



Item no. 3100 05 12



This manual	3
How to use this manual	3
Hazard symbols	3
Levels of danger and signal words	3
Symbols and depictions used	4
Safety instructions	5
Intended use	6
Improper use	6
General view	7
Functional description	8
Electrical connection	12
Installation	15
Commissioning the Modi Belt Box Timer	17
Basic settings / current time	18
Basic settings / summer and winter time	19
Standard programme	20
Week programme	21
Setting the automatic sun function	
Setting the automatic dusk function	27
Operating the Modi Belt Box Timer, manual mode	29
Operation in jog mode	30
Manual mode with an external button	31
Deleting all settings/ software reset	32
What to do if?	33
Technical specifications	35
Dimensions	36
Simplified EU declaration of conformity	37
Accessories	37
Factory settings of automatic timer	37
You can note your settings here	38
Warranty terms and conditions	30

This manual...



...describes how to connect, install and use the Modi Belt Box Timer.

i How to use this manual

- Before you begin, please read this manual through completely and follow all the safety instructions.
- This manual is part of the product. Please store it in an easily accessible place.
- When passing the Modi Belt Box Timer on to a third party, this manual must be passed on as well.
- Damage resulting from non-compliance with this manual and the safety instructions will void the warranty. We assume no liability for any consequential damage.

i Hazard symbols

The following hazard symbols are used in this manual:



Danger to life resulting from electric shock



Danger area / dangerous situation

Levels of danger and signal words

🚹 D

DANGER!

This hazard will lead to serious injury or death if not avoided.

↑ WARNING!

This hazard may result in serious injury or death if not avoided.

ATTENTION!

This hazard may lead to property damage.

j Symbols and depictions used



Depiction	Description
	Press or tap the button
	Release the button
1.	Procedures
2.	
*	Itemisation
i	Further useful information
	Please read the respective manual.

Safety instructions





Danger due to electric shock when working on all electrical systems.

- The electrical connection and all work on electrical systems must only be carried out by a qualified electrician in accordance with the connection instructions in this manual, see page 14.
- Carry out all installation and connection work only in a de-energised state.
- If you use a metal belt box, this needs to be earthed. Make sure that the leads do not touch the belt box.



The use of defective devices can lead to personal injury and damage to property (electric shock, short circuit).

- ◆ Check the Modi Belt Box Timer for damage prior to installation.
- Never use defective or damaged devices. Please contact our Service department in this case, see page 40.



Improper use leads to an increased risk of injury.

- ◆ Train all personnel to use the Modi Belt Box Timer safely.
- Children and persons with limited abilities must not play with fixed controllers.

Intended use



Only use the Modi Belt Box Timer for connecting and controlling a tubular motor for:

Roller shutters

Operating conditions:

- Only operate the Modi Belt Box Timer in dry rooms.
- A 230 V / 50 Hz power supply, together with a site-provided disconnecting device (fuse, MCB), must be available at the installation location.

Only use the manufacturer's original spare parts.

- By doing so, you avoid the risk of malfunctions and damage to the device or the connected tubular motor.
- As the manufacturer, we provide no guarantee for the use of third-party components and accept no liability for consequential damage resulting from such.
- All repairs to the Modi Belt Box Timer must only be undertaken by authorised customer service personnel.

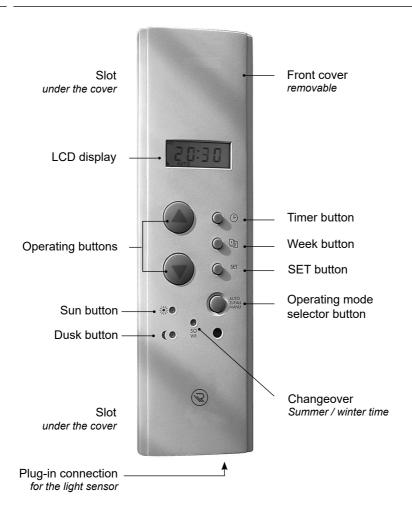
Improper use

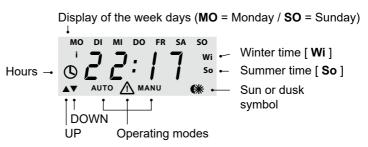
Using the Modi Belt Box Timer for any other purpose than previously mentioned is not permissible.



There is a risk to life caused through short circuiting and electric shocks if the Modi Belt Box Timer is used outside.

Never install and use the Modi Belt Box Timer outside.





Functional description



The Modi Belt Box Timer is used for connecting and controlling tubular motors and can be installed in existing belt boxes.

Various operating modes and functions are available:

- Manual mode
 - Using the operating buttons on the device
 - Using an external button
- Automatic mode
 - Standard programme
 - · Week programme
 - Automatic sun function
 - Automatic dusk function
 - Random mode
- In addition
 - Switching between summer and winter time

The LCD display provides information on the:

- Configured operating mode
- Activated functions
- Current time of day
- Configured switching times

The following section serves to briefly describe the individual operating modes and functions.

Manual mode

Operation by hand is always possible.

In manual mode you can open/close and also stop the roller shutter again using the (\blacktriangle) UP and (\blacktriangledown) DOWN buttons.

Manual operation with an external button

In addition, you can connect an external button to the belt box timer and operate your roller shutter drive with the button.

Manual remote control of several roller shutter drives

The parallel connection of several Modi Belt Box Timers to a push-button enables the simultaneous operation of several roller shutter drives.

Functional description



Automatic mode

Standard programme

Configuration of an opening and closing time for your roller shutter. The configured switching times apply to all days of the week.

Week programme

Individual configuration of an opening and closing time of your roller shutter each day. You can also set an opening and closing time for each roller shutter, which will apply to all days of the week.



Random mode

The operating mode selector button can be used to set the time control to random mode. This configuration enables a delay to the configured switching times of 0 to 30 minutes.



Example:

You have set the opening time to 8:00 hours and switched on random mode. Your roller shutters will now open automatically at random between 8:00 hours and 8:30 hours.

Automatic mode OFF

You can use the operating mode selector switch to switch off the automatic mode; all the configured switching times will then not work.

The sun and dusk function will remain active.



Automatic sun and dusk function

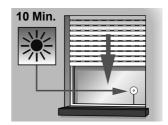
The automatic sun and dusk function enables brightness-dependent control of your roller shutter in combination with the light sensor. To do this, the light sensor is secured to the window pane and then plugged into the Modi Belt Box Timer.

Automatic sun function

The automatic sun function enables the automatic raising and lowering of the roller shutter once a limiting value is exceeded. The roller shutter end position can be freely selected by changing the light sensor position.

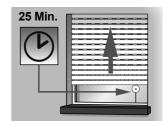
Automatic lowering

Once the daylight exceeds the set limit, the roller shutter is lowered as far as the light sensor after approximately 10 minutes. This delay is necessary so that passing clouds have no effect on the function.



Automatic clearing

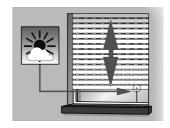
The roller shutter is automatically raised a small amount to enable the sensor after approximately 25 minutes. The raising of the roller shutter is necessary so that the light sensor can evaluate changes in brightness.



Automatic mode

If the sun continues to shine the roller shutter remains in this position.

If the brightness decreases it returns to the upper end stop.





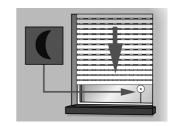
Automatic dusk function

The automatic dusk function enables the automatic lowering of the roller shutter once a configured set limit is exceeded. The roller shutter moves to the lower end stop.

Automatic lowering

At dusk, the roller shutter will lower approximately 10 seconds after exceeding the pre-configured set limit and moves to the lower end stop.

The roller shutter will only open again once the configured opening time is reached or in the event of a manual UP command.





If your roller shutter is to be lowered as a result of the automatic dusk function, then you must set the automatic closing time to a time after the onset of dusk

Example 1:

Configured closing time: 23:00 hours Onset of dusk: 20:30 hours

The roller shutter

automatically closes at: 20:30 hours

Example 2:

Configured closing time: 19:30 hours Onset of dusk: 20:30 hours

The roller shutter

automatically closes at: 19:30 hours

Electrical connection



Important information regarding the electrical connection



You must configure the end stops for the tubular motor prior to installation and before making the final electrical connection.

- If no end stops are configured, then it is vital that both end points of the tubular motor are configured as failure to do so can lead to malfunctions.
- In order to do so, follow the information provided in the operating manual for the respective tubular motor.

Parallel connection of tubular motors:

- You can connect a maximum of two RADEMACHER tubular motors in parallel with the Modi Belt Box Timer.
- Other tubular motor products may only be connected in parallel after consultation with the respective manufacturer.
- When using more than two tubular motors, you must use RADEMACHER multiple control relays.



However, it is not possible to control individual motors if the devices are connected in parallel.

Electrical connection



Safety instructions for the electrical connection

ΛD

DANGER!



There is a risk of fatal electric shock in case of direct contact with connecting terminals or if connecting cables come into contact with a metallic belt box.

- Carry out all installation and connection work in an isolated and de-energised state.
- Disconnect all phases of the mains power lead and secure it to prevent any reconnection.
- Check that the system is de-energised.
- Strip the leads of the connecting cable so that the live leads do not protrude from the connecting terminals or the protective cover.
- Install the enclosed protective cover before switching on the power supply, see figure.



⚠ WARNING!



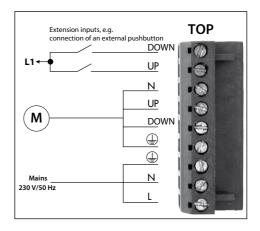
- Observe the connector pin assignments in the connection diagram on page 14.
- Follow all the electrical connection specifications in the operating manual of your tubular motor.



Connection diagram

Use the enclosed connector to connect the Modi Belt Box Timer to the mains power and the tubular motor.

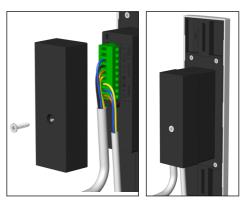
You can prewire the connector prior to the final installation in accordance with the connection diagram.



Insert the connector into the device after the connection is completed.



Installation of the protective cover after the electrical connection.



Installation



 Carefully pry off the front panel and then slide the Modi Belt Box Timer into the belt box.

№ WARNING!



A damaged connecting cable may cause a short circuit.

- Ensure that the connecting cable is laid safely.
- The connecting cable may not be pinched when screwing on the Modi Belt Box Timer as this could lead to damage.
- Then screw the housing to the belt box with the two screws provided.
- Finally, push the front panel back onto the device with light pressure.

For mounting on the belt box

Modi Belt Box Timer without a front panel

Slot

Plug-in connection for the light sensor



Fastening and connecting the light sensor

You must use a light sensor for brightness-dependent control of the Modi Belt Box Timer (automatic sun / dusk function).

Secure the light sensor to the window pane using the suction cup. It measures the current brightness there. Then insert the connector of the light sensor into the existing connection on the bottom of the Modi Belt Box Timer.

Automatic sun function

Select the position of the light sensor as the position to which your roller shutter should be lowered if the set limit (too much sun) is exceeded.

Automatic dusk function

The position of the light sensor is freely configurable. You can keep the position of the light sensor selected for the automatic sun function.

ATTENTION!

Avoid damaging the light sensor and the sensor cable.

- Release the light sensor from the window by pulling on the grip on the suction cup.
- Never pull on the sensor cable.
- Never severely bend or kink the sensor cable.



Commissioning the Modi Belt Box Timer



1. Switching on the power

Press the TIMER button when the display shown opposite appears.

© -:--

However, if any time appears on the display after switching on the device, please carry out a software reset (see page 32). Then continue with the settings as specified from page 18.



Press the TIMER button

Start with the settings as specified from page 18.





The Modi Belt Box Timer is ready for use immediately after switching on the device, provided that the end stops of the tubular motor are configured.

You can raise or lower your roller shutter at any time using the two operating buttons: (▲) UP or (▼) DOWN.



Some of the buttons are slightly recessed in the front panel (e.g. sun button). Please use a thin pen or a similar tool in order to press these buttons.

Observing the time-out

If no input is made in settings for a long period of time, the device switches from the corresponding input mode to the default display with the current time.

Disabling times

Set the corresponding time to **0:00** so that the associated control command is not executed.

Basic settings / current time



In order for the Modi Belt Box Timer to operate in automatic mode, you must make some basic settings. First set the current time.

1. Setting the current time

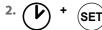




Press and hold...

for example, if you want to set 13:00 hours, otherwise choose to move the time back.

O 0 : 51 O



Release the buttons...

as soon as the digits display the current time of day, adjust by running through the digits slowly if necessary. © 13:00

How to adjust the digits:





= moves the time forward





= moves the time back

Run through the digits quickly (e.g. to move the time forward)





Press and hold

Run through the digits slowly (e.g. to move the time forward)



Press and hold

and



Tap on the button

Basic settings / summer and winter time



You can also switch your belt box timer between summer and winter time depending on the time of year.

- When switching from winter to summer time, the internal clock is set 1 hour forward.
- ♦ When switching from summer to winter time, the internal clock is set 1 hour back.

Switching between summer [So] and winter time [Wi]



Press alternately

The respective symbol appears on the display.



Standard programme



1. Setting a general opening time (e.g. 7:15 hours)



Press and hold (moves the time forward)



2. + SET

Release the buttons...

as soon as the desired opening time is reached, adjust by running through the digits slowly if necessary.

3. Setting a general closing time (e.g. 19:30 hours)

and



Press and hold (moves the time back)



SET +

Release the buttons...

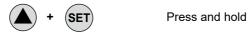
as soon as the desired opening time is reached, adjust by running through the digits slowly if necessary.

How to adjust the digits:





Run through the digits quickly (e.g. to move the time forward)



SE.

Run through the digits slowly (e.g. to move the time forward)

Tap on the button



Week programme



Week programme input mode

If you want to set separate opening and closing times for each day of the week, you must activate the week programme input mode.

You can also set two switching times, which will apply in addition to the daily settings on all days of the week.

1. Activating the week programme input mode



The configured day of the week and the clock symbol appear on the display.



The configured operating mode is also displayed.

2. Setting the current day



Press the button...

until the current day of the week (e.g. Wednesday [MI]) appears on the display, thus saving the setting.



Setting the daily switching times

To allow you to set the desired switching times for each day of the week, the programme starts again on Monday after pressing the week button again.



When the week programme is activated, the opening and closing times of the standard programme are applied.

The configuration or correction of the opening and closing times for each day of the week is done in the same way as the configuration of the standard times.

Week programme



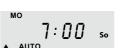
1. Setting the opening time for Monday [MO]

The pre-configured opening and closing time for Monday is displayed alternately.



1.1

Accessing the factory setting



1.2 **(SET)**

Press and hold (moves the time forward)



1.3 + (SET)

Release the button when...

the desired opening time is displayed (e.g. 7:30 hours).

2. Setting the closing time for Monday [MO]

2.1

Accessing the factory setting



Press and hold (moves the time forward)



2.3 + SET

Release the button when...

the desired closing time is displayed (e.g. 20:30 hours).



Accessing the next day (Tuesday [DI])



3.1 Setting the opening and closing time for Tuesday.

Repeat the configurations as shown above.

4. Accessing the next day (e.g. Wednesday).

You can set the opening and closing time for every day of the week



Exiting the settings

If you do not want to configure any further settings, press the week button several times until you have completed all the input points in the week programme.

Setting additional simultaneous switching times

You can also set two switching times in the week programme if you wish, which will apply on all days in addition to the individual daily switching times. For example: Shading at lunchtime or an additional command to close the roller shutter in the evening hours.



Activating input mode

If you have configured the settings for the last day of the week, the following display appears after you press the week button again.



2. For configuring additional opening and closing times as described above, see page 23.



If no input is made, the two additional weekly switching times remain inactive.

3. Exiting the week programme input mode

The week programme is now active.



Displays the current time and the current day of the week.

Checking and changing daily switching times

If the week programme is active, you can check and if necessary change the switching times of the current day of the week by tapping on the (\blacktriangle) **UP** or (\blacktriangledown) **DOWN** button.



Accessing the opening time (e.g. for Monday)



2. Changing the current daily switching time

In order to do so, follow the information on moving the time forward / back, provided on page 20.

If no input is made, the current time appears again after a short time

Week programme



Switch between the week and standard programme



2 sec.

The operating mode changes 2 sec. after pressing the week button.

© 22:17 so

The standard programme is active.

Setting the automatic sun function



1. Switching the automatic sun function on / off



Press

and within 2 seconds...



Press again until...

the display changes from MANU to AUTO or from AUTO to MANU.



Pay attention to the display:

MANU Automatic sun function is switched off **AUTO** Automatic sun function is switched on

Please note the state of the sun symbol on the standard display:

OFF Automatic sun function is switched off
ON Automatic sun function is switched on
FLASHING Automatic sun function is active

If the sun programme is activated, it is interrupted by:

- Manual operation
- Activation of an automatic function
- Operation with an external push-button

The sun programme is then ready for use again.

Description of the display



25:25 so AUTO **

Currently measured brightness (0-29). As the sun increases, the measured value increases.

Very bright = 29

Dark = 0

Setting the automatic sun function



2. Adopting the current brightness value as the set limit





Press

This switches on the automatic sun function.



Example: The current brightness value is saved as the set limit.

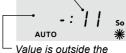


Configure the brightness set limit at which your roller shutter should be lowered.

If the current brightness value is above the measuring range when configuring the set limit, the set limit is set to the measuring range limit (29).

If it is too dark for a sensible measurement, the current set limit is retained and configuring the measuring range limit does not make sense in this case.

The current set limit is retained



measuring range.

3. Changing the configured set limit



Press and hold

In addition...







press if you want to increase ▲ or reduce ▼ the set limit





Example: The set limit has been reduced in order to increase the sensitivity.

Setting the automatic dusk function



1. Switching the automatic dusk function on / off



Press

and within 2 seconds...



Press again until...

the display changes from MANU to AUTO or from AUTO to MANU.



Pay attention to the display:

MANU Automatic dusk function is switched off
AUTO Automatic dusk function is switched on

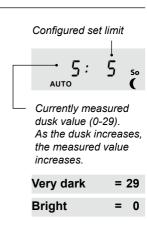
Please note the state of the moon symbol on the standard display:

OFF Automatic dusk function is switched off
ON Automatic dusk function is switched on
FLASHING Automatic dusk function is active

Observe the cut-off time for the reactivation of the automatic dusk function

If your roller shutter has been closed by the automatic dusk function and then opened again with a manual movement command, the automatic dusk function will only be active again after **approximately 1 hour**.

Description of the display



Setting the automatic dusk function



2. Adopting the current dusk value as the set limit



Press

This switches on the automatic dusk function.



Example: The current dusk value is saved as the set limit.



Configure the dusk set limit at which your roller shutter should be closed.

If the current dusk value is above the measuring range when configuring the set limit, the set limit is set to the measuring range limit (29).



If it is too bright for a sensible measurement, the current set limit is retained and configuring the measuring range limit does not make sense in this case.

The current set limit is retained.



Value is outside the measuring range.

3. Changing the configured set limit



Press and hold

In addition...





press if you want to increase ▲ or reduce ▼ the set limit





Example: The set limit has been increased in order to reduce the sensitivity.

Operating the Modi Belt Box Timer, manual mode



Manual operation with the operating buttons

You can operate the Modi Belt Box Timer at any time with the UP (\blacktriangle) or DOWN (\blacktriangledown) operating buttons.



Manual operation is possible in any operating mode and has priority over the automatic functions.

Switching between normal and jog mode

You can operate the Modi Belt Box Timer in normal mode (factory setting) or in jog mode. To do this, you must switch the slide switch behind the front panel before commissioning for the first time.



After making the switch, you must carry out a software reset (see page 32) each time so that the selected operating mode is effective.

Normal mode

The roller shutter moves to the respective end position after pressing an operating button.

Jog mode

The roller shutter only moves to the desired direction while the respective operating button is pressed, see page 30.

A slide switch behind the front panel is used to switch between normal and jog mode. Carefully pry off the front panel on the device and slide the switch to the desired position.

Switch position:

Slide switch on the left = normal mode

Slide switch on the right = jog mode

Switch between normal and jog mode

Operating the Modi Belt Box Timer, manual mode





Raising the roller shutter in normal mode

The roller shutter moves to the upper end stop.





Lowering the roller shutter

The roller shutter moves to the lower end stop.





Stopping the roller shutter

Press briefly.

i Operation in jog mode



Tap

The roller shutter opens and stops as soon as you release the button.



3 sec. Press for 3 sec.

The roller shutter moves to the upper end stop.



Tap

The roller shutter stops.



Tap

The roller shutter closes and stops as soon as you release the button.



3 sec.

Press for 3 sec.

The roller shutter moves to the lower end stop.

Manual mode with an external button



It is possible to operate the Modi Belt Box Timer with an external button.



If necessary, you can connect several Modi in parallel to a push-button and operate them remotely with the push-button.

You can also connect other controllers instead of a push-button.

Switching sequence with an external button

Ext. Press the UP (▲) button The roller shutter travels upwards

Ext. Tap on the UP (\blacktriangle) button The roller shutter stops

The same applies to the DOWN (▼) direction.

Change of direction:

Ext. Press the UP (▲) button The roller shutter travels upwards

Ext. Press the DOWN (▼) button Change of direction, the

roller shutter stops briefly and then travels in the opposite direction.

Deleting all settings/software reset



You must carry out a software reset in order to delete your settings.

The following settings are deleted:

- Summer and winter time
- Current time
- Current day
- Individual switching times in:
 - · Standard programme
 - · Week programme
- All configured set limits of the automatic sun and dusk function
- ♦ The configured operating mode (jog mode/normal mode) is adopted



The factory set times apply after a software reset.

1. Deleting all settings (software reset):



Press and hold the buttons

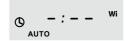


2. The software reset is carried out after approximately 8 seconds and the display goes out.



Release the buttons when...

the display goes out.



Display after a software reset or after a power failure lasting eight hours.

4. Resetting the current time.



The display starts again at 12:00 hours. Only then can the automatic function respond.



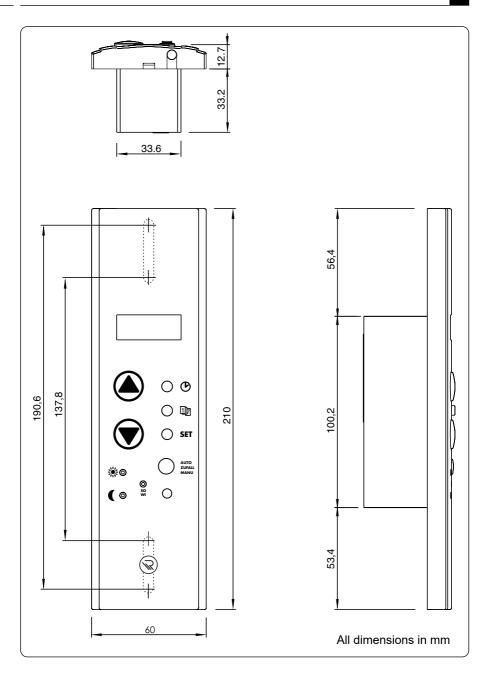
5. Repeating all settings from page 18.

Fault	Possible sause/solution		
The display flashes?	Possible cause/solution Power failure. Remedy the cause of the power failure and then check the display:		
	 If the current time appears, your belt box timer is active again. 		
	If the reset display appears (see page 32), the power failure has lasted for longer than 8 hours. All data is deleted.		
	◆ Repeat all settings from page 17.		
No automatic commands are executed despite switching times having been configured?	The Modi Belt Box Timer may be in manual mode (MANU). Switch to automatic mode (AUTO).		
The configured switching times are not properly observed?	The Modi Belt Box Timer may be in random mode (RANDOM). Switch to automatic mode (AUTO).		
The Modi Belt Box Timer no longer responds properly in manual or automatic mode?	Carry out a software reset in accordance with page 32. Then repeat all settings from page 17.		
	If necessary, test the Modi Belt Box Timer with the factory settings.		
The automatic sun function does not work?	The light sensor's cable is heavily kinked. A permanent kink can be seen on the sensor cable.		
	The light sensor is affected by shading (e.g. due to bushes).		
	♠ A time-controlled or manual command was triggered while the automatic sun function was active (sun symbol flashes). Terminate and reboot the automatic sun function. What hap- pens next depends on the sun conditions.		
	In this case, you must completely replace the light sensor.		
	 Remove the cause of the shading. 		
	Please note the state of the sun symbol on the display.		
	◆ It must flash when the sun programme is active.		

Fault	Possible cause/solution
The roller shutter closes too far (passes the light sensor) when the automatic sun function is active?	The brightness behind the roller shutter (on the sensor) is even higher than the preconfigured set limit.
	Configure the set limit for the automatic sun function at a higher setting.
The roller shutter does not lower in the evening when the automatic dusk function is active?	The set limit for dusk has not been exceeded.
	Check if any ambient light is hitting the sensor and adjust the set limit if necessary.

Technical specifications

Supply voltage:	230 V / 50 Hz	
Switching current:	5 (4) A μ (type 1B)	
Standby power:	≤ 0.35 W	
Extension inputs:	2 /UP (▲) and DOWN (▼)	
Extension input switching voltage:	230 V / 50 Hz	
Mounting type:	Flush mounting	
Setting ranges:		
Sensitivity to sunlight:	4000 - 40000 Lux	
Dusk sensitivity:	2 - 50 Lux	
Timer power reserve:	approx. 8 hours All data will be lost in the event of a power failure lasting more than 8 hours. The same display appears in this case as after a soft- ware reset. All settings must be repeated, see page 17.	
Data retention:	In the event of a brief power failure, the times programmed by the user and the current data (time / day of the week) are retained. The display flashes in this case and gets slowly darker after a while.	
Switching frequency of the relay contacts:	25000	
CTI value:	200	
CISPR22 class:	В	



Simplified EU declaration of conformity



RADEMACHER Geräte-Elektronik GmbH hereby declares that the Modi Belt Box Timer (item no. 3100 05 12) complies with the Directives 2014/35/EU (Low Voltage Directive) and 2014/30/EU (EMC Directive).

The full text of the declaration of conformity is available at the following website: www.rademacher.de/ce

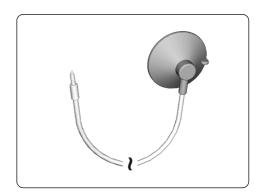
Accessories

Light sensor

Item no. 7000 00 10

The following lengths of lead are available:

> 0.75 m 1.50 m 3.00 m 5.00 m 10.00 m



Factory settings of automatic timer

Time	12:00 hours		
Switching times in standard programme:	UP DOWN	7:00 hours 20:00 hours	
Daily switching times in week programme:	UP DOWN	7:00 hours 20:00 hours	
Simultaneous weekly switching time:	UP DOWN	0:00 (deactivated) 0:00 (deactivated)	

You can note your settings here

Additionally, for all days:

.....hours

Standard programme:		
General opening time (UP):	hours	
General closing time (DOWN):	hours	
Week programme:	Opening time (▲)	Closing time (▼)
Monday:	hours	hours
Tuesday:	hours	hours
Wednesday:	hours	hours
Thursday:	hours	hours
Friday:	hours	hours
Saturday:	hours	hours
Sunday:	hours	hours

.....hours

Warranty terms and conditions



Information on our warranty conditions is enclosed separately with this product.

Geräte-Elektronik GmbH Buschkamp 7 46414 Rhede (Germany)