

XTM72E & F Real-Time Clock Modules

Originally designed to compliment our wide range of Gen-Set controls, these DC powered Real-Time-Clocks have numerous applications, spanning many industries.

The **XTM72E** version operates in flip/flop mode only as it is purpose built for Mutual Standby applications. It has two LED's at the top marked A and B to indicate Duty Set-A or Duty Set-B is selected.
 Note: this unit is a direct replacement to the original XTM72A.

The **XTM72F** version, shown opposite can be switched between normal or flip/flop modes, making it an ideal choice for general purpose applications. Note: this is a direct replacement to the original XTM72B

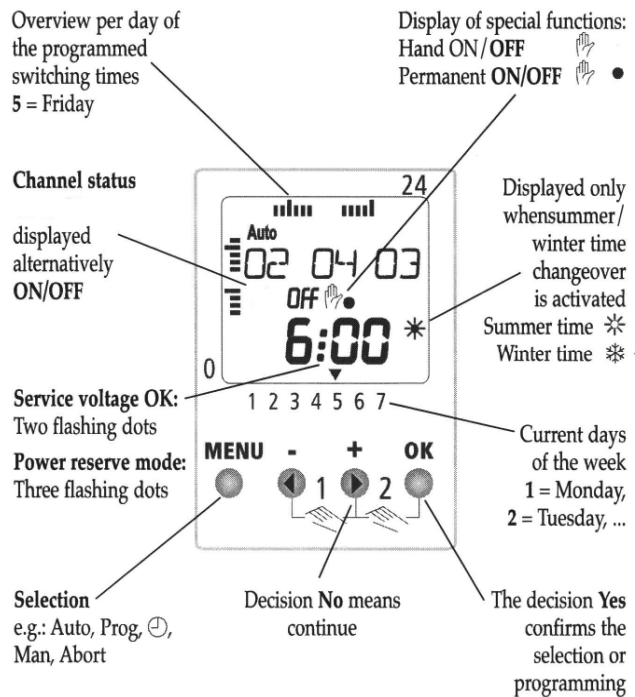


Key Features

- > 24 hr, 7 day Real-Time Clock with LCD display and day of week indicator.
- > Internal battery backed supply provides over 150 hours reserve power to the clock.
- > 42 Memory locations with free formation of day blocks and separate on-off commands
- > Relay output with SPCO volt-free contact set
- > Permanent ON or OFF
- > Separate 12V and 24V DC inputs
- > DIN 72mm square module with industry standard two-piece connector.
- > Customised designs are available

Setting the Clock without external supply

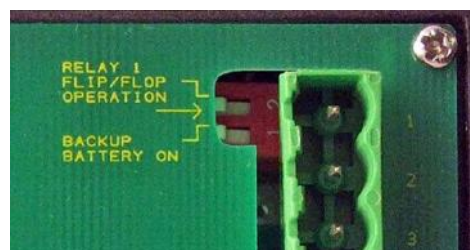
Switch internal battery on, access through rear of case .. See below.
 Press +/- to select required settings, store using OK button. The display then shows Day, Date, Time with three flashing dots, relay status, winter or summer time (if previously selected) and auto. If no buttons are pressed the clock powers down after 15 minutes. Press any button to power up again.
 Note:- If switch 1 is set to off all clock settings will be lost. If switch-1 remains in the 'on' position for extended periods of time without an external DC Supply, the internal battery will discharge and all clock settings could be lost.



Rear accessed switches

Unit supplied with both switches in the 'off' position — as shown here.
 Using a small screwdriver, carefully move in direction of arrow for 'on'.
 Switch 1 'on' enables the backup battery
 Switch 2 'on' selects flip-flop mode.

- Switch 2
- Switch 1





Specification

Operating Parameters		
12Vdc Supply	9V min	16V max
Burden at 12Vdc	3mA (Relay de-energised)	6mA (Relay energised)
24Vdc	20V min	32V max
Burden at 24Vdc	6mA (Relay de-energised)	9mA (Relay energised)
Internal Battery	3-Cell Nickel Metal- Hydride : 3.6V 70mAHr Fully charged float voltage 3.9 to 4.2V End point voltage 2.7V Trickle Charged at 2mA	
Life Expectancy (typical)	1000 cycles Up to 6 years at 20 deg.C Up to 3 years at 45 deg.C	
Relay Contact Rating	5A resistive / 30Vdc 5A AC1 / 230Vac	De-rate to 700mA for inductive load
Temperature	-10 to +65 deg.C	Operating
Real-Time Clock		
Time-base	32.768 KHz Crystal	
Accuracy	<1 sec / day at 20 deg.C	
Shortest switching time	1 minute	
Switching precision	Accurate to the second	
Language group	D – F – GB – I – E – NL	
Preset summer/winter time	E (EU)	
Fully automatic summer/winter (s/w) time change-over according to MEZ, GB, USA or freely programmable. Can alternatively be disabled		
Power Failure monitor to switch off switching output in case of power failure. This is indicated by three flashing dots in the display		
Date related vacation switching mode to interrupt the automatic program. Unit supplied with this switched off		
Programming		
Switching times	memory Locations = 42	with free formation of day blocks & separate programming of ON / OFF times
Pulse switching times	memory Locations = 32	with free formation of day blocks & separate programming of Pulse ON / OFF times. Pulse length adjustable from 1 – 59 seconds.
Cyclic switching times	memory Locations = 16	Pulse and Pause times can be each adjusted from 1 second up to 99 minutes 59 seconds.
Combination of cyclic switching, pulse switching and switching times possible.		

Applications

XTM72E : not intended for this application, but could be used – see Flip-Flop Mode

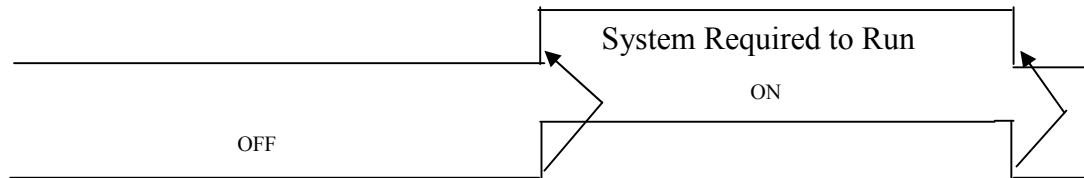
XTM72F : S2 OFF = NORMAL MODE (Not in Flip-Flop mode)

General purpose applications and spanning many industries.

Application Example:

A system is required to operate ... Monday – Friday, 6.00pm to 6.00am

- 1/ Set Dip-Switch OFF for Normal operation NOT Flip-Flop mode
- 2/ Program : Monday Off at 6.00am (06.00hrs) & On at 6.00pm (18.00hrs)
- 3/ Repeat this program for Tuesday, Wednesday & Thursday
- 4/ Program : Friday Off at 6.00am (06.00hrs)



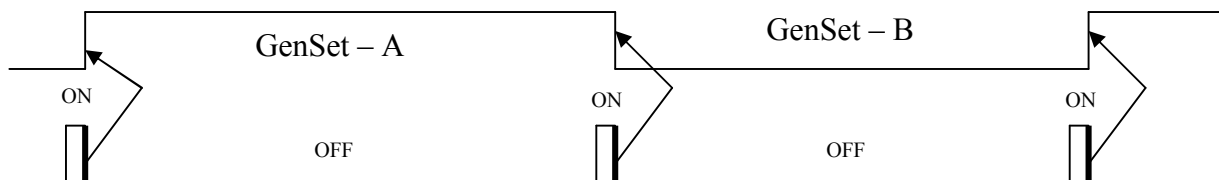
In normal mode, the relay changes state in line with the programmed times

XTM72E : FLIP-FLOP MODE (S2 has no function)

XTM72F : S2 ON for FLIP-FLOP MODE

Application example:

Two Generating Sets to operate in Mutual-Standby, each running 7 Days On - - 7 Days Off and duty change-over to take place at midnight each Sunday ...



In Flip-Flop mode the relay changes state at each programmed transition from On to Off

Thus, for the Generating Sets to changeover at mid-night every Sunday, program On/Off for 1 hour from Sat 11.00 pm (23.00 hrs) to Sat 12.00 pm (24.00 hrs). The duration of this On period is not important and could be as low as 1 minute but an hour is easier to program.



Basic Programming

Program mode.

Note: If the entry is interrupted or finished the display reverts to true time and automatic operation within 90 sec's. It will be necessary to start program entry again if required. Repeatedly pressing Menu toggles the various setting options listed below, press ok at any time to enter required mode to change.

Setting of weekly program:

Press Menu button then OK at any time to ESCAPE program mode. If no button is pressed within 40 seconds, normal operation is resumed.

Please read through the list below before programming.



Menu

OK

OK

Wait for free memory display to end

-/+ to select time on or time off

OK

-/+ to set hour

OK

-/+ to set minute

OK

-/+ to set day (1 to 7 shown on bottom of display)

OK

OK to COPY to other days, (or **+** then **OK** to STORE and return to NEW PROG)

-/+ to Add or delete days, after required days have been selected ensure

Permanent On or Off.

Permanent on.



MENU

++

OK

+ to select PERM ON

OK

- and + briefly to cancel and revert to AUTO mode

Permanent off.



MENU

++

Clear settings.



MENU

OK

+++

OK

+ to select SINGLE, ALL or END

OK

-/+ to select day

OK

OK to clear, or **+** **OK** to NEXT continue until required setting is reached

OK NEW PROG flashes

+ to select NEW PROG, CHECK, MODIFY, CLEAR or END

OK

Check settings.



MENU

OK

+

OK

-/+ to select day then

OK continue pressing **OK** to check all days (1 to 7 shown on bottom of display)

Modify settings.



MENU

OK

++

OK

-/+ to select day

OK

OK

-/+ to select on or off

OK

-/+ to change hour

OK

-/+ to change minute

OK

OK to select another day

MENU escape to AUTO MODE

Manual Override.



- and + to override the current status

- and + to revert back to AUTO mode

Pin Code.

The Time Clock can be locked against unauthorized use with a 4 digit code number.



MENU

++

OK

++++

OK

-/+ to select NO PIN or WITH PIN

OK if WITH PIN press **OK**

-/+ to enter first pin code digit, press **OK**, continue for all four digits

OK

To remove PIN CODE continue as above by entering your PIN CODE and select NO PIN. Unless requested, all modules are supplied with NO PIN set

WARNING

If a PIN CODE has been entered and is lost, the unit will have to be returned to the factory.



Advanced Settings

Random Program.

This setting switches between programmed pairs (ON and OFF). The random ON and OFF times range from 10 minutes to 120 minutes. Random times always begin with the OFF period.



MENU

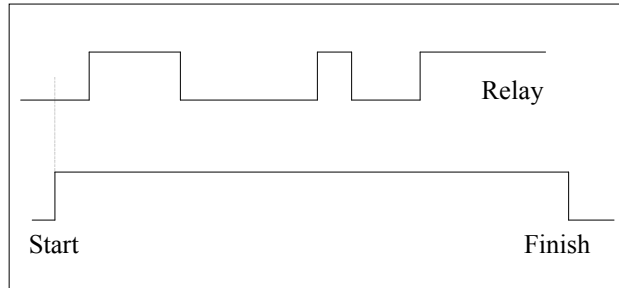
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OK

+++ to select RANDOM

OK

Repeat as above to cancel RANDOM
'Dice' symbol flashes continuously



Holiday Program.

The holiday program does NOT switch ON the set time for the period set in holiday program. Start and finish is always midnight on the day that is programmed. Note a 'suit-case' symbol flashes continuously



MENU

++

OK

++++

OK

-/+ to set START year OFF

OK

-/+ to set month OFF

OK

-/+ to set day OFF

OK

-/+ to set END year OFF

OK

-/+ to set month OFF

OK

-/+ to set day OFF

OK

To CHECK or CLEAR HOLIDAY mode continue as above and select the required option and repeatedly press **OK**

British Summer Time. This is factory set to auto, GB/P



MENU

+

OK repeatedly 7 times until WITH S/WI is displayed

-/+ to select WITH SU/WI or WITHOUT SU/WI

OK

-/+ to select TIME ZONE

OK

Reminder :-

Time display is in 24 hour format

Automatic return to 'Auto' mode after approx 90 sec's

Automatic switch to sleep mode, blanking the display after 15 mins (with not external DC Supply)

Minimum switching interval is 1 minute

Switching accuracy is 'precise-to-the-second'

Accuracy ± 1 sec / day at 20°C

If battery switched Off, reprogramming is required.

To advance time settings more quickly, press and hold - / +



Pulse Program.

Applications include : Break-time signals, ventilation systems, bell controls etc.

Pulse time can be set from 1 to 59 seconds.



MENU

+++

OK

OK

Wait for free memory display to end

-/+ to select NEW PROG for TIME ON or TIME OFF. On, if time clock will be off at required pulse time and vice-versa.

OK

-/+ to set PULS SEC on/off

OK

-/+ to select hour on/off

OK

-/+ to select minute on/off

OK

-/+ to select day

OK

-/+ to select COPY or STORE

OK to continue to add another pulse program or

MENU to return to AUTO mode

To CHECK, MODIFY or CLEAR PULSE mode continue as above and select the required option, press **OK**

Cycle Program.

Applications include : Process control, ventilation systems, bell controls etc.



MENU

++++

OK

OK

Wait for free memory display to end or press OK

-/+ to select CYCLE ON HOUR

OK

-/+ to select MINUTE

OK

-/+ to select DAY

OK

-/+ to select PULS MINUTE On

OK

-/+ to select PULS SEC On

OK

-/+ to select PAUSE M Off

OK

-/+ to select PAUSE S OFF

OK

-/+ to select CYCLE OFF HOUR

OK

-/+ to select MINUTE

OK

-/+ to select DAY

OK

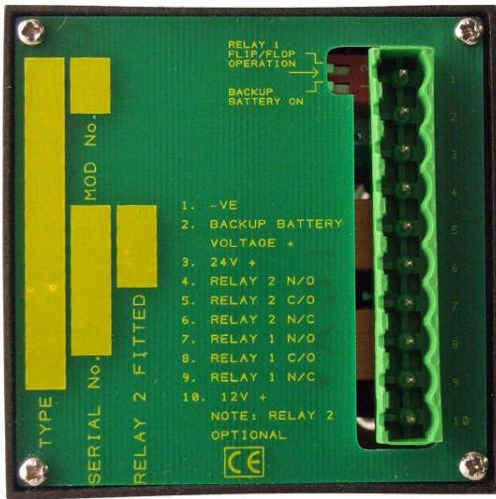
OK to continue to add another CYCLE program or

MENU to return to AUTO mode



User Notes

Terminations



Notes:

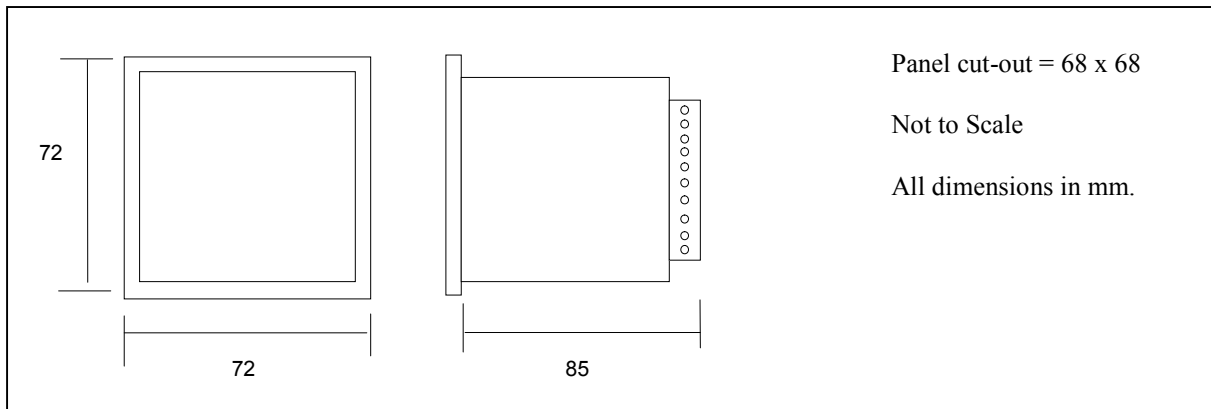
For 12Vdc Supply, connect +Ve to Term.10
 For 24Vdc Supply, connect +Ve to Term.3
 Connect Supply -Ve to Term.1

DO NOT connect to terminals 4, 5 or 6 as these are reserved. Relay-2 is not implemented on the standard XTM72E or XTM72F versions.

Connect a Digital Voltmeter between Term.2 (+) and Term.1 (-) to check the internal battery voltage. This should read 3.6 to 3.9V and 2.7V would be fully discharged. If the voltage reads < 2.7V please contact the factory as the Battery may need to be replaced.

Note : For specific information or a replacement unit - ALWAYS quote the original ‘Serial Number’

Dimensions



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