DIEHL Controls

Operating Manual for the
Electronic Built-in Interval Timer

„Micro II"
(Countdown Timer)

Note:

This document has been designed for our OEM customers.
They can use it as supporting material when creating the operating
manual for their appliances.

Subject to technical modifications and availability.

Operating Manual for the
Electronic Built-in Interval Timer

„Micro II"

With the electronic built-in interval timer, connected appliances or appliance modules can be switched on and off using second or minute precision.

Fig. 1: Version with membrane

Fig. 2: Version without membrane

Diehl AKO Stiftung & Co. KG, Werk Nürnberg, Donaustraße 120, D-90451 Nürnberg
☎ +49 9 11/64 24-2 41, Fax +49 9 11/64 24-1 33

Page 2 of 12
Hippler, update January 2002

Use of this document

Before fitting, connecting and using this timer, it is absolutely necessary that you read this operating manual thoroughly.

Safety instructions

- **This timer may only be fitted by a qualified electrician.**
- **Warning! Shock hazard! This timer uses the specified supply voltage. Fit the timer appropriately before connecting it to the mains supply. Never touch the live contacts or components at the open back of the timer.**
- **In the case of 12 or 24 V models, the outputs do not correspond to the conditions for safety driven electrical disconnection. The supply voltage to the appliance should only be at SELV (low safety voltage) when a low safety voltage is applied equally to the output. If that is not the case operation with low safety voltage (SELV) is forbidden.**
- **Protection against touch contact must be ensured by a proper mounting. When fitting the timer, make sure that during normal operation of the appliance the timer was fitted in it is impossible to touch the live parts at the open back of the timer.**
- **When fitting the timer, make sure that during normal operation it is impossible for the end user of the appliance it was fitted in to remove the timer by pulling it to the front and exposing the live parts.**
- **Avoid any contact of the timer with water.**
- **Do not use the timer to control appliances which must be attended during operation.**

Overview of the timeswitch

„Micro II" (countdown timer)
Diehl AKO Stiftung & Co. KG, Werk Nürnberg, Donaustraße 120, D-90451 Nürnberg

Accessories: Fastening slider for installation (accessories no. 413271-110)

Functionality of the timeswitch

The „Micro II" countdown timer is a **timeswitch**. Its function is to switch an electrical appliance on during a running time preset by the user and switch it off after this time has elapsed.

The „Micro II" countdown timer is an electronic **built-in timeswitch** designed for installation in an electrical appliance or an control panel. **The timer may only be operated after installation in a protective housing.**

A large 3-digit LCD display is provided for monitoring the countdown of the timer.

Relay version:
The „Micro II" countdown timer uses a relay to switch an electrical appliance on. During the preset running time, the relay energizes and activates the connected appliance or appliance module by closing a circuit. After the time has elapsed, the relay deenergizes and deactivates the connected appliance or appliance module by opening the circuit again.
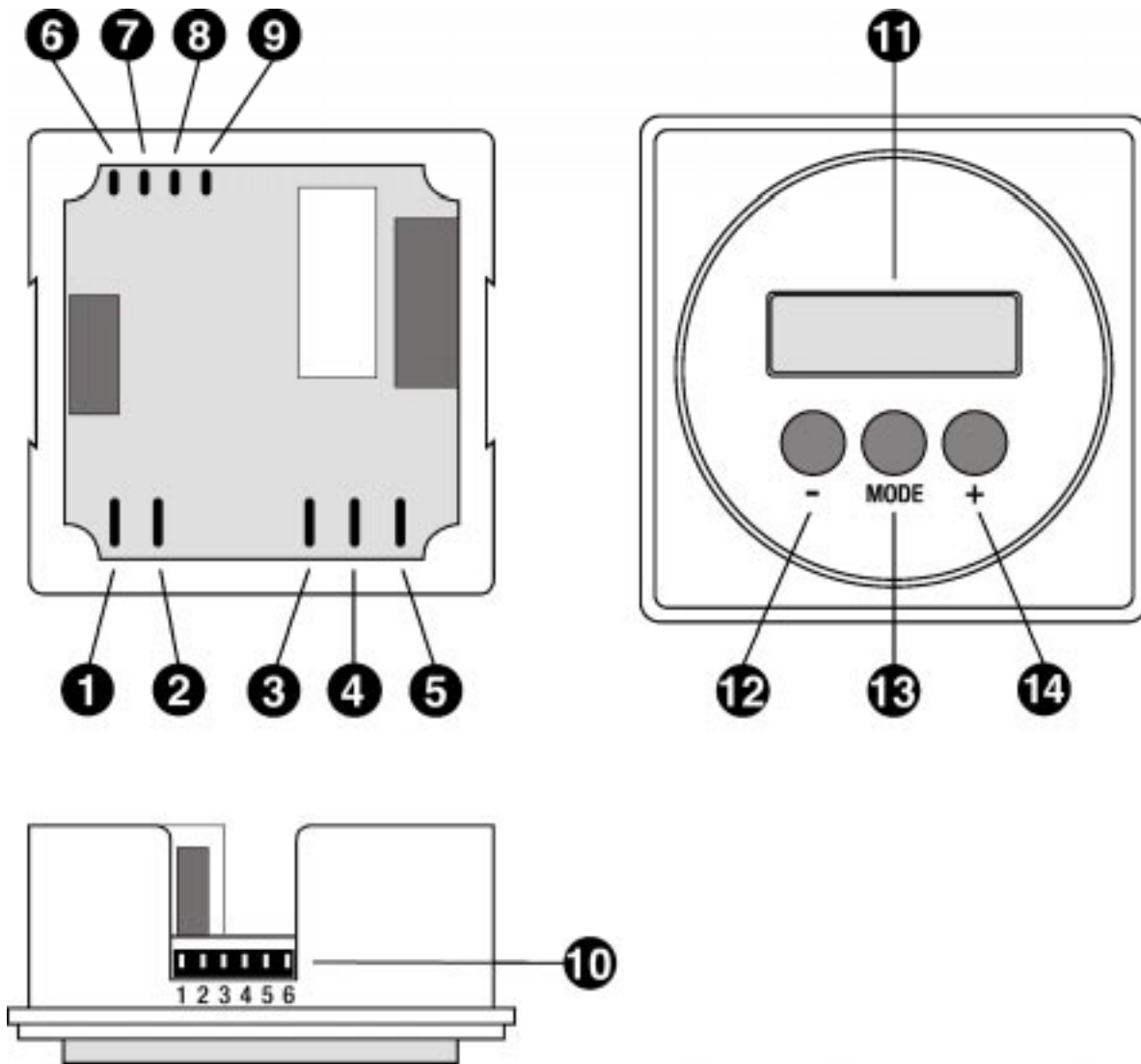
Transistor version:
The transistor version works similarly to the relay version, but with a lower current flow.

Function overview:

- Running time setting up to 9 hours and 59 minutes max.
- Repeat function
- DIP switches for configuration of:
  - Short half-time alarm
  - Time format setting
  - Maximum setting for running time
  - Continue or reset mode
  - Version setting (basic or full)
- 3 functional buttons for easy use
- Input for door contact
- Connection of external buzzer possible

Description of the functional parts

(1), (2)   Contacts for connection to the mains supply
(3), (4), (5)   Contacts for connecting an appliance to be switched on/off
(6), (7)   Contacts for connecting an external buzzer
(8), (9)   Contacts for connecting a door contact

These contacts and their designations are also featured on the type plate of the timer.

(10)   DIP switches 1 through 6
(11)   LCD display
(12)   „-" button for setting the switching time (counting down)
(13)   „MODE" button for starting and stopping the timer
(14)   „+" button for setting the switching time (counting up)

Configuration using the DIP switches

Use the DIP switches (10) for customizing the „Micro II" timeswitch. You can set each of the DIP switches 1 through 6 to „OFF" or „ON". Leaving these switches unchanged means that the switches 2 and 4 remain in position "ON", every other switch is in position „OFF", and the timer operates using the ex-works settings described below.

Warning! Shock hazard! Before changing any DIP switch settings, always disconnect the timer from the mains supply.

Caution! Change DIP switch settings using a small screwdriver and proceed carefully in order to avoid any slipping of the screwdriver which might damage the components of the timer.

DIP switch 1: Half-time alarm

Use this switch to determine if a short beep will sound after the first half of the preset running time has elapsed.

        OFF   Half-time alarm off (default setting)
        ON   Half-time alarm on

DIP switch 2: Time format

Use this switch to determine if the timer will operate in a minutes:seconds or hours:minutes time format.

        OFF   Minutes:seconds
        ON   Hours:minutes (default setting)

DIP switches 3 and 4: Maximum setting for running time

Use these switches to select the maximum value for the running time setting. This value depends on the position of DIP switch 2 (selected time format).

1.   **DIP switch 2 set to OFF:**
        You can set a running time of up to 9 minutes and 59 seconds.

2.   **DIP switch 2 set to ON:**
     You can set a running time of up to 9 hours and 59 minutes.

     Switch 3: OFF   Switch 4: OFF   Running times up to 0 : 15
     Switch 3: OFF   Switch 4: ON   Running times up to 0 : 30(def.setting)
     Switch 3: ON   Switch 4: OFF   Running times up to 1 : 00
     Switch 3: ON   Switch 4: ON   Running times up to 9 : 59

DIP switch 5: Stop Mode

Use this switch to determine how the timer behaves after a stop: Continue Mode means that it resumes counting the remaining time, Reset Mode means that it restarts counting down from the beginning.

     OFF   Continue Mode (default setting)
     ON   Reset Mode

DIP switch 6: Basic version or full version

Use this switch to determine if you want to utilize the full functionality of the timer (default setting) or if you only need a limited functionality (basic version). For the basic version, the following functions are available:
▪   3 fixed intervals:
     15, 30, 60 seconds (DIP switch 2 set to OFF)
     15, 30, 60 minutes (DIP switch 2 set to ON [default setting])
▪   2-digit LCD display
▪   While the time elapses, the digits flash instead of the colon

     OFF   Full version (default setting)
     ON   Basic version

Fitting and connecting the timer

Important! When fitting the timer, see the dimensioned drawing in the product data sheet.

1. **Installation of the timer (console cutout 66 x 66 mm):**
   Fit the timer by pushing it from the front into the cutout provided on your appliance.
   It can then be easily attached by means of the supplied fastening sliders (accessories no. 413271-110): Insert the two fastening sliders into the dovetail-type guide notches on the left and right hand sides of the timer housing so that their two arms point to the front. Push the fastening sliders forward until the two arms make close contact with the console and hold the timer housing in position. The fastening sliders snap audibly into the guide notches of the timer housing.
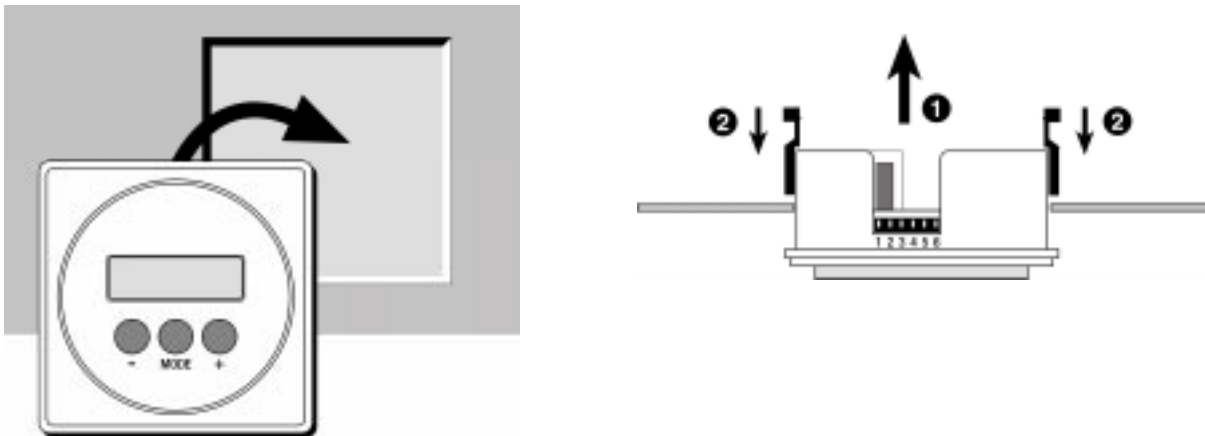

Fig. 3: Fitting the timer from the front

2. If desired, connect an external buzzer to the timer using contacts (6) and (7). Connected load of the buzzer: 5 V, 15 mA.

3. If desired, connect a door contact to the timer using contacts (8) and (9). For this connection, first remove the jumper between contacts (8) and (9). Connected load: max. 5 V

4. Connect the relay (consumer) using contacts (3) through (5).
   (For a connection diagram, see the type plate.)

5. Connect the timer to the mains supply using contacts (1) and (2).

6. Remove protective film.

Diehl AKO Stiftung & Co. KG, Werk Nürnberg, Donaustraße 120, D-90451 Nürnberg ☎ +49 9 11/64 24-2 41, Fax +49 9 11/64 24-1 33

Page 8 of 12
Hippler, update January 2002

Operation of the timer

The timer is operational and ready to switch the connected appliance or appliance module on and off as soon as power is applied and the LCD display lights up. If the DIP switches are still in their original positions, the following default settings apply:

- No alarm sounds after the first half of the set running time has elapsed.
- The timer counts and displays hours and minutes.
- The maximum running time is 30 minutes.
- After a stop, the timer resumes counting the remaining time.
- The timer operates with unlimited functionality (full version).

Setting a running time

Using the „-" (12) and „+" (14) buttons, you can set the desired running time during which an appliance or appliance module will operate.

Proceed as follows:

1. Briefly press the „+" button.
   Each time you press the button, the running time setting will be incremented by 1 (second or minute, respectively).

2. Press the „+" button for more than 3 seconds.
   The timer will start a continuous and fast count-up. Once the desired time value is shown on the display, simply release the „+" button.

If you use this method, it may happen that you „overshoot" the desired value for the running time. In this case, correct it by decreasing the value using the „-" button:

3. Briefly press the „-" button.
   Each time you press the button, the running time setting will be decreased by 1 (second or minute, respectively).

4. Press the „-" button for more than 3 seconds.
   The timer will start a continuous and fast countdown. When the desired time value is shown on the display, simply release the „-" button.

Important! The maximum value for the running time defined by the positions of the DIP switches 2, 3, and 4 cannot be exceeded by pressing the „+" button.

Starting the timer

Press the „MODE" button (13). The appliance or appliance module connected to the timer is switched on. The displayed running time is counted down while the colon in the center of the time display flashes (full version).

Stopping and restarting the timer

DIP switch 5 set to OFF – Continue Mode (default setting):
1. Press the „MODE" button. The timer stops, and the connected appliance or appliance module is switched off. The remaining running time is shown on the display.
2. Press the „MODE" button again.
    The connected appliance or appliance module is switched on again, and the timer resumes its countdown.

DIP switch 5 set to ON – Reset Mode:
1. Press the „MODE" button. The timer stops, and the connected appliance or appliance module is switched off. The timer display shows the preset running time again.
2. Press the „MODE" button again.
    The connected appliance or appliance module is switched on again, and the timer restarts counting down the preset running time from the beginning.

End of running time

After the preset running time has elapsed, the timer switches the connected appliance or appliance module off issuing short beeps (for up to 15 seconds). The value 0:00 is shown on the display, and the colon stops flashing.

1. Press the „MODE" button to stop the acoustic signal. The previously set short time reappears on the display (repeat function).
2. If you press the „MODE" button again, the timer restarts counting down the displayed running time.

Power failure

If a short power failure (<1 second) occurs during the operation of the timer, the timer stops and its relay switches the connected appliance or appliance module off. After the interruption, the connected appliance is switched on again, and the timer resumes counting down the remaining time.

In case of a longer power failure, the connected appliance is not switched back on after the interruption, and the value 0:00 is shown on the display.

Operation with a door contact

A door contact can be connected to contacts (8) and (9). It can be used to stop the countdown of the timer if a door is opened for example.

Important! For connecting a door contact, it is necessary to remove the jumper between contacts (8) and (9).

Door contact open:
1.   You can only start the timer when the contact is closed.

Door contact closed:
2.   You can program and start the timer.

Opening the door contact:
3.   If the timer operates normally and you open the door contact, the timer stops. The remaining time is shown on the display, and the connected appliance or appliance module is switched off.

4.   Now it is possible to change the remaining time using the „+" and „-" buttons.

Closing the door contact:
5.   **Remaining time not changed:**
        The timer automatically resumes counting down the remaining time.
6.   **Remaining time changed:**
        Press the „MODE" button to start the countdown.

Operation with an external buzzer

An external buzzer can be connected to contacts (6) and (7).

The „Micro II" electronic countdown timer

Functions	
Maximum running time:	9 hours 59 minutes
Time programs:	Depends on the selected time format: Hours:minutes time format: 0:15, 0:30, 1:00, 9:59 Minutes:seconds time format: 0:15, 0:30, 1:00, 9:59
Repeat function:	yes
Configuration using DIP switches:	yes, see pages 6 and 7
Product features	
Display:	3-digit LCD display
Controls:	3 functional buttons („+", „MODE", „-")
Power failure carryover:	yes, if power failure lasts < 1 second
Buzzer:	yes
Connection of an external buzzer possible:	yes, 5 V, 15 mA
Connection of a door contact possible:	yes, max. 5 V
Technical data	
Nominal voltage (VDE-tested):	12/24 VAC/DC, 230-240 VAC ±10%
Nominal voltage (UL-tested):	110-120 VAC ±10%
Nominal frequency:	50/60 Hz
Switching rate:	1-pole 16(2)A/250 VAC, 10(2)A, 250 VAC
Relay output:	1-pole
Optional transistor output:	<=100 mA/40 VAC
Power consumption:	approx. 1.8 W
Permissible ambient temperature:	0 – 75 °C (version without membrane) 0 – 55 °C (version with membrane)
Storing temperature:	-25 °C – 75 °C
Ambient conditions:	Normal contamination (for appliances complying with the EN 60 335-1 standard)
Safety class:	II – after appropriate installation
Software class:	A
Action:	Type 1B for relay switching version Type 1Y for transistor switching version
Timer precision:	± 2 seconds/day at 25 °C
Dimensions of control panel housing:	72 x 72 x 38 mm

Additional UL-requirements:

Rated Impulse Category:	Overvoltage category III 120 V model – 2500 V 12 V model – 800 V 24 V model – 800 V and VDE-EMC-sign
Operating time:	"long period"
Enclosure Protection:	Type I
Construction:	Incorporated Control