

Everything you need to know is in this pack

**Heat
recovery
information
pack for the
650 KWLC
unit
-Maintenance-**

AllergyPlus
The Home of Good Ventilation

Heat Recovery Unit KWLC 650

■ Installation assembly

The KWLC 650 S is suitable for vertical installation wherever desired, usually in the loft space. As a base to mount the unit on, we recommend chipboard on a secure mineral wood board (approx 60 x 140cm) to prevent vibration transmission (see Pic. 1.). Alternatively a commercial anti-vibration pad will provide the same effect (approx 60 x 140cm). The unit must be mounted on a flat, even surface.

The ducting needs to be as short as possible and tight bends should be avoided as they can lead to high-pressure loss and airflow noise. The ductwork joints also need to be fully sealed to prevent air loss. The supply and extract ducting should be insulated to gain the best thermal efficiency. For maintenance and installation work, install the unit in an accessible position. When installed in areas with low ambient temperature (e.g. roof space) the unit may require additional insulation.



The duct system must be designed to be within the units pressure capabilities and have good flow into and out of the unit, otherwise there will be a reduction in the units performance.

The installation of the intake air temperature sensor needs to be fitted inside the intake air duct (approx 1-1.5m from the unit). The sensor is pre-wired as a standard fitting.

■ Mounting

- Casing and filter must be fully accessible for cleaning purposes or change of filter
- Casing must be mounted in a way that the cover may easily be removed for access to the filter
- Installation in indicated air flow direction
- Connections to the ducting must be air tight
- Check that the filter mat and the cover are positioned correctly.

■ Storage

When storing for a prolonged time the following steps are to be taken to avoid damaging influences:

- Protection by dry air and dustproof packing (plastic bags with drying agent and moisture indicators).
- The storage area must be free of water, vibration and temperature variations.

■ Use of the unit

The unit is designed to ventilate a combination of living rooms, bathrooms and kitchens in a single dwelling. The unit is equipped with a heat recovery cube. The standard equipment has a working temperature range from -20°C - 40°C.

- It must not be connected to kitchen hoods or laboratory extract systems.
- The ambient temperature where the unit is installed must not be below 0°C.

Factors that may affect the units performance consist of:

- High humidity
- Long periods of standstill
- High air pollution
- Extreme climatic conditions

■ Condensation run-off

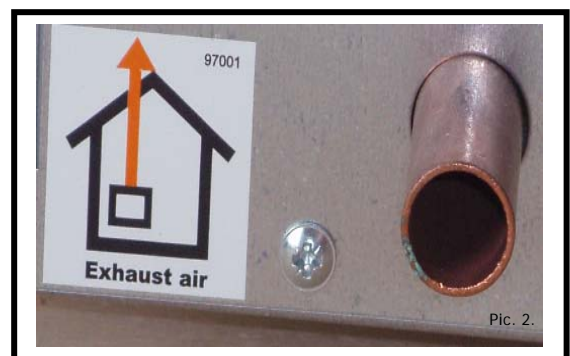
The condensation pipe (see Pic. 2.) is to be connected to the water run-off by means of a flexible pipe of 15mm diameter. If it is not in a room that is heated, it must be insulated. A suitable drain trap is to be provided with a minimum height of 100mm, otherwise water could be drawn back through the fan.

- Fill the drain tap with water before putting into operation to avoid smells from the drain system.
- The regulations of the water board and other legislation must be observed.

■ Air ducting, ventilation circuit

When designing the ductwork, try to achieve the shortest possible runs, use smooth pipes (rigid plastic or steel ducting). This will ensure that you will avoid high-pressure loss and noise etc. For the main ducting (outside air, extract air, inlet air and discharge collection) a diameter 250mm, for branch pipes a diameter 150mm-200mm. To reduce condensation in the extract pipes, the ducting has to be insulated where appropriate. Also if inlet and extract ductwork cross unheated rooms, insulation must be provided to reduce heat loss.

- Fresh air should be taken into living and bedrooms, extraction from bathrooms, toilets and kitchens. To regulate the whole system use adjustable Helios valves.
- The extract from the kitchen needs to be filtered.
- A kitchen hood must not be connected up to the unit (danger of grease carried into the heat exchanger).
- There must be a good airflow (e.g. using door grills) within the building between intake and extract rooms.



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Thermo-humidity sensor

The electronic thermo humidity sensor (See Pic. 3.) is in the heat exchanger in order to detect the humidity level of the fresh and extract air.

- This allows a more precise detection of the risk of frost in the heat exchanger.

Electrical connections

- A qualified person may only carry out electrical connections
- All electrical work must only be carried out with the power supply off.
- A lockable isolator is required, isolate from the mains with a minimum of 3mm contact opening of each pole.

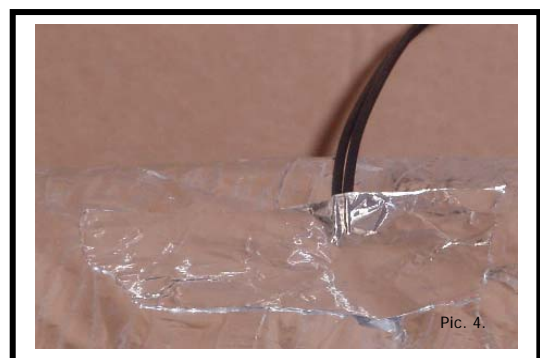
The unit is designed for continuous running and cannot be switched of as a standard procedure. To switch off please mount a switch in the supply.

Operation-adjustment

Three fan speeds are possible with the KWLC S/L using the 3-step switch, which should be installed in a place easy to reach within the house.

The heater switch will activate the motorised valve to turn on or off heating coil.

- ✓ Note that the thermostat on top of the unit is set to 20°C to start off with, so if activated the valve will only function when supply air is lower than the set temperature.



MIN	SPEED STEP 1 (LOWEST)	Basic airflow, for less intake air needs. (Holiday or night ventilation)
NORMAL	SPEED STEP 2 (NORMAL)	Normal airflow. (On most of the time)
MAX	SPEED STEP 3 (BOOST)	Full revs per minute for maximum intake air. (Extra ventilation after heavy hot showers etc)

Control panel offers the following functions:

Left button (+symbol)	Activates/deactivates the after heater (in relation to the dip switch settings). If the after heating is activated it turns on automatically if the set temperature is not reached through the heat exchanger.	
Red light (!)	Slow flashing	Change filter! (if the DDS pressure sensor is fitted) One of the safety temperature cut outs of the pre or after heater has tripped.
	Fast flashing	
Green light (+)	Lights up when the after heater is activated.	
Yellow light (°C)	Lights up if the after heater is in use	



Speeds and settings

Speed step 2 of the unit can be set to the size of the dwelling by opening up the unit and changing the marked speed step 2 wire at the transformer in the unit according to the internal wiring diagram.

- Isolate the unit from the power supply before re-opening.
- For good room conditions and to reduce condensation water damage, the unit should not be completely switched off, except when servicing or in case of a breakdown.
- Make sure that dip switch setting is checked.

Heat Recovery Unit KWLC 650

Switch No.	Recommended setting	Function
1	ON As the frost protection will reduce the speed of the intake air fan to speed MIN	ON= After heater switched off in case of frost OFF= After heater not switched off in case of frost
2	OFF As the after heater is regulated by a temperature sensor it may also be used for speed step at MIN (position OFF) in order to achieve the desired inlet temperature.	ON= After heater switched off on MIN speed. OFF= After heater always on.
3	OFF A temperature night setback of 3°C can be achieved when setting S3 is in the ON position.	ON= Inlet night air must be set back at 3°C only. (If S2 is in OFF position) OFF= No temperature. Night set back.
4	ON The air flow may be set to MIN during the night if S4 is set to ON.	ON= Airflow set to MIN during night. OFF= No function.
5	OFF The pre heater is only for frost protection when S5 is set to OFF	ON= Pre-heater is used as frost protection and additional after heating. Pre and after heater both work if set inlet temperature. OFF= Pre heating is only used as frost protection.
6	OFF DO NOT TOUCH	ON= Frost sensor with Phono plug. OFF= Frost sensor with ISDN-plug.

Thermostat readings

There is an on/off switch on the room thermostat. The switch should be turned only when cooling is required. Note you must set ventilation to full speed (3) if cooling unit is on and summer by-pass must be fitted. (block that must be used during the warm summer months (+14°C). The heater switch on the controller should be turned off. Otherwise the heating coil that will be motorised will be activated and reheating may occur!



Fan assembly connector



Regulating the additional heating for units with water heater battery

A build-in water heater battery provides the after heating. Intake and extract ductwork must be insulated to avoid ice build up on the water heater battery and the pipes. For regulation, a thermostat is positioned in the intake air duct, which works as a closing contact. The volt free contact can be used to regulate a valve.

✓ Pressing the red button, which can be accessible by removing the white plastic lid, can reset the thermostat.

Frost protection of the water heater battery

Intake and extract ductwork must be insulated to avoid the ice build up on the water heater battery. Directly in front of the water heater battery a frost protection thermostat is positioned which closes at +5°C. The volt free contact of the thermostat is to be connected with the heater control in a way, that the shunt valve opens as soon as heater and circulating pump are switched off. The forced control avoids the ice build up on the water heater battery. When switching off the heater, be sure that the water heater battery will be drained. Otherwise avoiding ice build up cannot be guaranteed.

Frost protection of the heat exchange unit

The sensor for the frost protection is mounted where the extract air leaves the heat exchanger. This sensor controls the intake air fan to avoid ice build up. Warm air contains high humidity and therefore it is very likely that condensation will occur. Temperature in the heat exchanger must not drop so low that the water in it freezes. With the drop of the outside temperature the heat exchanger temperature drops as well. When the heat exchanger temperature drops to +2°C the intake air fan switches off until the heat exchanger has warmed up sufficiently.



Thermo-humidity sensor

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Summer service

During the warmer summer months when it is not necessary to recover heat, the heat exchanger can be replaced with a summer insert. Then outside air comes directly into the house without being warmed up.

- ✓ Make sure that the temperature sensor is set to a low temperature in order to avoid unwanted heating up inside the building.

Maintenance

- ✓ The unit should be isolated from the mains before any servicing starts.

Opening of access doors

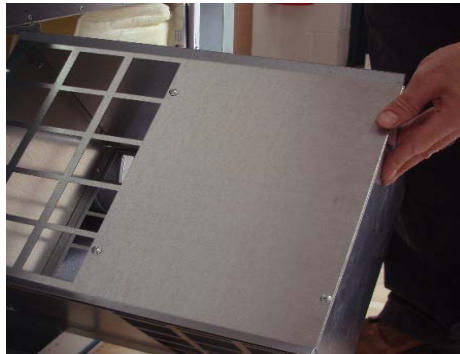
- 1) Open the clamps
- 2) Then remove the access door completely
- 3) To replace the door, fit back into the frame and clamp in place.

The outside and the extract prefilter are to be changed or cleaned at least every three months. The fine filter should be replaced at least once a year of use for hygienic reasons. When replacing the filter the correct air flow direction through the filter has to be observed. When the outside air is very dirty an air filter box should be fitted in the ductwork and the filter should be cleaned or replaced frequently.

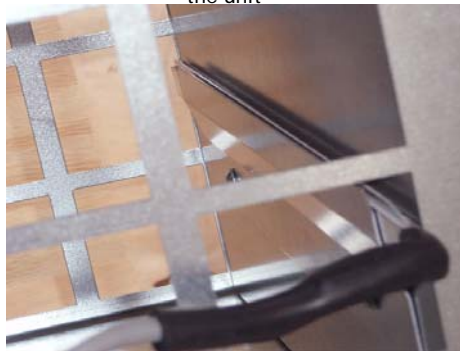
Filter control

If the filter is dirty, the lamp on the control panel will light up.

- Check the filters at least twice a year. Clean the pre-filters with a vacuum cleaner. Replacement filters are available as a set when they are over dirty.
- Check the fresh air intake filter regularly during the summer.



Summer insert being added into the unit



Temperature probe being added into the summer insert



Pollen bag filter



Pre-filter which protects the plate heat exchanger and the pollen filter

Fans

The fans are to be maintained and cleaned once a year at least. For cleaning use a small brush and an oil free cleaning fluid.

- Make sure that no water gets into the motor.
 - Fan must be completely dry before re-using.
- 1) To remove the fan, unplug the electrical plug socket facility.
 - 2) Loosen the four screws and remove it carefully by pulling.
 - 3) To remove the right fan loosen the two side screws and pull the fan towards you. Then the fan can be removed like the other one.
 - 4) Ensure that the balancing clips are not removed from the impeller.

Sources of malfunctioning

- Before working on the unit, make sure that it is fully isolated from the supply
- No air flow
- Check electrical connection/fuses
- Inlet air is cold
- Set heater thermostat to a higher temperature
- Ductwork in cold areas need extra insulation

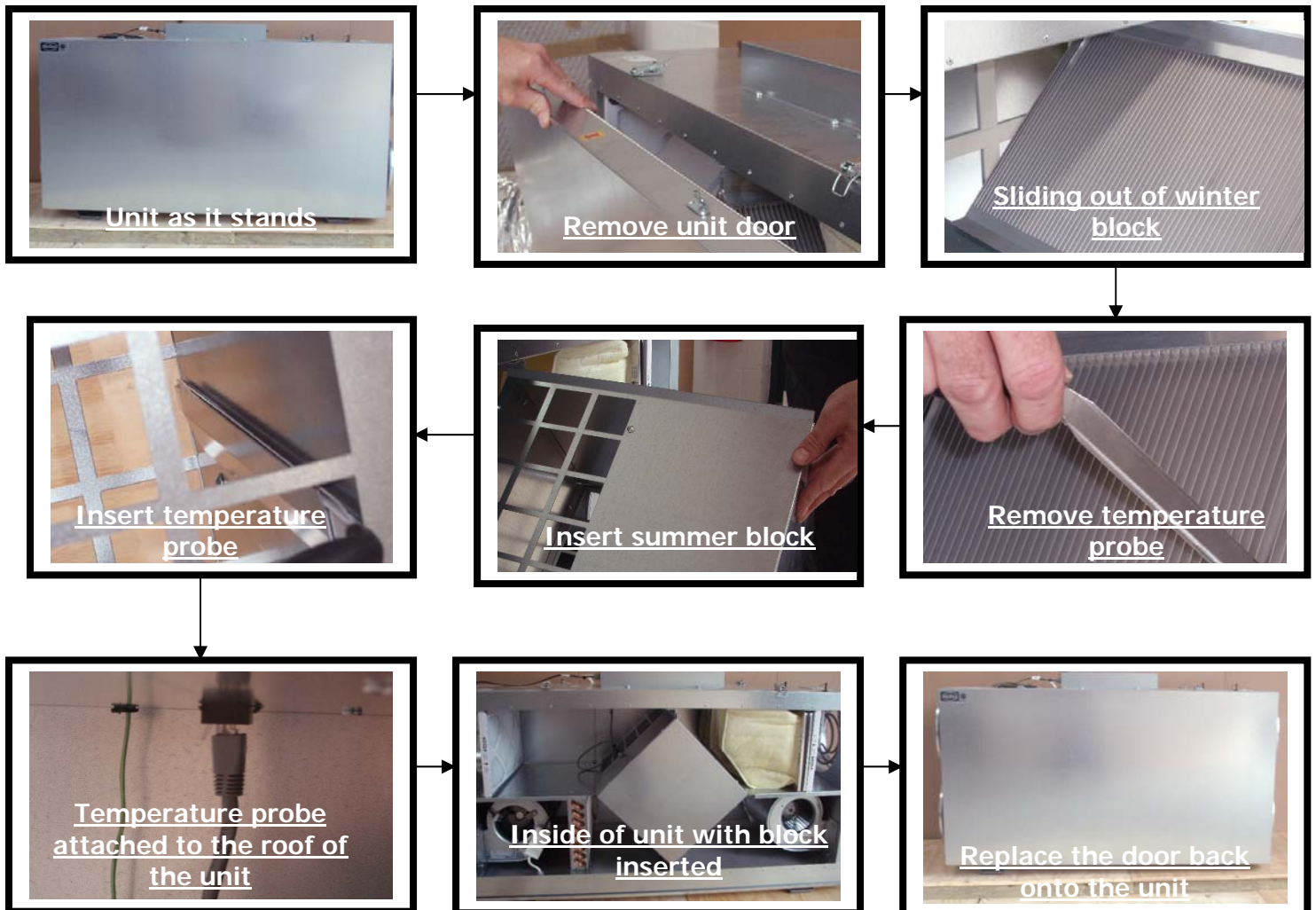
■ Heat Recovery Unit KWLC 650

Summer servicing

During the warmer summer months when it is not necessary to recover heat, the heat exchanger can be replaced with a summer insert. The outside air comes directly into the house without being warmed up.

Make sure that the temperature sensor is set to a low temperature (around 15°C) in order to avoid unwanted heating up inside the building.

Step by step guide to inserting the summer block



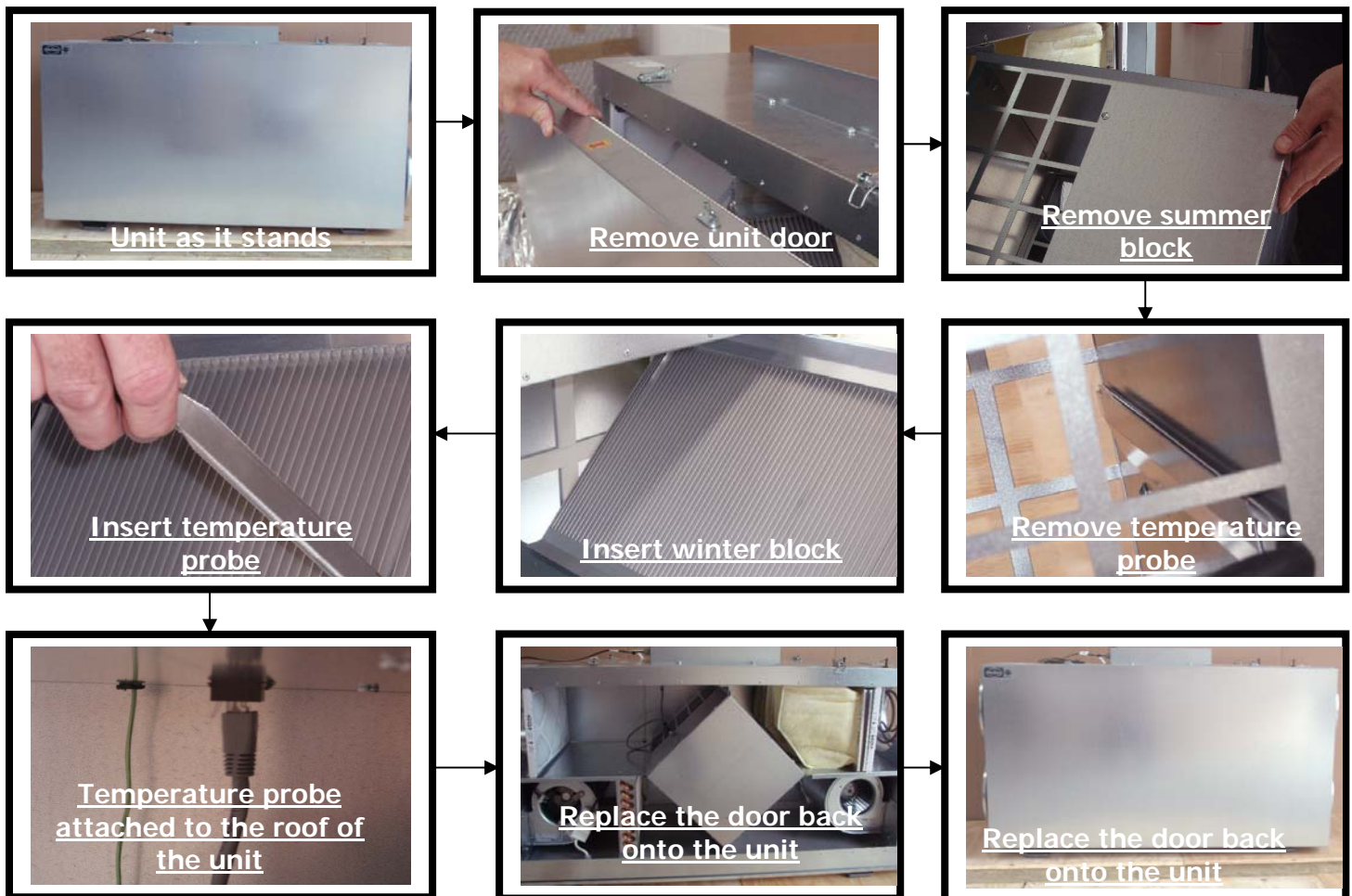
■ Heat Recovery Unit KWLC 650

Winter servicing

During the colder winter months when it is necessary to recover heat, the summer insert can be replaced with a heat exchanger. The outside air comes directly into the house and then it gets warmed up.

Make sure that the temperature sensor is set to room temperature(18 - 21°C) in order to gain the required heating inside the building.

Step by step to inserting the winter block



■ Operation guidelines: WSU Clock

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Three speed operation	1) Lowest	(Holiday or night ventilation)
	2) Normal	(On most of the time)
	3) Boost	(Extra ventilation after heavy showers etc.)

Night set back on WSU time clock

Controls ventilation between speeds 1 & 2.

■ Heater Switch

The Heater switch will activate the motorised valve to turn on or off the heating coil (if connected). Note: the thermostat atop the unit is set to 20°C, when supply air reaches this temperature the motorised valve will be activated.

■ Changing filters

Depending on your area, heavy amounts of contamination such as dust, pollution and pollen infiltrate the unit. The filtration system prolongs the life of your unit and provides you with clean, filtered air. Within your Heat Recovery Unit there are three types of Filters. There are two pre-filters, one of which protects the pollen bag filter; both protect the plate heat exchanger. To ensure the warranty criteria is met and to prevent undue wear on the motors, we recommend the filters are changed every six months. Both the pre filter and extract filters can be vacuumed to keep them clean in the time being. The fresh air intake filter should be checked regularly in the summer.

Please call: [01926 612690](tel:01926612690) to order your replacement set filters.

■ Plate Heat Exchanger

The Plate Heat exchange should be changed about every six months. To clean pull out the unit carefully and wash with warm soapy water (do not use cleaning fluid which contains Natriumcarbonate). Rinse of all cleaning fluids with warm water, ensure unit is dry before replacing and take care not to damage seals.

■ Fans

The fans are to be maintained and cleaned once a year at least for cleaning use a small brush with an oil free cleaning fluid. Make sure that no water gets into the motor; the fan must be completely dry before being replaced. Unplug the electrical socket before removing the fans. To remove the right fan loosen the two side screws and pull the fan towards you. Ensure that the balancing clips are not removed from the impeller.



KWL WSU

Art. no. 00856.002

GB



According to version preprogrammed with the current time and summer/ winter norm time



Safety Information

The connection and installation of electrical appliances must be performed by a skilled electrician only. Any intervention into or modifications to the appliance shall lead to the lapse of all warranty rights. Comply with your national regulations and all relevant safety stipulations.

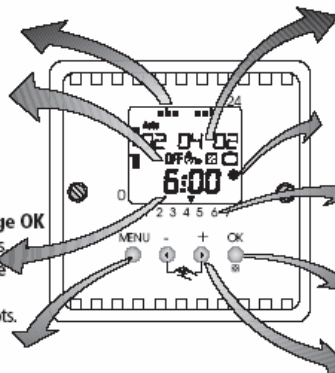
D GB F NL H PL

Overview per day of the programmed switching times
5 = Friday

Channel statuses
On / Off

Service voltage OK
Two flashing dots
Power reserve mode
Three flashing dots.

Selection
e.g.: Auto, Prog, ...
Pulse, Cycle
Abort inq



Display of special functions:
Permanent ON/OFF
Random program active
Holiday program active

Displayed only when summer/ winter time changeover is activated
Summer time
Winter time

Current days of the week
1 = Monday, 2 = Tuesday, ...

The decision **Yes** confirms the selection or programming

Decision **No** means continue

1. info

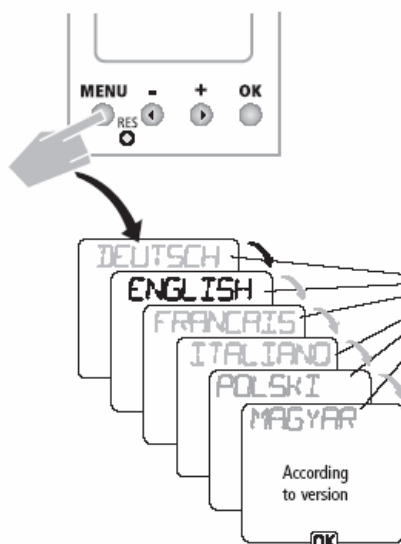
The timer is delivered in so-called sleep mode.
To activate without a service voltage:
Briefly press the **Menu** key.
Activate with mains voltage:
According to version the timeswitch is already pre-programmed with the actual time, the week-day, and the changeover setting for Summer / Winter time, the actual time and status display appears after selection of the National language. If the timer is not pre-programmed: First select your National language and then enter the actual date and time.

3. info

For programming, viewing, amending or deleting
First of all read the text display.
Menu selection:
Select by pressing the **MENU** Prog key.
Confirm by pressing **OK**.
By pressing the key select the desired menu. e.g. New, View, Amend or Delete.
Confirm your selection by pressing **OK**.
Set or change: by pressing or .
Store by pressing **OK**.
To display the switching times:
In the menu View, press the **OK** key several times.

First contact

Selection of the national language
Initial operation



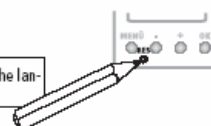
2. action

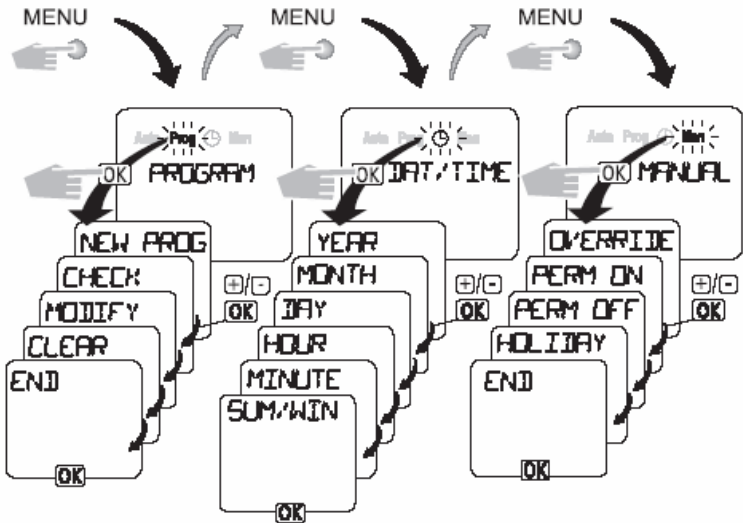
Activate the clock, select the national language
By pressing the or key select your national language.
Store your selection by pressing the **OK** key.

OK The decision **Yes**, confirms the selection or programming.
+ The decision **No**, means continue.
Set or amend by pressing the or keys.

info

In emergency situations only: Should you press RESET on the timer, all stored data will be deleted. However, the timer will then still display the language last selected and the summer/ winter norm time changeover last selected. Press the **Res** key with a pointed object for approx. 1 second.





Technical data

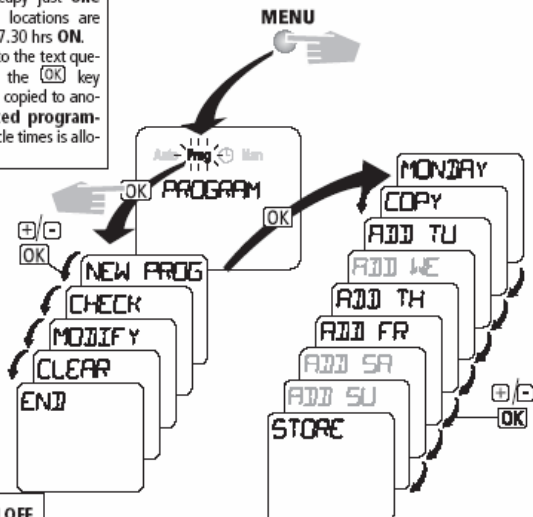
Degree of protection II EN 60730-1 in compliance with IP 20 EN 60529	min. -10 °C to max. +35 °C	Lithium, ap. 3 years power reserve	42 memory locations	Type 1 BSTU of EN 60730-1, -2-7 Application in usual environment
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info

Formation of day groups
If the same switching times are active on several days of the week, they occupy just one memory location. 42 memory locations are available, e.g. Monday – Friday 7.30 hrs ON.
Group formation: In answer to the text question Copy, decide by pressing the **OK** key that the day program should be copied to another day of the week. The **Mixed programming** of switching, pulse and cycle times is allowed.

Programming the switching time

Switching times for lighting systems, machines, ventilation systems, alarm systems etc.



info

When programming an **ON** and **OFF** switching time, e.g. 9 AM, a switch-off at 9 AM always has priority.
Program review:
Following programming the timer makes a program review back to midnight and then sets the correct switching status.




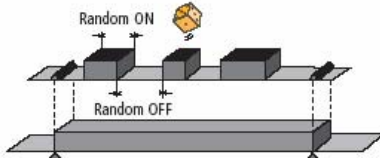
action

Example: Switching on the lighting of a sports hall on Mon., Tues., Thurs., Fri. from 7.30h until 12h.
Programming example:
Select **Prog** by pressing the **MENU** key.
Store your selection by pressing the **OK** key.
Select **New** by pressing the **⊕** or **⊖**.
Store your selection by pressing the **OK** key.
Select **ON** or **OFF** by pressing **⊕** or **⊖**.
Store your selection by pressing **OK**.
Set the hours and minutes by pressing the **⊕** or **⊖** key.
Store selection by pressing **OK**.
To store one day of the week only:
Select weekday by pressing **⊕** or **⊖**.
Select store by pressing **⊖**.
Store by pressing **OK**.
To copy to other days of the week:
Store **copy** by pressing **OK**.
Select weekday by pressing **⊕** or **⊖**.
Store by pressing **OK**.
To leave out a day of the week, skip by pressing the **⊕** key.
Finally select the **store** display by pressing **⊖**.
Store your selection by pressing **OK**.

info

Effect of the random program:
The random program causes the timer to switch between programmed pairs of switches (ON and OFF). The random on an off times range between approx. 10 mins. and 120 min. The random time always begins with OFF.


Activating the randomprogram:
Press button **OK** for approx. 2 Sec. Symbol  flashes when the random program is effective.



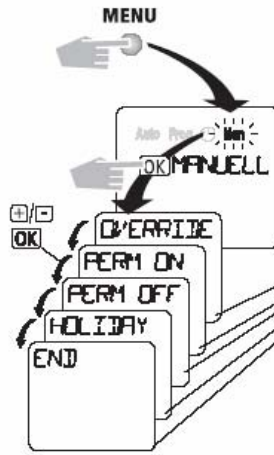
Example:
Random start
19.30 h ON

Example:
Random finish
6.00 h OFF

Effect of the holiday program: The holiday program has the effect that the timer does **not** switch on the connected consumer unit between the programmed start and finish (stipulation of year, month, day). **Start** and **finish** of the program is always **mid-night** on the day that is programmed.
Example: 25.3. national holiday.
Programming: start 25.3. finish 25.3.

If the holiday program is active, the holiday symbol  is displayed flashing on the automatic menu.

**Permanent ON or OFF
random or holiday program**




action

Read the text display first of all
In the menu **Man**, select by pressing the **+** or **-** key the function manual, permanent, random or holiday.
Confirm your selection by pressing the **OK** key.
To cancel a function:
Select the function clear.
Store your selection by pressing **OK**.

Via the automatic menu **AUTO** only



Press the two keys for approx. 1 s.

Manual preselection:
Press keys simultaneously **Channel C1** switches alternately ON or OFF. Symbol  appears. Manual preselection is corrected again by the stored program.

Press both keys for approx. 2 s.

Permanent
ON OFF 

Cancellation of manual preselection/ permanent switching: Briefly press the keys shown above.

**Setting/ correcting the date and time
summer/winter time**

info

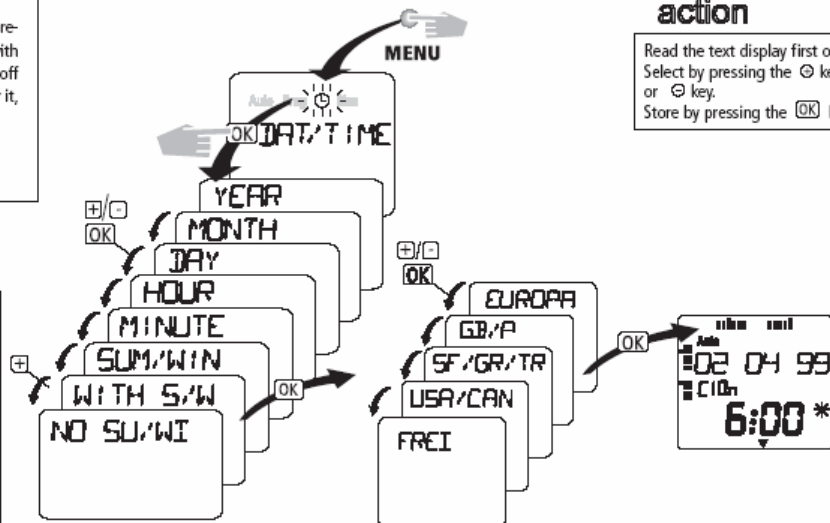
Automatic summer/winter time correction

According to version the timer is pre-programmed ex-works complete with the change-over. Should you switch off the automatic facility or wish to alter it, first of all read the text display.
Select by pressing **+** or **-**.

Store by pressing **OK**.

info

Free Prog to select sum/win change-over other than EUR-GB-USA. Select sum/win, and after with sum/win. Store with **OK**.
Select rule FREE - with buttons **+** or **-**.
Input month and weeks for sum/win. Store with **OK**.
E.g. Month = March
Week 4 = fourth week
Week 5 = last week in month
Note: In sum/win free Prog the time change is set automatically at sunday 2 AM.
Time change is not available.



action

Read the text display first of all
Select by pressing the **+** key or **-** key.
Store by pressing the **OK** key.