

Digital time switch

BUD


Digital time switch used to switch plant on and off, or for the control of setback periods at night and weekends.

- Suitable for mounting on DIN rails
- Quartz-controlled microprocessor time switch
- Simple programming
- Manual on/off control
- Holiday programming of up to 45 days
- Digital input and digital display of clock functions
- Summer/winter change-over
- Scope for checking programmed switch times and making individual corrections
- Power reserve of 72 hours

Functions

The microprocessor automatically stores the programmed times in chronological order. The time switch operates in one of three modes: continuously On, continuously Off or operated automatically via the time programme.

The power supply is buffered by a memory back-up capacitor. In the event of a power failure the clock will continue to run, with the programme retained, for 72 hours. However, the relay will go to (or remain in) the normal position (71 / 72 made).

Ordering

When placing an order, please specify the quantity, product description and type code.

Example: **2 Digital time switches BUD**

Construction

Sheet steel housing, printed circuit board with LCD display and programming buttons.

Mounting notes

Mounting instructions (Ref. 35654) are enclosed with the digital time switch.

Although microprocessor protection is provided, unusually strong electromagnetic fields could cause interference.

To avoid interference:

- The device should not be installed close to inductive components
- A separate AC 24 V supply must be provided (if necessary use a mains filter)
- Inductive components must be fitted with interference suppressors (varistor / RC unit)

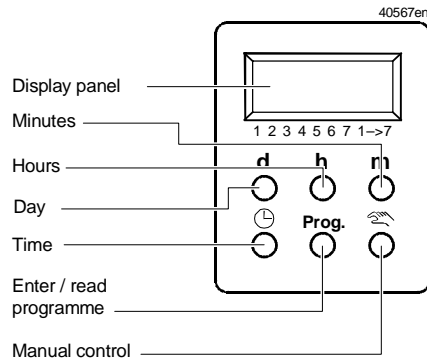
After clearing the cause of interference, the time switch must be reset.

Mounting

- The connection terminals must be freely accessible.
- Ensure adequate air circulation to dissipate the heat generated during operation.
- Snap-on rail mounting. Rail type: EN50022-35x7.5
- 4 clear holes are provided for surface mounting

Operating

Programming the BUD



Display and indicators

- 1 ... 7 days (1 = Monday)
- 1 -> 7 Daily programme
- ON/OFF Switch status
- 00:00 Hours and minutes
- H Holiday programme

Keys

To enter clock time, day and programme

Note When programme entry is complete, the display will show the current time after a delay of 40 seconds. This is an automatic function which will also occur if the input is interrupted for more than 40 seconds. In this case, the last not saved programme point must be re-entered.

Start-up

After connection to the power supply, press **d + m +** + simultaneously, to clear / reset the time switch.

Setting day and time

Keep the key depressed throughout the setting procedure.

- Press the **d** key to move the arrow to indicate the current day 1 ... 7 (1 = Monday)
- Use the **h** and **m** keys to set the current time.

Release the key. The clock will now run.

Weekly programme

A weekly programme with a maximum of four ON and four OFF switch-times can be programmed for one, several or all days of the week, by means of a free block entry option (see Example 1 below). If all blocks are used for one day, the subsequent days must accept the same times.

To start programme entry

Press **Prog.** key.

Switch-on command

The display reads - :- - followed by **1 ON** in the right of the display, representing the ON command for the first time period. Now press **d**. The arrow will flash above 1 (= Monday). If the switch command is to be carried out on Monday, enter Monday by pressing the key. Other or additional weekdays can be selected by pressing **d**, and entered by pressing .

If, for example, the command is to be carried out daily at the same time from Monday to Friday, each of the numbers 1 ... 5 should be indicated by an arrow. For a switch command applying to a full week, all days, 1 ... 7 should be marked by an arrow. After selection of the switch days, use the **h** and **m** keys to enter the switch-on time. Save the switch command displayed by pressing **Prog.**

Switch-off command
















The **1 OFF** indicator will now appear in the right of the display window, representing the OFF command for the first time period. Select the days and OFF time as described above, and store by pressing **Prog.** Repeat for time periods 2 to 4 as appropriate. Press when programme entry is complete.

Example 1

A building is occupied from 8.00 am to 5.30 pm Monday to Friday, and from 8.00 am to 1.00 pm on Saturdays. On Sunday the building is unoccupied. Because the building is empty during the lunch-hour, the heating plant can be switched off between 12.30 and 1.30 pm as an economy measure. For comfort, normal plant on-time is 7.00 am, with an early start (one hour) on Mondays.

Time-switch settings

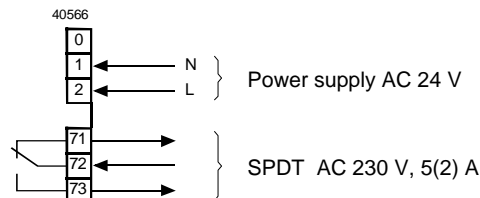
Time block		Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	On	06:00						
	Off	17:30	17:30	17:30	17:30	17:30		
2	On		07:00	07:00	07:00	07:00	07:00	
	Off	12:30	12:30	12:30	12:30	12:30		
3	On	13:30	13:30	13:30	13:30	13:30		
	Off						13:30	
4	On	---	---	---	---	---	---	
	Off	---	---	---	---	---	---	

Daily programme	<p>After start-up (or after a reset), it is also possible to set a daily switch programme with 12 switching operations (6 On and 6 Off) by setting the actual times only, without pressing d for the day of the week.</p> <p>The daily programme is indicated by the arrow above 1 → 7.</p> <p>Since during programming no days need to be entered, programme entry starts with the switching times.</p>
Recall	<p>To display the programmed ON and OFF settings, press Prog.</p> <p>Press  after a review of these settings.</p>
Changing or clearing a command	<p>Recall the command by pressing Prog. and change it by pressing h, m and, if necessary, d.</p> <p>Alternatively, clear the displayed command by pressing h + m simultaneously.</p> <p>Press  after completing the changes.</p>
Holiday programme	<p>A holiday programme can be used to suspend the automatic programme for a period of 1 ... 45 days. Hold down the h key throughout the entry procedure. Press  repeatedly, counting the number of holiday days individually.</p> <p>After 45 (days) the display will revert to 0. The holiday programme will start at 00:00 on the following day, and is indicated by H OFF.</p>
<i>Example 2</i>	<p>Christmas holiday: 24 December to 2 January inclusive</p> <p>Total days: 10 (Enter on 23 December)</p>
Recalling / changing / clearing a holiday programme	<p>Press h to display the stored or remaining number of holiday days. Simultaneously press h and  to extend the holiday programme, or to reset it to 0 to continue with the automatic programme sequence.</p> <p>These options can be carried out before or during the holiday period.</p>
Override	<p>Press  to toggle between ON and OFF.</p> <p>This manual operation will be overridden by the next programmed switching sequence. This facility is not available during a holiday period.</p>
Permanent control	<p>Press  and m simultaneously to set automatic operation to "Permanent ON" or "Permanent OFF". This continuous control function is indicated by a bullet symbol above the ON or OFF indicator in the display and may be initiated during a holiday period 1).</p> <p><i>Note that in this case, whichever permanent state has been invoked will remain in operation after expiry of the holiday period.</i></p> <p>To change or exit from a permanent state hold down the m key and press  repeatedly to toggle between the states "Permanent ON", "Permanent OFF" and "Auto" (bullet disappears).</p>
Daylight savings change-over	<p>+ 1 hour: press d + h simultaneously</p> <p>- 1 hour: press d + m simultaneously</p>
Summary	<p>+ = Press <i>simultaneously</i></p> <p>/ = Press <i>consecutively</i></p> <p>d + m +  +  = Reset / clear</p> <p> + d / h / m = Set clock (day and time)</p> <p> + h / m = Set clock (time only)</p> <p> = Clock operation</p> <p>d + h = + 1h (summer time)</p> <p>d + m = - 1h (winter time)</p> <p>Prog / d /  / h / m = Programme / Correction</p> <p>Prog / h + m = Delete programme</p> <p>h +  = Holiday (max. 45 days)</p> <p>m +  = Mode selection: On / Off / Auto</p>

Technical data

<i>Power supply</i>	Supply voltage	Extra low voltage (SELV) AC 24 V, 50 ... 60 Hz +15 / -10 %
	– Max. voltage tolerance	
	Power consumption	Approx. 1 VA
	Primary fuse	None
<i>Signal output</i>	Relay contact	Change-over contact, SPDT, AC 230 V
	– Contact rating	Max. 5 A inductive Max. 2 A capacitive, $\cos \varphi > 0.4$
	– Voltage to earth	Max. AC 250 V
<i>Time switch</i>	Time basis	Quartz
	Memory locations	8 for 7-day clock, with grouping into blocks 12 for 24-hour clock
	Min. time between switching operations	1 minute
	Power reserve	72 hours, after 100 hours of operation
	Accuracy	± 1 s / day at 20 °C
	Display	9 mm LCD
	Maintenance	None required
<i>Connections</i>	Connection terminals	For max. 2.5 mm ² wire
<i>Weight, dimensions</i>	Weight including packaging	0.25 kg
	Dimensions (W x H x D)	54 x 123 x 55 mm, see also drawing "Dimensions"
<i>Ambient conditions</i>	Usage	Built-in unit for control panel mounting
	Ambient temperature	
	– Operation	0 ... 50 °C
	– Storage	-25 ... 70 °C
	Ambient humidity	10 ... 90 %rh without condensation
<i>Mounting</i>	Snap-mounted	on DIN rail (EN50022-35 x 7.5) or screwed to a flat surface
<i>Safety</i>	Product safety	EN60730
	– Overvoltage category	II
	– Contamination level	2
	Electrical safety	SELV-E (PELV to IEC364-4-1)
	Function	Type 1B to EN60730
	Conformity	Meets the requirements for CE marking

Terminal layout



Caution:
Observe the technical data for the
switching contacts: AC 230 V, 5(2) A

Dimensions

All dimensions in mm

