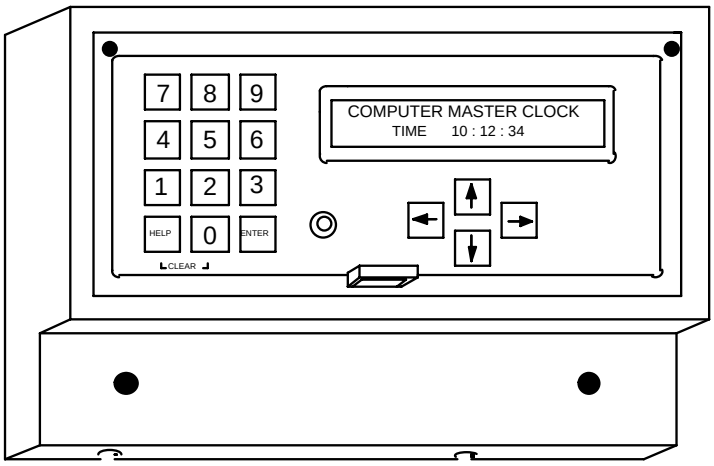
Operating Manual



KHU2101

Master Clock

HERTZ ELECTRONICS
A.B.N. 69 086 651 014

P.O. Box 115 ANNANDALE NSW 2038
18 Rose Street, ANNANDALE NSW 2038
PH: -61-2-8205 0575 FAX: -61-2-9571 9754
Email: sale@hertzelectronics.com.au
www.hertzelectronics.com.au

KHU2100 Master Clock

System Time, Date & Daylight Saving Setting (Australia)

A. ***NEW INSTALLATION TIME-SETTING/COMMISSIONING:***

The master is shipped with the voltage selector toggle switch in the neutral "0" position to protect the rechargeable batteries. Before connecting the master to mains please set the toggle switch to "24V" turning the switch to the right (12V to the left). The switch can be seen after removal of the upper case looking down from the top on to the circuit board. After setting the switch to "24V" connect the master to 240VAC 50Hz mains power immediately.

B. ***EXISTING INSTALLATION***

1. Push the right hand ➙ arrow key. If the keyboard is locked, unlock the keyboard by dialling the code number: "1263" and press "Enter". The keyboard is now unlocked.
2. Push the right hand arrow key ➙ 'Signal' ➙ 'Switch' ➙ 'Lines' until "System - Adjust System" appears in the display.

SYSTEM TIME SETTING

(After system time setting the position of the clock hands has to be re-entered into "Line Time")

3. Push the down arrow key ▼ until "Sys-time" is displayed.
4. Press the "Enter" key.
5. Program the master with the actual time plus one extra minute using the keyboard. Use the 24 hour format and set the seconds to "00".
6. Ring the Telstra talking clock (Ph: 1194) on your office or mobile phone.
7. Wait for the Telstra time to catch up with your programmed time and press the "Enter" button on the third beep.

SYSTEM DATE SETTING

8. The date programming follows automatically after the time setting. Press "Enter" and set the correct day using the numeric key-pad, then toggle to the right with the right hand arrow key and set the correct month. Now toggle to the right again and set the correct year (Last two digits only) Press "Enter" to confirm.

DATE MODE SETTING

9. Push the down arrow key ▼ until "Date" is displayed.
10. Press the "Enter" key.
11. Using the left/right hand arrow keys highlight "D-M" meaning "Day - Month". ("M-D" = "Month-Day" USA format)

DAYLIGHT SAVING SETTING "S/W-time"

12. Push the down arrow key ▼ until "S/W-time" (Summer-Winter time) is displayed.
13. Press the "Enter" key and select "OFF", "AUTO" or "DATE" using the left/right arrow keys.
    "OFF" no daylight saving changes
    "AUTO" changes automatically +/-1h on the last Sunday of programmed months
    "DATE" changes automatically +/-1h on programmed dates
14. Press "Enter" to confirm your selection.
15. If you selected "OFF" go to paragraph 18.
16. If you selected "AUTO" toggle to the right. The display shows "ON in __ month". Press "Enter" and program the +1h month, e.g. 10 (October), press "Enter" again and program the -1h month, e.g. 03 (March). Press "Enter" to confirm. The display shows "S/W-time" OFF - AUTO - DATE
17. If you selected "DATE" toggle to the right. The display shows "ON on _._". Press "Enter" and program the +1h date, e.g. 05.10 (5th October), press "Enter" and program the time, e.g. 02:00:00 (for 2a.m.). Press "Enter" and program the -1h date, e.g. 06.04 (6th April), press "Enter" again and program the time, e.g. 03:00:00 (for 3a.m.). Press "Enter" to confirm. The display shows "S/W-time" OFF - AUTO - DATE

MASTER CLOCK / SUB-MASTER CLOCK MODE

18. Press “Enter” to select the “MC” (Master Clock) or “SMC” (Sub Master Clock) mode. “MC” = Stand alone “SMC” = Sub-Master connected to a master clock system
19. Make your selection (in most cases “MC”) using the left/right arrow keys and press “Enter” to confirm.

LANGUAGE SETTING

20. You have three language choices for the operating menu: “GERM”= German, “ENGL” = English and “FRAN” = French. The default setting is “English”. If you like to change the language do the following:
21. Press “Enter”, toggle to the left or right using the left/right arrow keys and select (highlight) the language of your choice. Press “Enter” again to confirm your selection.

KEYBOARD LOCK FUNCTION

22. If you like to lock the keyboard to prevent unauthorised operation, ▼ down arrow until “Keyboard” appears in the display.
23. Press “Enter”, dial-in the Code number **“1263"** and press “Enter”. The keyboard is now locked.

AREAS TO CHECK:	**“ ”** = Correct setting		
Date mode	*[M-D]*	**“D - M”**	
S/W Time	*[Off]*	*[Auto]*	**“Date”** → “on first Sun Oct” → “off first Sun April”
		→ *“ON on -.-” at: 02:00:00 am* → *“OFF off -.-” at: 03:00:00 am*	
M.C. / S.M.C. (Master Clock/Sub Master Clock)	**“MC”**	*[SMC]*	
Language	*[Germ]*	**“Engl”**	*[Fran]*
Keyboard Lock Code	**1263**		

AUTOMATIC DISPLAY RETURN

24. After approx. 60 seconds the screen will automatically return to the main time-of-day display.

KHU2100 Master Clock

Line Time Setting (Loading the Master with the position of the Clock Hands)

A. ***NEW INSTALLATIONS ONLY: PREPARATION OF THE CLOCK SYSTEM***

1. Manually set **every** slave clock in the system to 12 o'clock, so that all clocks in the system display the same time.

2. Before connecting the slave clock line to the master, check the cable with an Ohm-Meter for any open or short circuits. If the line is O.K. (No less than 70 Ohm (slave clock coil resistance: 3300 Ohm), proceed to the next point, but do not connect the clock line to the master's terminals, yet.

3. At the master push the right hand arrow key. If the keyboard is locked, unlock the keyboard by dialling the code number: "1263" and press "Enter". The keyboard is now unlocked.

4. ***(Before you proceed make sure the local time has been programmed into "system time")***
Push the right hand arrow key ➙ 'Signal' ➙ 'Switch' ➙ until "Lines - Adjust Lines" is displayed, then toggle downwards until "Lines Mode - On/Off" appears in the display. Press the "Enter" key, toggle to "Off" and press "Enter". The slave clock impulse output is now turned off. Now connect the slave clock cable to the master's output terminals. Proceed to enter the position of the clock hands into "Lines Time".

B. ***NEW + EXISTING INSTALLATIONS: LOADING THE MASTER WITH THE POSITION OF THE CLOCK HANDS***

5. Push the right hand arrow key ➙ 'Signal' ➙ 'Switch' ➙ until "Lines - adjust Lines" appears in the display.

6. Now push the down arrow key ▼ until "Lines Mode - On/Off" is displayed.

7. Press the "Enter" key, toggle to "off" and press "Enter" again. The clocks stop.

8. Move up until "Lines Time" is displayed in the window.

9. Take a look at the salve clock(s) and memorise the position of the hands.

10. Program the master with the time displayed on the slave clock dial(s) (the position of the hands) using the keyboard. Set the seconds to "00" and press the "Enter" key.

11. Wait for five minute impulses and then press the "Enter" key again to stop the master from sending further impulses. The clocks stop.

12. Now check if the clock(s) is (are) on the same time as the "Lines Time" display. If not correct the "lines-time" entry by repeating the above procedure.

13. After a few minutes the display will automatically return to the normal "Computer ma. clock" display.

14. If you like to lock the keyboard, go right to "System Adjust", down arrow until "Keyboard" appears in the display. Press "Enter", dial-in the Code number "1263" and press "Enter". The keyboard is now locked.

15. Please also check the other parameters under "Lines - Adjust Lines":

Areas to check:	" " = Correct setting		
Lines Mode	"**m**"	[hm]	[s]
Lines Time Mode	"**12**"	[24]*****	
Lines Condition	"**on**"	[off]******	
Lines Pulse Length	"**2.0**"		

***** Set the "Lines Time Mode" to 24h, if a digital clock is part of the system.
****** Turns the "24VDC Impulse Output" off. The slave wall clock(s) stop(s).

KHU2100 Series Master Clock

"Signal" (Momentary contact closure) **Programming**
for Bells, hooters, gongs, delivering a brief impulse, etc.

The KHU2100 master/program unit provides two separate program paths for "Signals" and "Switching".

The '**signal'** program operates the relay contacts momentarily as required for bells or hooters. This program requires the input of the bell time and the signal length (1-99 seconds).
The **'switch'** program operates the relay in two steps: Relay "on" and relay "off". This program requires the input of the "on" time and the "off" time as required for lighting, airconditioning, etc.

- Push the right hand arrow key. If the keyboard is locked, unlock the keyboard by dialling the code number: "1263" and press "Enter". The keyboard is now unlocked.
- Push the right hand arrow key ➙ once until Signal - Adjust Signal times" appears in the display.

SIGNAL WEEKLY PROGRAM (Weekly repetitive signals that differ from day to day)

C. Push the down arrow key ▼ until "Weekly"appears in the window. Here you can enter signal times that occur weekly on any or all weekdays (Sat + Sun or any other day can be excluded).
D. Press the "Enter" key twice. Channel 1 appears. If you need to program another channel just press the appropriate number (2, 3 or 4) on the key board.
E. Press "Enter" again. The time entry with the first hour digit flashing appears. Key in the required time in 24h format, e.g. 8:00a.m. = 08:00:00 or 2:00pm = 14:00:00. Press "Enter".
F. Now enter the weekday(s) by selecting the appropriate weekday number, e.g. 1=Mon, 2=Tue, 3=Wed, 4=Thu, 5=Fri, 6=Sat, 7=Sun. Press 'Enter'.
G. Enter "signal time" (duration in seconds, 1-99 sec.) in double digits, e.g. 5sec. = 05. The contacts close for 5sec (any connected bell(s) will ring for 5 seconds). Press "Enter".
H. Enter repeat time (up to 15 times) in double digits, e.g. no repeats = 00,
2 repeats = 02. The bell rings in total 3x with a pause length equal to the signal duration.
Press "Enter". The display is back to the beginning showing "Weekly". You can now double "Enter" for further weekly program times, go on to yearly programming or you might be finished with programming. In that case nothing further needs to be done, because the display returns automatically to the standard time display within approx. 60 seconds.

SIGNAL YEARLY PROGRAM (Signals that occur monthly or once a year)

I. Push the down arrow key ▼ until "Signal Yearly" appears in the display. Here you can enter signal times that occur annually. The date and time have to be entered for the signal to be executed on the same date and time every year. The signal occurs monthly or once every year based on the programmed date and time.
J. Press the "Enter" key twice. Channel 1 appears. If you need to program another channel just press the appropriate number (1, 2, 3 or 4) on the key board.
K. Press "Enter". The date entry with the first day digit flashing appears. Key in the required date in double digits, e.g. 5th day = 05, February = 02. Press "Enter".
L. Now the time entry with the first hour digit flashing appears. Key in the required time in 24h format, e.g. 8:00a.m. = 08:00:00 or 2:00pm = 14:00:00. Press "Enter".
M. "Once" or "Always" appears in the display. Select by pressing the right or left arrow key the option you need and press "Enter" to confirm. "Once" executes the program once and is then erased from the memory. "Always" executes the program every year and remains in the memory.
N. Enter signal time (duration in seconds, 1-99 sec.) in double digits, e.g. 5sec. = 05. The bell will ring for 5 seconds. Press "Enter".
O. Enter repeat time (up to 15 times) in double digits, e.g. no repeats = 00,
2 repeats = 02. The bell rings in total 3x with a pause length equal to the signal duration.
Press "Enter". The display is back to the beginning showing "Yearly". You can now double "Enter" for further yearly program times, go on to signal testing or you might be finished with programming. In that case nothing further needs to be done, because the display returns automatically to the standard time display within approx. 60 seconds.

SIGNAL TESTING + MANUAL OPERATION

P. Push the down arrow key ▼ until “Sig. Test” appears in the display. Here you can manually activate the signals.

Q. Press the appropriate channel number (1, 2, 3 or 4) on the key board. The corresponding relay contact closes (for as long as the button is held down) activating the connected signal device(s).

SIGNAL TIMES CHECKING

R. The procedure for the checking of programmed times is the same for “Daily”, “Weekly” and “Yearly” programs. We describe the procedure for “Weekly” because it is the most used program.

S. From the “signal adj. signal times” display push the down arrow key ▼ until ‘Signal weekly’ appears in the display.

T. Press the “Enter” key.

U. Press the down arrow key ▼.

V. The first signal time appears in the display, e.g. “MTWTF.. 08:00:00 1". The letters indicate the appropriate weekdays: M=Monday, T=Tuesday, W=Wednesday, T=Thursday, F=Friday. The two dots indicate that Saturday and Sunday were not selected.
The time indicated in our example is 8:00am. The figure “1" stands for relay circuit 1.

W. Press the down arrow key ▼to see all remaining weekly signal times.

X. If you like to exit time checking press the left hand arrow key.

SIGNAL TIMES CORRECTION

Y. During “times checking” the displayed entry can be altered/corrected by pressing the “Enter” button. The display changes to “channel No.1". You can now change the channel by pressing number 1, 2, 3, or 4 on the keypad.

Z. Proceed with pushing the “Enter” button. Now the display shows the time entry and the cursor is flashing over the hour digits. Correct the hour if necessary and then change the minutes and seconds respectively.

AA. Then press “Enter”. The abbreviated weekdays, displayed as capital letters, appear in the screen. You can now change the selected weekdays by pressing the corresponding numbers on the keyboard, like 1=Mo, 2=Tu, etc. If you like to de-select a weekday, simply press the corresponding week number on the keyboard. That will delete the weekday.

BB. Press the “Enter” key, the cursor will be seen flashing over the signal time (duration) count. Change the signal length, if necessary, using the keyboard. (Always use double digits)

CC. Press the “Enter” key, the cursor will now be flashing over the repeat count. Change the repeat count, if necessary, using the keyboard. Press “Enter” to confirm.

DD. Press “Enter” and down arrow to enter “Signal Time Checking” mode to check your changes you just made and/or continue with time changes/corrections.

INDIVIDUAL SIGNAL TIMES DELETION

EE. During “Times Checking” the displayed entry can be deleted by pressing the “CLEAR” buttons ‘Help’ and ‘0'. (First press and hold the ‘Help’ button, then press the ‘0' and briefly hold both.)
Check always if the deletion was correctly executed.

KHU2100 Series Master Clock

"Switch" (On/Off Switching) **Programming**

for lighting, airconditioning, access control, turning things on and off, etc.

The KHU2100 master/program unit provides two separate program paths for "Signals" and "Switching".

The '**signal'** program operates the relay contacts momentarily as required for bells or hooters. This program requires the input of the bell time and the signal length (1-99 seconds).

The **'switch'** program operates the relay in two steps: Relay "on" and relay "off". This program requires the input of the "on" time and the "off" time as required for lighting, airconditioning, etc.

- Push the right hand arrow key. If the keyboard is locked, unlock the keyboard by dialling the code number: "1263" and press "Enter". The keyboard is now unlocked.
- Push the right hand arrow key ➙ twice until Switch - Adjust Switch times" appears in the display.

SWITCH WEEKLY PROGRAM (Weekly repetitive on/off times that differ from day to day)

- Push the down arrow key ▼ until "Switch Weekly"appears in the window. Here you can enter switch on/off times that occur weekly on any or all weekdays (Sat + Sun or any other day can be excluded).
- Press the "Enter" key twice. Channel 1 appears. If you need to program another channel just press the appropriate number (1, 2, 3 or 4) on the key board.
- Press "Enter" again. The time entry with the first hour digit flashing appears. Key in the required time in 24h format, e.g. 8:00a.m. = 08:00:00 or 2:00pm = 14:00. Press "Enter".
- Now enter the weekday(s) by selecting the appropriate weekday number, e.g. 1=Mon, 2=Tue, 3=Wed, 4=Thu, 5=Fri, 6=Sat, 7=Sun. Press 'Enter'.
- Select "on" or "off" with the left/right arrow keys.
- Press "Enter" to confirm your selection.
  The display is back to the beginning showing "Switch Weekly". You can now double "Enter" for further weekly program times, go on to yearly programming or you might be finished with programming. In that case nothing further needs to be done, because the display returns automatically to the initial time display within approx. 60 seconds.

SWITCH YEARLY PROGRAM (Yearly on/off times that occur monthly or once a year)

- Push the down arrow key ▼ until "Switch Yearly" appears in the display. Here you can enter switch on/off times that occur annually. The date and time have to be entered for the on/off times to be executed on the same date and time every year. The on/off switching occurs monthly or once every year based on the programmed date and time.
- Press the "Enter" key twice. Channel 1 appears. If you need to program another channel just press the appropriate number (1, 2, 3 or 4) on the key board.
- Press "Enter". The date entry with the first day digit flashing appears. Key in the required date in double digits, e.g. 5th day = 05, February = 02. Press "Enter".
- Now the time entry with the first hour digit flashing appears. Key in the required time in 24h format, e.g. 8:00a.m. = 08:00:00 or 2:00pm = 14:00:00. Press "Enter".
- "Once" or "Always" appears in the display. By pressing the right or left arrow key select the option you need and press "Enter" to confirm. "Once" executes the program once and is then erased from the memory. "Always" executes the program every year and remains in the memory.
- Select "on" or "off" with the left/right arrow keys.
- Press "Enter" to confirm your selection.
  The display is back to the beginning showing "Switch Yearly". You can now double "Enter" for further yearly program times, go on to "suppress" programming or you might be finished with programming. In that case nothing further needs to be done, because the display returns automatically to the initial time display within approx. 60 seconds.

SWITCH SUPPRESS PROGRAM (The "suppress" program turns all signal and switch times off)

The standard program (of each of the 4x channels independently) can be interrupted for a user programmable period with the "Switch Suppress" facility. The "on" and "off" dates determine the beginning and end of a program-free period. For example, the school bells require to be silenced for one day for the annual fete, students' assessment tests or during holiday periods, etc.

- Push the down arrow key ▼ until "Switch Suppress" appears in the display. Here you can enter switch suppress on/off times to turn the regular program off for a required period. The dates and times have to be entered independently for each of the 4x channels for the start and end of the "suppress-program" period. This program will be executed on the same entered dates and times every year unless a "once only" command has been loaded.
- Press the "Enter" key twice. Channel 1 appears. Select one of the 4x channels by pressing the appropriate number (1, 2, 3 or 4) on the key board.
- Press "Enter". The date entry with the first day digit flashing appears. Key in the required date in double digits, e.g. 5th day = 05, February = 02. Press "Enter".
- Now the time entry appears with the first hour digit flashing. Key in the required time in 24h format, e.g. 8:00a.m. = 08:00:00 or 2:00pm = 14:00:00. Press "Enter".
- "Once" or "Always" appears in the display. By pressing the right or left arrow key select the option you need and press "Enter" to confirm. "Once" executes the program once and is then erased from the memory. "Always" executes the program every year and remains in the memory.
- Select "on" or "off" with the left/right arrow keys. "On" means start with suppressing the regular program. "Off" means end of program suppression, resumption of the regular program.
- Press "Enter" to confirm your selection.

  The display is back to the beginning showing "Switch Suppress". You can now double "Enter" for further suppress program times, go on to "Switch sig. test" or you might be finished with programming. In that case nothing further needs to be done, because the display returns automatically to the initial time display within approx. 60 seconds.

Attention! Do not forget to program the "Switch Suppress" off-time. If an on-time has been programmed, but an off-time has not been, than the regular program will never operate.

SWITCH ON/OFF TESTING + MANUAL OPERATION

- Push the down arrow key ▼ until "Switch sig. test" appears in the display. Here you can manually activate the relays.
- Press one of the 4x channel numbers on the key board. The corresponding relay contact closes activating the connected device(s). The relay remains on and the contacts closed. Push the same channel number again to turn the relay off.

SWITCH ON/OFF TIMES CHECKING

- The procedure for the checking of programmed times is the same for "Daily", "Weekly", "Yearly" and "Suppress" programs. We describe the procedure for "Weekly" because it is the most used program.
- From the "switch adj. switch times" display push the down arrow key ▼ until 'Switch weekly' appears in the display.
- Press the "Enter" key.
- Press the down arrow key ▼.
- The first switch time appears in the display, e.g. "MTWTF.. 08:00:00 1e". The capital letters indicate the programmed weekdays: M=Monday, T=Tuesday, W=Wednesday, T=Thursday, F=Friday. The two dots indicate that Saturday and Sunday were not selected.

  The time indicated in our example is 8:00am. The figure "1" stands for relay circuit 1 and the lower case letter "e" stands for "on". ("a" = off)
- Press the down arrow key ▼to see all remaining weekly switch times. Make particularly shure that for each "e" (on) command there was an "a" (off) command programmed.
- If you like to exit time checking press the left hand arrow key.
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SWITCH ON/OFF TIMES CORRECTION

- During “times checking” the displayed entry can be altered/corrected by pressing the “Enter” button. The display changes to “channel No.1". You can now change the channel by pressing number 1, 2, 3, or 4 on the keypad.
- Proceed with pushing the “Enter” button. Now the display shows the time entry and the cursor is flashing over the hour digits. Correct the hour if necessary and then change the minutes and seconds respectively.
- Then press “Enter”. The abbreviated weekdays, displayed as capital letters, appear on the screen. You can now change the selected weekdays by pressing the corresponding numbers on the keyboard, like 1=Mo, 2=Tu, etc. If you like to de-select a weekday, simply press the corresponding week number on the keyboard. That will delete the weekday.
- Press the “Enter” key, the cursor will be seen highlighting the ‘on’ or ‘off’ status. If necessary change the setting by simply moving the cursor using the left/right arrow keys.
- Press the “Enter” key to confirm. The display returns back to the beginning of the “switch weekly” display.
- Press “Enter” and down arrow to enter “Signal Time Checking” mode to check your changes you just made and/or continue with time changes/corrections.

INDIVIDUAL SWITCH ON/OFF TIMES DELETION

- During “Times Checking” the displayed entry can be deleted by pressing the “CLEAR” buttons ‘Help’ and ‘0'. (First press and hold the ‘Help’ button, then press the ‘0' and briefly hold both.) Check always if the deletion was correctly executed.

Attention! If you clear an “on” command make sure that the corresponding “off” command is also cleared. Always clear both, the ‘on’ and ‘off’ entries. Otherwise the program will not be able to execute remaining commands correctly.

KHU2100 Master Clocks

Fuse List & Models

Fuse List				
Item	***Point of Protection***	***Value***	***Speed***	***Size***
All KHU2100 Models	Mains	500mA	slow blow	20 x 5 mm

Available Models			
Type No	***Relay Output***	***Impulse Output***	***Stock Line***
KHU2101	0	1	yes
KHU2111	1	1	yes
KHU2121	2	1	yes
KHU2122	2	2	no
KHU2142	4	2	no