SYSTEM CLOCKS Catalogue


SEIKO TIME SYSTEMS INC.

# MASTER CLOCK (GPssynchronization) 

## RACKーாロபNT TYPE



## QCG-200

QCG-200 is a master clock which is capable of receiving the precise time information from GPS (Global Positioning System) operated by the U.S. and can retain a high-accuracy in the internal clock at all times.

- Exclusive GPS antenna with receiver unit (GPS-200) is available separately to make a time correction for the internal clock in the QCG-200 periodically.
$\square$ QCG-200 is capable of making analog secondary clocks activate directly and synchronizing them with a precise time.
$\square$ QCG-200 is capable of generating time data (in accordance with RS-422) for digital secondary clocks and other computer systems.
■ Automatically time synchronization with GPS ( Global Positioning System).
- Time Accuracy when synchronized by GPS signal is within $\pm 5 \mathrm{~ms}$.
- Exclusive GPS antenna with receiver unit can be purchased separately.
$\square$ High-accuracy crystal clock inside (Accuracy daily rate : within $\pm 0.1 \mathrm{~s}$ ).
- Rack-mounting type complied with EIA (Electronic Industries Alliance) Standard.
- Maximum 110pcs. of secondary clocks can be activated.
- Both Two hands and Three hands secondary clocks can be activated.
- Serial data signal output (RS-422) is available to synchronize digital clocks and so on.
- Liquid Crystal Display (LCD) with dimmer function for monitor clock in 3 steps (off-mid-hi) on the front panel.
- Daylight saving time and leap time can be set by key input.
- Time adjustable with Time Server (SNTP) through LAN (RJ45) as an optional extension system (QCG-200 N).
- Signal auto changer unit QCG-200SC is available as an option for the dual master clock (QCG-200) operation.


| CONTENTS |  |  | SPECIFICATIONS |
| :---: | :---: | :---: | :---: |
| MASTER CLOCK | Input/ <br> Output Signals | 1-sec. polarized signal | Controlled by 2 wires (only clockwise) <br> (Max. 110pcs. of analog secondary clocks can be connected, together with analog secondary clocks of 30-sec. signal.) |
|  |  | $30-s e c$. polarized signal | Controlled by 2 wires (only clockwise) <br> (Max. 110pcs of analog secondary clocks can be to connected, together with analog secondary clocks of 1 -sec. signal.) |
|  |  | GPS I/F | Data input: Serial data (in accordance with RS-422) <br> 1PPS input: Received by 2 wires <br> Power supply : DC 5V (powered by QCG-200) <br> Sealed: 1 wire <br> *To be connected the exclusive GPS antenna with receiver unit (GPS-200). Available separately. <br> *To be connected with 6 sealed wires cable (as an option). |
|  |  | Serial data signal output | RS-422 : Time information (Year / Month / Day / Date / Hour / Minute / Second) in SEIKO format shall be sent every second. |
|  | Crystal oscillator frequency |  | 32.768 kHz |
|  | Time accuracy |  | within $\pm 0.1 \mathrm{~s} /$ day $\left(0^{\circ} \mathrm{C} \sim+40^{\circ} \mathrm{C}\right)$ |
|  | Time accuracy when synchronized by GPS signal |  | within $\pm 5 \mathrm{~ms}$ |
|  | Frequency of synchronizing with GPS signal |  | Every 10 min. |
|  | LCD display |  | 16digits 2 lines with back light |
|  | Operation unit |  | 8keys |
|  | How to adjust the time |  | When powering on : Automatic setting by GPS or manual setting by key input <br> When operating : Periodical and automatically synchronization by GPS signal or manual setting by key input Setting for Time difference : Manual setting by key input <br> * Against UTC, time difference from -12 h to +14 h can be set by minutes. |
|  | Daylight saving time |  | Manual setting by key input |
|  | Leap second |  | Manual setting by key input |
|  | Over current protection |  | Power input: Non-fuse breaker <br> Internal circuit : Fuse 5A <br> Secondary clock signal output : Non-fuse breaker |
|  | Alarm detection |  | If this product detects a decrease in voltage in internal circuit and NFB in secondary clock signal output, the ALARM LED lamp lights up. |
| Power supply |  |  | AC85 ~ 264V, $47 \sim 63 \mathrm{~Hz}$ |
| Power consumption |  |  | 50W |
| Operational temperature and humidity range |  |  | $0^{\circ} \mathrm{C} \sim+50^{\circ} \mathrm{C} / 20 \sim 90 \%$ with no dew condensation |
| Dimensions |  |  | QCG-100 : W480×H88×D280mm (excluding protruded portion) GPS-100:W142×H67×D110mm (with a 1 m cable) |
| Material |  |  | Steel with pearl-gray painted |
| Weight |  |  | OCG-200: Approx. 3.5kg GPS-200: Approx. 420g |

## MASTER CLOCK (QUARTZ)

## யคடடーTロபNT TYPE



QC-5500 Series
QC-55101/55102
QC-55201/55202
QC-55301/55302

SEIKO QC-5500 Series is a high-precision quartz master clock. By connecting with an external master clock generating 30 -sec polarized signal output, time correction can be made. Models operating on AC 110V (QC-55X01) and AC 220V (QC-55X02) are available.
(1) Master clock function (QC-5510X, QC-5520X and QC-5530X)

Up to 30 secondary clocks can be connected to each channel (if the current consumption of each secondary clock is 12 mA ).
(2) External synchronization function

By connecting with an external master clock generating 30-sec polarized signal output, the loss/gain of the clock is corrected automatically.



QC-55301/55302

| CONTENTS |  |  | SPECIFICATIONS |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| FUNCTIONS | Model No. |  | QC-55101 / QC-55102 | QC-55201 / QC-55202 | QC-55301 / QC-55302 |
|  | Number of secondary clock circuits |  | 1 circuit | 2 circuit | 3 circuit |
| $\begin{array}{\|l\|} \hline \text { MASTER } \\ \text { CLOCK } \end{array}$ | Crystal oscillator frequency |  | 4.194304 MHz |  |  |
|  | Time accuracy |  | Weekly rate of less than $\pm 0.7$ seconds ( $\left.+5^{\circ} \mathrm{C} \sim+35^{\circ} \mathrm{C}\right)$; no accumulated error after time correction |  |  |
|  | Time display | Master clock | Year, month, date hour, minute, and seconds; and Digital display in 24-hour indication (not displayed during power failure) |  |  |
|  |  | Monitor clock | 30-second interval hand movement |  |  |
|  | Time setting | Master clock | Setting of year, month, date, hour, minute and seconds |  |  |
|  |  | Monitor clock | 60X speed quick advance of hands by APC system |  |  |
|  | Daylight saving time |  | Setting of year, month, date and hour for start date, and month, date and hour for end date |  |  |
|  | Secondary clock driver | Driving signal | DC 24V 30-sec. polarized signal ; Pulse width of 0.5-sec. ; No-contact |  |  |
|  |  | Max. number of secondary clocks to drive | 30 units | 60 units | 90 units |
|  |  |  | 12 mA / unit ; 30 units / circuit |  |  |
|  |  | Maximum driving capacity | 360 mA | 720 mA | 1,080mA |
|  |  |  | 360 mA / circuit |  |  |
|  |  | Backup power | DC 24V ; Built-in sealed Ni-Cd rechargeable battery |  |  |
|  |  | Battery protection | Overdischarge prevention circuit |  |  |
|  |  | Signal voltage detection | Signal voltage stopper function (stops output when secondary clock driving voltage lowers) |  |  |
|  | External synchronization |  | DC 24V 30-sec. polarized signal; Every hour except 7, 19, 0, and 12 óclock; Synchronizable loss/gain range ... Less than 15 seconds |  |  |
|  | Synchronization output |  | RS-422 |  |  |
| Power supply |  |  | QC-55X01 : AC 110V $\pm 10 \%$ or DC $24 \mathrm{~V} \pm 10 \%$ OC-55X02 : AC $220 \mathrm{~V} \pm 10 \%$ or DC $24 \mathrm{~V} \pm 10 \%$ |  |  |
| Power consumption |  |  | 21W | 32W | 42W |
| Power failure backup |  | Master clock | Approx. 5 years (no indication on digital display, counting by internal clock only) |  |  |
|  |  | Secondary clock driver | 30 hours (in case of power failure of more than 30 hours, hands are adjusted automatically after recovery.) |  |  |
| Operational temperature range and humidity range |  |  | $-10^{\circ} \mathrm{C} \sim+50^{\circ} \mathrm{C} / 20 \sim 80 \%$ with no dew condensation |  |  |
| Dimensions |  |  | W420 $\times$ H354 $\times$ D110mm |  |  |
| Material |  |  | Front panel : ABS and stainless steel, pearl gray with a slight gloss Rear panel: Stainless steel, pearl gray with a slight gloss |  |  |
| Weight |  |  | Approx. 7.0kg | Approx. 7.2kg | Approx. 7.5 kg |
| Accessories |  |  | Plastic foot, 4 pcs; Miniature fuse; Instruction manual; Mounting hole drilling template; and Insulated crimp terminal |  |  |
| Options |  |  | Rack-mounting fittings (in accordance with EIA Standard) |  |  |

## How to Drive Secondary Clocks

## Accuracy and Synchronization of Secondary Clocks

The role of the secondary clock in a time-keeping system is to accurately reproduce the time signal supplied by the master clock. The master clock and secondary clocks are connected electrically, and the Crystal oscillator frequency of 32.768 kHz or 4.194304 $\mathrm{MHz} / \mathrm{sec}$. from the master clock is reduced in several stages by the frequency diving LSI and finally transmitted to the secondary clock as a 1 -sec. or a 30 -sec. polarized signal of $\pm 24 \mathrm{~V}$ DC. The secondary clock converts this electrical signal into mechanical energy and, with the same precision as the master clock, simultaneously displays the correct time.


## INDOOR SECONDARY CLOCK(24v)

ШคLL TYPE / RECESSEロ TYPE
Current consumption of a wall type and a recessed type secondary clock is 12 mA .
Input signal of a wall type and a recessed type secondary clock is $30-\mathrm{sec}$. polarized signal / DC 24 V . ( $* \mathrm{~F}-001$ is 1 -sec. polarized signal / DC 24 V .)

260-mm Diameter Round Type


SC-201
Dial-Aluminum, Silver
Hour marker - Black
Hands - Aluminum, Black
Frame - Steel, Semi-mat black
Thickness - 40 mm
Weigh - 1.0 kg


410-mm Diameter Round Type


SC-419
Dial ——Steel, White
Hour marker - Black
Hour marker - Black
Hands - Aluminum, Black
Hands ——Aluminum, Bla
Frame - Steel, White
Thickness - 55 mm
Thickness - 55 mm
Weight -2.5 kg


SC-304
Dial $\quad$ Brass, $\quad$ White hairline finish
Hour marker - Brass, Black
Hands -Aluminum, Black
Outer Frame - Polished chromium finish
Thickness - 46 mm
Weight -2.0 kg
300-mm Diameter Round Type

SC-302
Dial - Steel, White
Hour marker - Black
Hands - Aluminum, Black
Frame - Steel cream
Thickness - 40 mm
Weight -1.5 kg

SC-316
SC-316C
(cream color) is also available.
Dial -Steel, White
Hour marker - Black
Hands Aluminum, Black
Frame ——Steel, White
Thickness - 40 mm
Weight -1.5 kg

Square Type with Standard Frame


## ロロப日டEーFACEロ TYPE

Current consumption of a double－faced secondary clock is 24 mA ．
Input signal of a double－faced secondary clock is $30-\mathrm{sec}$ ．polarized signal／DC 24 V

## Double－faced Suspended Type



## SC－360

|  | $\begin{gathered} \text { Dimensions }-312 \mathrm{~mm} \text { Dia } X \\ \text { D150mm } \end{gathered}$ |
| :---: | :---: |
|  | Dial－Steel，White |
|  | Hour marker－Black |
|  | Hands－Aluminum，Black |
|  | Frame－Steel，Gray |
|  | Pipe -34 mm DiaX |
|  | D360mm |
|  | Weight -8.0 kg |



SC－461
SC－460

| Dimensions－W400 X 3310 X |  |
| :---: | :---: |
|  | D180mm |
| Dial | －Steel，White |
| Hour marker－Black |  |
| Hands－Aluminum，Black |  |
| Frame－Steel，Gray |  |
| Flange | －W250XH50X |
|  | D100mm |
| Weight | －8．0kg |



Double－faced Suspended Type（Condensed Resin Illumination）



Light orange（L）


RWS－6WHB $(\mathrm{Y} \cdot \mathrm{L} \cdot \mathrm{G} \cdot \mathrm{O})$ ） RWS－5WHB $(\mathrm{Y} \cdot \mathrm{L} \cdot \mathrm{G} \cdot \mathrm{O})$ ） RWS－4WHB $(Y \cdot L \cdot G \cdot O)$ ．

Fluorescent ramps and power are unnecessary for illumination．
Easy to maintenance．
To be suitable for station use．


## The mechanism of Condensed resin illumination



## INFORMATION



## System configuration


＊In case of QC－5500 Series，up to 30 secondary clocks can be connected to each channel（if the current consumption of each secondary clock is 12 mA ）．

## Option Equipment for Secondary Clocks



## QUARTZ BELL TIMER



An intelligent timer for offices, schools, factories, and other locations.
Melody time signals are programmable for up to one week.

| CONTE NTS | S PECIFICATIO N S |
| :--- | :--- |
| Power supply | AC $90 \mathrm{~V}-120 \mathrm{~V}, \mathrm{AC} 200 \mathrm{~V}-240 \mathrm{~V}, 50 / 60 \mathrm{~Hz}$ |
| Power consumption | Approx. 4.0 W |
| Power failure backup | Clock : 24 hours, program : 10 weeks |
| Operating temperature range | $-10^{\circ} \mathrm{C} \sim+50^{\circ} \mathrm{C}$ |
| Time accuracy | Within $\pm 3$ sec./month ( $+5^{\circ} \mathrm{C} \sim+35^{\circ} \mathrm{C}$ ) |
| Signal output | 2 independent channels /dry contact signal) |
| Contact out put capacity | AC $125 \mathrm{~V} / 5 \mathrm{~A}, \mathrm{AC} 250 \mathrm{~V} / 3 \mathrm{~A}, \mathrm{DC} 30 \mathrm{~V} / 5 \mathrm{~A}$ |
| Program setting range | In $1-$ minute increment |
| Dimensions | W270 $\times \mathrm{H} 372 \times \mathrm{D} 58.5 \mathrm{~mm}$ |
| Weight | Approx. 2.0 kg (main body) |

## QBT-30

Announces the start of work, lunchtime, and the end of work with beautiful melodies. Refined design and outstanding function make this a necessity for every office.

■Up to 60 programs can be set a week at a time.
■ Different settings for each day of the week are OK. Resetting for different times each day is simple and convenient.

■The 4 melodies can be combined as preferred.
■ External output can be used to manage lighting, air-conditioning, and so on.


For example, a setting like this is easy to do!
Manage time at school or in the office or the way you've always wanted to!


# DIGITALCLOCK 

INDEPENDENT CடロCK


RBC-200N
Wall type


RBC-302N
Suspended type (Double-faced)


RBC-303N
Bracket type (Double-faced)

| CONTENTS | SPECIFICATIONS |  |
| :---: | :---: | :---: |
| Model No. | RBC-200N (Wall type) | RBC-302N, 303N (Dobule-faced type) |
| Digit height | 200 mm (Orange) | 200 mm (Yellow) |
| Dimensions | W950×H380×D184mm | W950 $\times$ H380 $\times$ D 300 mm |
| Weight | 30 kg | 65 kg |
| Accuracy | Within $\pm 0.2$ sec./day at normal temperature |  |
| Operational temperature range | $-20^{\circ} \mathrm{C} \sim+60^{\circ} \mathrm{C}$ |  |
| Input power | $\mathrm{AC}(50 / 60 \mathrm{~Hz})$Time synchronization with the master clock is possible. |  |
| Current consumption | Approx. 1.6A (Including 0.7A for internal illumination) | Approx. 1.9A (Including 0.7A for internal illumination) |
| Internal illumination | FL-32W $\times 1$ (With automatic flasher) |  |
| Display | Magnetic inversion system <br> Changeover between 12-and 24-hour indications |  |
| Power failure backup | Approx. 10hours |  |
| Case | Steel, Metallic brown <br> Front: Transparent glass (Thickness : 3mm) |  |

*Please turn off the illuminating light while the clock is shone directly by the sun in the daytime.

## For Indoor Type



SLC-102W


SLC-122E
Suspended type (Double-faced)

| CONTENTS |  | SPECIFICATIONS |  |
| :---: | :---: | :---: | :---: |
| Model No. |  | SLC-100W (Wall type) SLC-102W (Double-faced type) | SLC-120E (Wall type) SLC-122E (Double-faced type) |
| Digit height |  | 100mm (White) | 120 mm (Orange) |
| Dimensions | Wall type | W620×H170×060mm | W670XH200×D60mm |
|  | Double-faced | W626×H176×D170mm | W676 $\times$ H200 $\times$ D170mm |
| Weight | Wall type | 3.5 kg | 3.8 kg |
|  | Double-faced | 12.5kg | 13.5kg |
| Accuracy |  | Within $\pm 0.2$ sec./day at normal temperature |  |
| Operational temperature range |  | $-10^{\circ} \mathrm{C} \sim+50^{\circ} \mathrm{C}$ |  |
| Input power |  | AC (50/60Hz) <br> Time Synchronization with the master clock is possible. |  |
| Current consumption | Wall type | Approx. 0.1A | Approx. 0.2A |
|  | Double-faced | Approx. 0.2A | Approx. 0.4A |
| Display |  | White / Orange LED Changeover between 12 -and 24-hour indications |  |
| Case |  | Plastic, Yellowish white |  |

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## WEEKLY DIGITAL CLOCK



\section*{WDC-402 <br> | Display | LED (White) |
| :---: | :---: |
| Digital height | Time : 40 mm , Day : 10 mm |
| Dimensions | W260×H125×D64mm |
| Weight | Approx. 1.3kg |

In addition to its single usage, this weekly digital clock is uniquely designed in such a way that it can form an original world time clock by applying multiple units. No need for a master clock since it is a twin synchronous system. (A power box is required when multiple clocks are used to form a world time clock.)
The installation can be either wall type or recessed type. And a map panel of your design can be prepared on request.

## Configuration of Weekly Digital Clock (Simple substance)




Configuration of Weekly Digital Clock (Plurality)


## MORNING ALARM CLOCK



## GT-943 -

GT-943

- To be suitable for hotel use

Easy to make time settings by using the remote controller GT-940RC (optional).
Alarm signal output is available.

- GT-943 is equipped with automatic light regulating sensor.

Remote controler (Optional)

| Outer Dimensions - | W66 $\times$ H111 $\times$ D28 mm |
| :--- | :--- |
| Weight - | Approx. 100 g |
|  | (excluding dry cell batteries |



# OUTDOOR CLOCK 

## டคRGEーSIZEロ யคடட ᄃடロடK（ロபTロロロR／RAINPRロロF）

Dial of a large－sized clock is made of steel except for internal illumination type which is made of acrylic resin．Input signal of a wall type secondary clock is $30-\mathrm{sec}$ ．polarized signal／ DC 3.6 V ． Cost for installation work is not included．Power consumption of $\phi 550$ and $\phi 700 \mathrm{~mm}$ types is 18 mA ，and that of $\phi 900$ and $\phi 1,000 \mathrm{~mm}$ types is 60 mA ．
FC－503
Frame $\quad$ Steel，
Coffee brown color
Cover glass－Pofycarbonate
Thickness $\quad 90 \mathrm{~mm}$
Weight -4.7 kg


FC－903
Frame－Steel
Coffee brown color
Cover glass－Polycarbonate
Thickness－ 150 mm
Weight $\quad 21 \mathrm{~kg}$

## 700－mm Diameter



FC－703


Thickness－ 170 mm
Weight —— 11.5 kg
All the other specs．are the same as those of $\mathrm{FC}-703$ ．
FC－707


Thickness－ 170 mm
Weight $\quad 10.7 \mathrm{~kg}$
All the other specs．are the same as those of FC－707．
FC－7191 지․ Inemal
Frame－Steel，Coffee brown color
Cover glass－Polycarbonate
Thickness－ 170 mm
Weight -11.5 kg


## Visibility Distance



Configuration of Large－Sized Wall Clock


## 700－mm Diameter



FC－7831
Internal illumination type
Frame－Steel，Coffee brown color
Cover glass－Polycarbonate
Thickness－ 300 mm
Weight $\quad 20 \mathrm{~kg}$


FC－7871
Internal illumination type
Frame ——Stainless steel
Cover glass — Polycarbonate
Thickness－ 300 mm
Weight 18.5 kg


FC－7851
Internal illumination type
Frame－Steel，Coffee brown color
Cover glass－Polycarbonate
Thickness－ 300 mm
Weight $\quad 20 \mathrm{~kg}$


FC－7891…
Internal illumination type
Frame ——Steel，Coffee brown color
Cover glass－Polycarbonate
Thickness＿300mm
Weight $\quad 20 \mathrm{~kg}$

## LARGE－SIZED SUSPENDED TYPE CLOCK （ロபTロロロR／RAINPRロロF）

## 700－mm Diameter



FC－7631
Double－faced type with internal illumination

| Frame | Steel， |
| :--- | :--- |
|  | Coffee brown color |
| Cover glass - Polycarbonate |  |
| Thickness -300 mm |  |
| Weight - | 21 kg |
| Input voltage -DC 3.6 V |  |
| Current | $18 \mathrm{~mA} \times 2$ |
| consumption |  |



| Controller | Controller Case |
| :---: | :---: |
| ）단․ |  |
| $1{ }^{1 / 1}$ |  |
| AP－4031 ${ }^{\text {rorts }}$ |  |
| When installing a secondary clock，a controller for exclusive use with it is required（optional）． | QF－BOX |

## Digital Regulation

Gain or loss of the clock controller can be detected and corrected automatically by every zero－setting operation if conducted at regular intervals．This function is called the digital regulation．


Remarks：
In case that an output voltage from a master clock is DC 24 V （except QC－5500 Series），you need a resistor adaptor R－700 or R－900（optional）which has to be connected between the FC－series and the master clock．

## SロLPRーアロயEREロ CடロCK

Wall Type ：Cost for installation work is not included．Double－faced Pole Type ：Cost for pole and installation work are not included．


Double－faced Pole Type


QF－787


Frame－Stainless steel
Cover glass－Polycarbonate
Thickness－ 300 mm
Weight $\quad 18 \mathrm{~kg}$


QF－785
Frame－Steel，Coffee brown color
Cover glass－Polycarbonate
Thickness－ 300 mm
Weight —— 19.5 kg


QF－707
Frame —— Stainless steel
Cover glass — Polycarbonate
Thickness－ 99 mm
Weight $\quad 7 \mathrm{~kg}$

Configuration of Wall Type Solor Clock



Grounding Work（mm）


## SEIKO

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[^0]:    *A hand adjuster is optional.

