

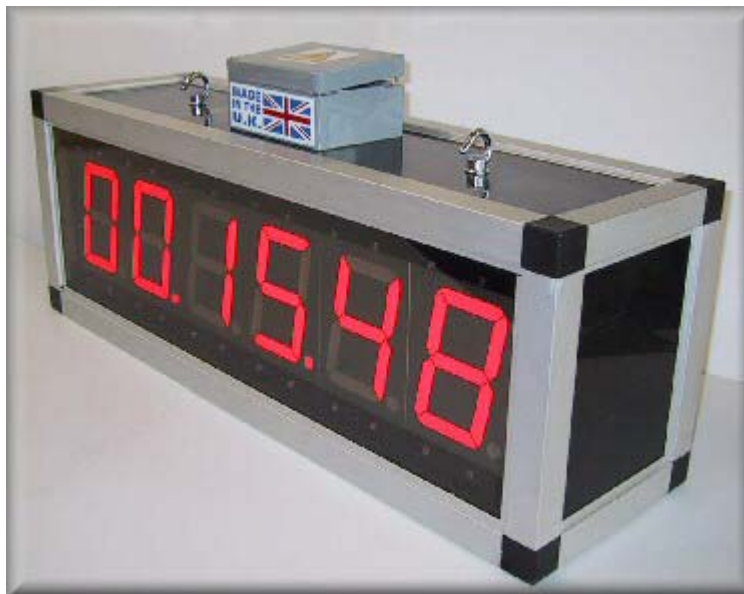


GJG ELECTRONICS LTD

Internet: <http://www.GJG.co.uk> Email: Info@GJG.co.uk

RTC Series Real-Time Displays *User Guide*

Issue 1.2



*Printed by GJG Electronics Ltd, England
©2005 GJG Electronics Ltd.*

Contents

1	Introduction.....	4
2	Parameters and Settings	5
2.1	Adjusting Parameters	5
3	Installation.....	6
3.1	Mechanical Fixing.....	6
3.1.1	Display.....	6
3.1.2	Timecode Receiver.....	6
3.2	Wiring	7
4	Specifications	8
4.1	Dimensions.....	8
4.2	Power Requirements	8
4.3	Clock	8
4.4	Environmental.....	8
4.5	EMC	8

1 Introduction

The RTC series of displays from GJG Electronics are large-digit industrial real-time display systems allowing clear and easy visibility of the current time. There are many potential application areas such as warehousing, factories, large offices and public places.

There are three sizes of digits available:

- 4-inch / 100mm
- 7-inch / 180mm
- 13-inch / 330mm

All displays are also offered as single-sided, double-sided and four-sided versions. Single-sided displays are ideal for fixing to a wall. Double-sided units allow viewing from the front or the back, for example in a corridor. Four-sided units are the most suitable displays to cover large areas where 360° viewing is required.

The displays can be linked to an MSF or GPS timecode receiver to ensure high accuracy.

The GPS receiver will synchronise the clock to a GPS satellite signal. The time will be set to UTC (universal coordinated time) and a time-zone should be set in the clock.

The MSF receiver will synchronise the clock to the atomic clock signal broadcast from Rugby, England. The time will be set to the current British time and will automatically change during summer/winter daylight saving time.

2 Parameters and Settings

To access the setup mode of the display, the “Select” button must be held in for at least 5 seconds. The display will then blank. When the button is released the first adjustable parameter will be displayed.

Each parameter (except the time setting) has a mnemonic displayed on the left and a value displayed on the right of the display. During setup mode, the value will be flashing.

The following table describes each parameter.

Mnemonic	Description	Range	Default
<i>Sync</i>	S ynchronise with atomic clock signal. 0 = Do not synchronise 1 = Use the MSF clock signal 2 = Use the GPS clock signal	0 to 2	1
<i>FL</i>	F lash the colon (:) separator between hours-minutes and minutes-seconds digits. 1 = Flash the separator 0 = Do not flash the separator	0 or 1	1
<i>For</i>	Time Display F ormat. Can be set to 12-hour style or 24-hour style. In 12-hour mode, leading zeros for the hours are not shown.	12 or 24	24
<i>t2</i>	Time Z one offset from GMT. This sets the time zone offset in hours from GMT. For example: Perth, Australia is 8 hours ahead of GMT so this would be set to “8”. New York, USA is 5 hours behind GMT, so this would be set to “-5”.	-12 to 12	0
<i>dSt</i>	D aylight Saving Time. 0 = Not in daylight saving time 1 = Daylight saving time is in effect If set on, one hour is added to the current time.	0 or 1	0
<i>000000</i>	The final three parameters allow the hours, minutes and seconds to be set manually. Note that the time setting will always be shown in 24-hour format.	00.00.00 to 23.59.59	

2.1 Adjusting Parameters

Once in setup mode, the pushbuttons have the following functions:

Button	Function
Select	Save the current parameter and move on to the next. On the final parameter (setting the seconds), pressing Select will return the display to normal operating mode.
Up	Adjust the parameter up.
Down	Adjust the parameter down.

3 Installation

3.1 Mechanical Fixing

3.1.1 Display

Single-sided displays should be securely fixed to a wall using the brackets supplied. Double-sided and four-sided display units are equipped with hooks that allow the display to be suspended using chains or suspension wire.

Do not mount any other equipment on or suspended from the displays. The mounting brackets supplied are designed to hold the weight of one display only.

3.1.2 Timecode Receiver

Two timecode receiver modules are available for use with the displays:

- RTC95 GPS Receiver
- RTC99 MSF Receiver

The GPS receiver can be used world-wide and will set the clock to UTC.

The MSF receiver is designed for UK use only and will set the clock to the current British time, automatically adjusting for summer/winter time changes.

The timecode receiver should be fixed to a convenient position to allow a good signal to be received. This unit should not be fitted near solid metal objects as this may weaken or totally block the radio signal to the unit. GPS receivers (e.g. model RTC95) should be mounted so that the cover of the enclosure is facing upwards with good line-of-sight to the sky. It is recommended that GPS receivers are mounted externally.

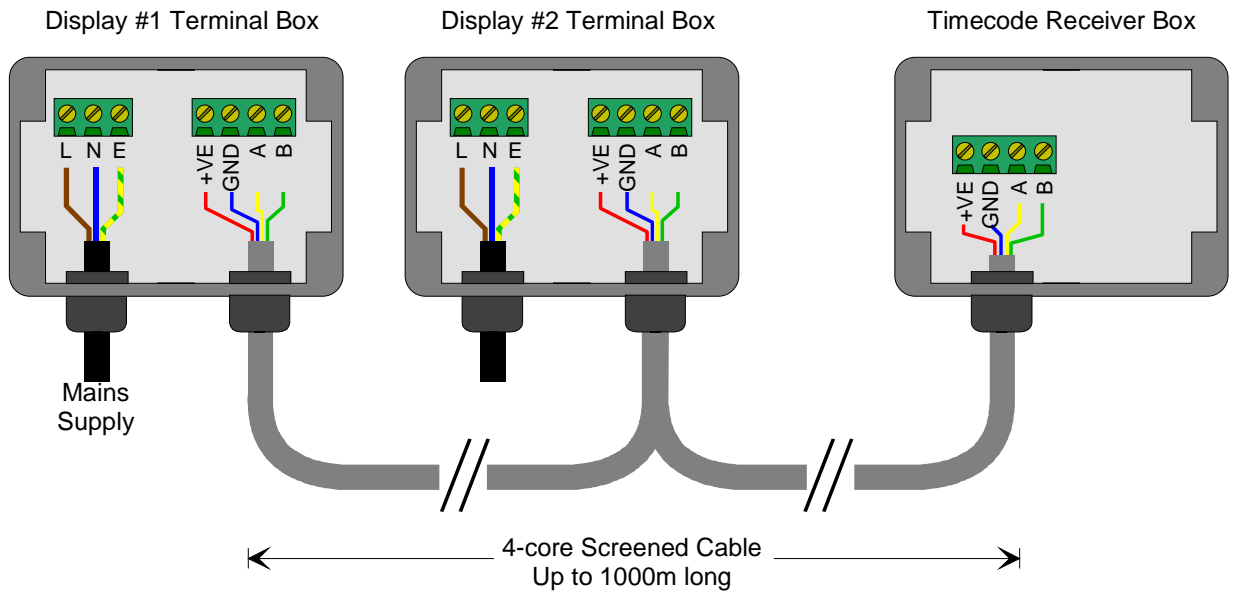
Removal of the cover will reveal the four fixing holes in the corners of the enclosure that can be used. This unit is protected from ingress to IP65 and can be mounted externally if required.

Care must be taken once the cover of the timecode receiver module is removed as the receivers contain sensitive electronic devices.

3.2 Wiring

The display requires only a mains supply for correct operation. It is recommended that the timecode receiver module be connected for increased time accuracy.

The following diagram shows the recommended wiring for two displays and one timecode receiver. Up to 30 displays can be 'daisy-chained' like this.



The timecode receiver module should be connected to the displays using either a high-quality 4-core screened cable or, ideally, a 2-pair twisted screened cable with conductors of at least 7/0.2mm (e.g. Belden type 9502). The colours shown in the diagrams are for illustrative purposes only and may differ between cable brands.

The receiver connections should be connected directly to the display connections:

- +VE** connected to **+VE**
- GND** connected to **GND**
- A** connected to **A**
- B** connected to **B**

The screen of the cable should be connected to the "GND" terminal at the displays. The screen should not be connected at the timecode receiver terminal box.

4 Specifications

4.1 Dimensions

Model	Display Sides	Digit Size	Overall Dimensions (W x H x D)
RTC01	1	4-inch / 100mm	600 x 180 x 120mm
RTC02	1	7-inch / 180mm	767 x 240 x 180mm
RTC03	1	13-inch / 330mm	1407 x 418 x 175mm
RTC11	2	4-inch / 100mm	600 x 180 x 120mm
RTC12	2	7-inch / 180mm	767 x 240 x 180mm
RTC13	2	13-inch / 330mm	1407 x 418 x 175mm
RTC21	4	4-inch / 100mm	
RTC22	4	7-inch / 180mm	815 x 252 x 815mm
RTC23	4	13-inch / 330mm	

4.2 Power Requirements

Model	Supply Voltage	Power Consumption
RTC01	100 – 260V AC (universal input) 47 – 63Hz	15W max
RTC02		15W max
RTC03		25W max
RTC11		20W max
RTC12		20W max
RTC13		40W max
RTC21		30W max
RTC22		30W max.
RTC23		80W max

All displays are fitted with an internal 1 Amp anti-surge (time delay) fuse. No user-serviceable parts inside.

4.3 Clock

Internal battery-backed real-time clock.

Clock synchronised to MSF or GPS timecode signals using optional receiver module.

4.4 Environmental

Operating Temperature: -10°C to +40°C

Enclosure Ingress Protection: IP65

4.5 EMC

This product has been manufactured to comply with the following directives:

89/336/EEC Electromagnetic Compatibility Directive, amended by 92/31/EEC & 93/68/EEC

72/23/EEC Low Voltage Equipment Directive, amended by 93/68/EEC

The following standards have been used during the design and manufacture of this product:

EN 61000-6-4: 2001 Generic emission standard for industrial environments

EN 61000-6-2: 2001 Generic immunity standard for industrial environments

To ensure compatibility, the installer must use good EMC practices, such as protecting this instrument against intense sources of radio frequency interference and voltage transients.