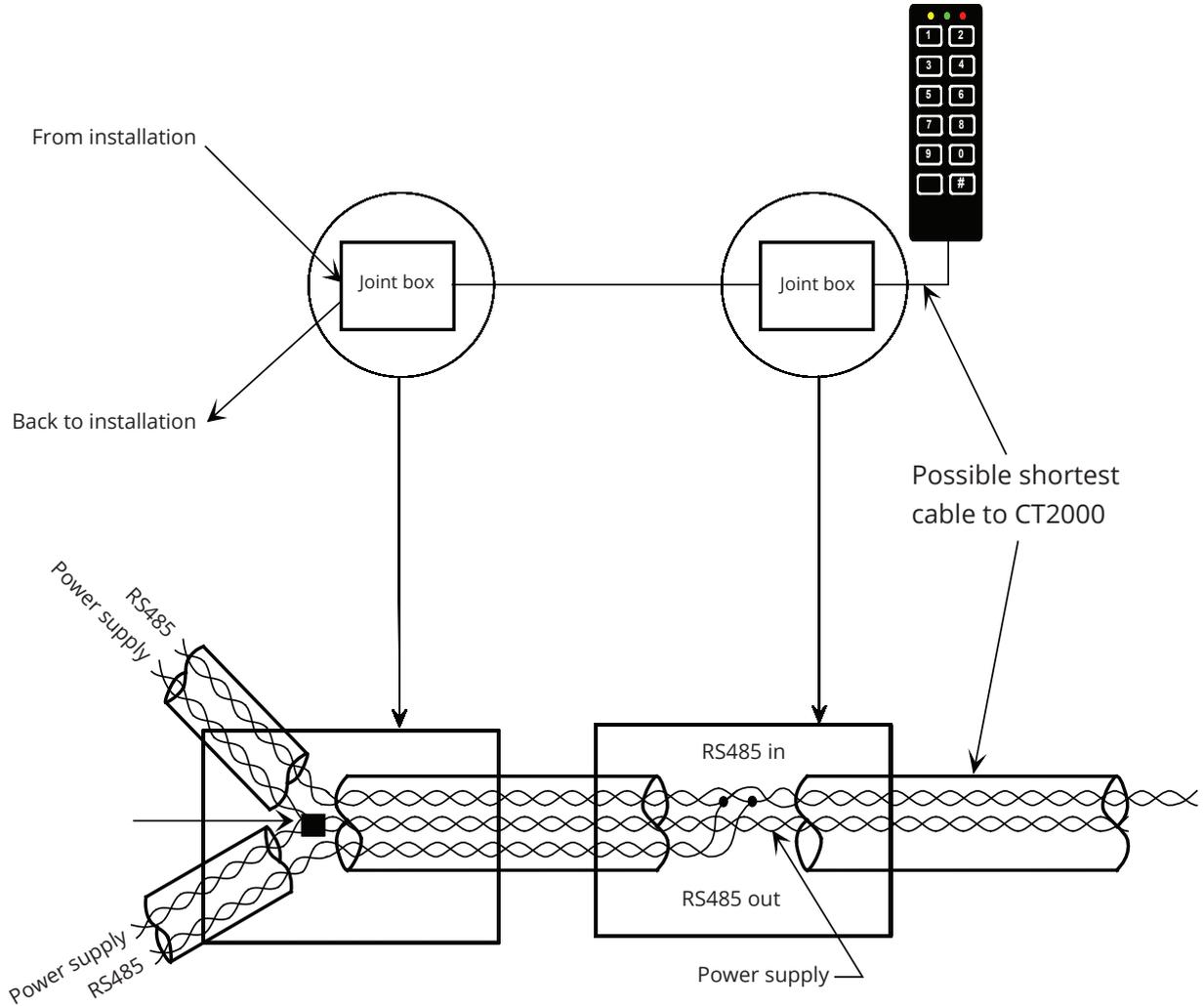
Note: How the RS485 data-bus goes, in separation pairs, from one items in the system to another. Power supply can be directed freely as it suits best in the installation.

6. Technical specifications

Supply voltage: 12 VDC
Voltage range: 8 - 15VDC
Ripple voltage: max. 200 mV
Current consumption: 40 - 120 mA
Output: open collector, 500 mA, PTC fuse
Operation distance: min. 25 mm
Humidity: max. 99% RF
Dimensions (HxWxD):   130x50x8mm
Cable: 4m white, 8/12 cores

Part list:

• 1 proximity reader with cable.
• 1 front label
• 1 diode
• 4 screws (Ø2,9x25mm).
• 1 screw (Ø4,0x30mm).
• 5 plugs (Ø5x25mm).
• 1 spring for tamper switch.

Note:
PR2000 must be supplied from a regulated 12 VDC power supply
(8 - 15 VDC), max 200 mV ripple.

Note: In order to secure correct operation of PR2000, the reader must not be mounted in the vicinity of equipment which produces electric field of frequency between 100KHz and 140KHz.

7. Time overview

Value	Time	Value	Time	Value	Time	Value	Time
0	0:00	35	4:45	70	4:45:00	105	13:30:00
1	0:01	36	5:00	71	5:00:00	106	13:45:00
2	0:02	37	6:00	72	5:15:00	107	14:00:00
3	0:03	38	7:00	73	5:30:00	108	14:15:00
4	0:04	39	8:00	74	5:45:00	109	14:30:00
5	0:05	40	9:00	75	6:00:00	110	14:45:00
6	0:06	41	10:00	76	6:15:00	111	15:00:00
7	0:07	42	11:00	77	6:30:00	112	15:15:00
8	0:08	43	12:00	78	6:45:00	113	15:30:00
9	0:09	44	13:00	79	7:00:00	114	15:45:00
10	0:10	45	14:00	80	7:15:00	115	16:00:00
11	0:15	46	15:00	81	7:30:00	116	16:15:00
12	0:20	47	20:00	82	7:45:00	117	16:30:00
13	0:25	48	25:00	83	8:00:00	118	16:45:00
14	0:30	49	30:00	84	8:15:00	119	17:00:00
15	0:35	50	35:00	85	8:30:00	120	17:15:00
16	0:40	51	40:00	86	8:45:00	121	17:30:00
17	0:45	52	45:00	84	9:00:00	122	17:45:00
18	0:50	53	50:00	88	9:15:00	123	18:00:00
19	0:55	54	55:00	89	9:30:00	124	18:15:00
20	1:00	55	1:00:00	90	9:45:00	125	18:30:00
21	1:15	56	1:15:00	91	10:00:00	126	18:45:00
22	1:30	57	1:30:00	92	10:15:00	127	19:00:00
23	1:45	58	1:45:00	93	10:30:00	128	19:15:00
24	2:00	59	2:00:00	94	10:45:00	129	19:30:00
25	2:15	60	2:15:00	95	11:00:00	130	19:45:00
26	2:30	61	2:30:00	96	11:15:00	131	20:00:00
27	2:45	62	2:45:00	97	11:30:00	132	20:15:00
28	3:00	63	3:00:00	98	11:45:00	133	20:30:00
29	3:15	64	3:15:00	99	12:00:00	134	20:45:00
30	3:30	65	3:30:00	100	12:15:00	135	21:00:00
31	3:45	66	3:45:00	101	12:30:00	136	21:15:00
32	4:00	67	4:00:00	102	12:45:00	137	21:30:00
33	4:15	68	4:15:00	103	13:00:00	138	21:45:00
34	4:30	69	4:30:00	104	13:15:00	139	22:00:00

Value	Time	Value	Time	Value	Time	Value	Time
140	22:15:00	169	29:30:00	198	33:45:00	227	44:00:00
141	22:30:00	170	29:45:00	199	37:00:00	228	44:15:00
142	22:45:00	171	30:00:00	200	37:15:00	229	44:30:00
143	23:00:00	172	30:15:00	201	37:30:00	230	44:45:00
144	23:15:00	173	30:30:00	202	37:45:00	231	45:00:00
145	23:30:00	174	30:45:00	203	38:00:00	232	45:15:00
146	23:45:00	175	31:00:00	204	38:15:00	233	45:30:00
147	24:00:00	176	31:15:00	205	38:30:00	234	45:45:00
148	24:15:00	177	31:30:00	206	38:45:00	235	46:00:00
149	24:30:00	178	31:45:00	207	39:00:00	236	46:15:00
150	24:45:00	179	32:00:00	208	39:15:00	237	46:30:00
151	25:00:00	180	32:15:00	209	39:30:00	238	46:45:00
152	25:15:00	181	32:30:00	210	39:45:00	239	47:00:00
153	25:30:00	182	32:45:00	211	40:00:00	240	47:15:00
154	25:45:00	183	33:00:00	212	40:15:00	241	47:30:00
155	26:00:00	184	33:15:00	213	40:30:00	245	47:45:00
156	26:15:00	185	33:30:00	214	40:45:00	243	48:00:00
157	26:30:00	186	33:45:00	215	41:00:00	244	48:15:00
158	26:45:00	187	34:00:00	216	41:15:00	245	48:30:00
159	27:00:00	188	24:15:00	217	41:30:00	246	48:45:00
160	27:15:00	189	24:30:00	218	41:45:00	247	49:00:00
161	27:30:00	190	34:45:00	219	42:00:00	248	49:15:00
162	27:45:00	191	35:00:00	220	42:15:00	249	49:30:00
163	28:00:00	192	35:15:00	221	42:30:00	250	49:45:00
164	28:15:00	193	35:30:00	222	42:45:00	251	50:00:00
165	28:30:00	194	35:45:00	223	43:00:00	252	50:15:00
166	28:45:00	195	36:00:00	224	43:15:00	253	50:30:00
167	29:00:00	196	36:15:00	225	43:30:00	254	50:45:00
168	29:15:00	197	36:30:00	226	43:45:00	255	on / off

Thank you for using Conlan's products.

For futher assistance please contact
our support service.