

# SEIKO

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## NETWORK CLOCK

### SCN-300,400series

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## INSTRUCTION MANUAL

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Thank you for purchasing SEIKO NETWORK CLOCK.

Before using your SEIKO NETWORK CLOCK, please read this manual carefully for its proper use and care.

Keep this manual handy for ready reference.

SEIKO TIME CREATION INC.

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# 1 Safety

## 1.1 Safety instructions

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- The information in this manual can be changed at any time without previous notice.
- This manual has been composed with utmost care, in order to explain all details in respect of the operation of the product. Should you, nevertheless, have questions or discover errors in this manual, please contact us.
- We do not answer for direct or indirect damages, which could occur through incorrect use of this manual.
- Please read the instructions carefully before setting-up of the product, only once you have correctly understood all information for the installation and of the operation.
- Keep this instruction manual in a safe place to have it handy every time you need it.
- The installation must only be carried out by a skilled person.

## 1.2 Symbols and Signal Words used in this Instruction Manual

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	<b>Caution!</b> Please observe this safety message to avoid damages to property and devices!
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### **1.3 Observe operating safety!**

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- Do not modify your clock!
- If you cannot rectify the problems, contact your supplier from whom you have purchased the device. Any repairs must be carried out at the manufacturer's plant.
- Disconnect the power supply immediately and contact your supplier, if liquid has entered your clock.

### **1.4 Consider the installation site!**

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- To avoid any operating problems, keep the clock away from moisture and avoid dust, heat, and direct sunlight.
- Through operation, the clock can warm up. Make sure to provide enough air circulation to divert the warmth.
- Please make sure that the structure of the attached structure can withstand the weight of this product. If installed in a place with low strength, products may fall due to wind pressure or vibration, resulting in injury to persons.

## 2 Maintenance

- Please keep in a place with no moisture.
- Clean the cover glass with wet (leather-) cloth.
- Never use solvents, aerosol or organic cleaning products.
- The frame can be cleaned with standard cleaning agents.

### 3 General Information: Introduction

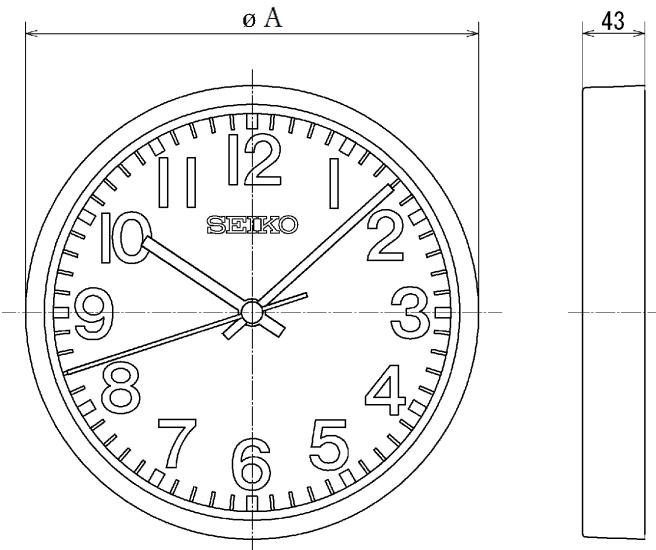
The SCN series are self-setting clock with hour, minute and second hand. It is network compatible and can be synchronized using NTP (Network Time Protocol).

#### **Features:**

- Single-sided (SCN-300/SCN-400) and Double-sided (SCN-360)
- Synchronization using an NTP server in the network.
- PoE (Power over Ethernet) power supply.
- Automatic takeover of the network configuration.  
Alternatively, the network configuration can be set manually using the PC tool “Clock Setup Tool”.
- Automatic daylight saving time change according to a predefined rule.  
The rules can be programmed using the PC tool “Clock Setup Tool”.
- Two motors for minute / hour hand and second hand.
- Operation mode of the minute hand selectable over “Clock Setup Tool”.

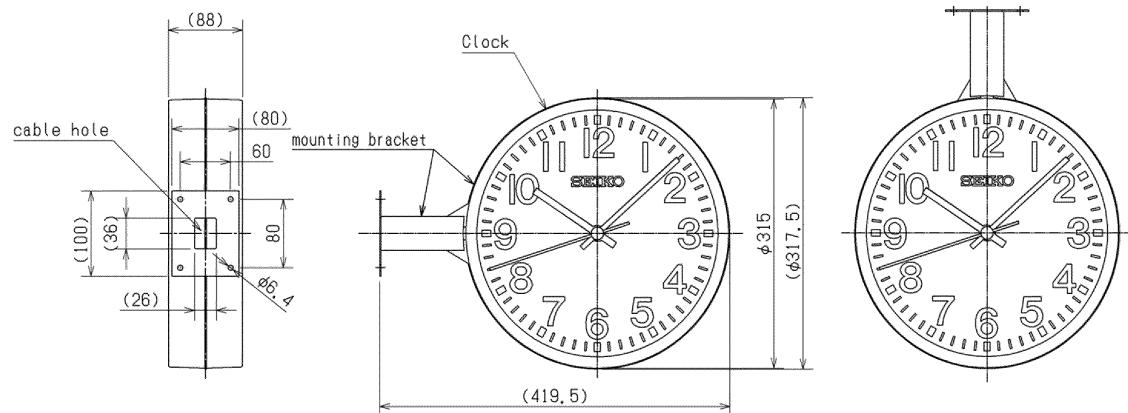
## 4 Dimensions

### 4.1 Single-sided clock



	ø A [mm]	Weight [kg]
SCN-300	315	Approx. 0.9
SCN-400	415	Approx. 1.4

### 4.2 Double-sided clock

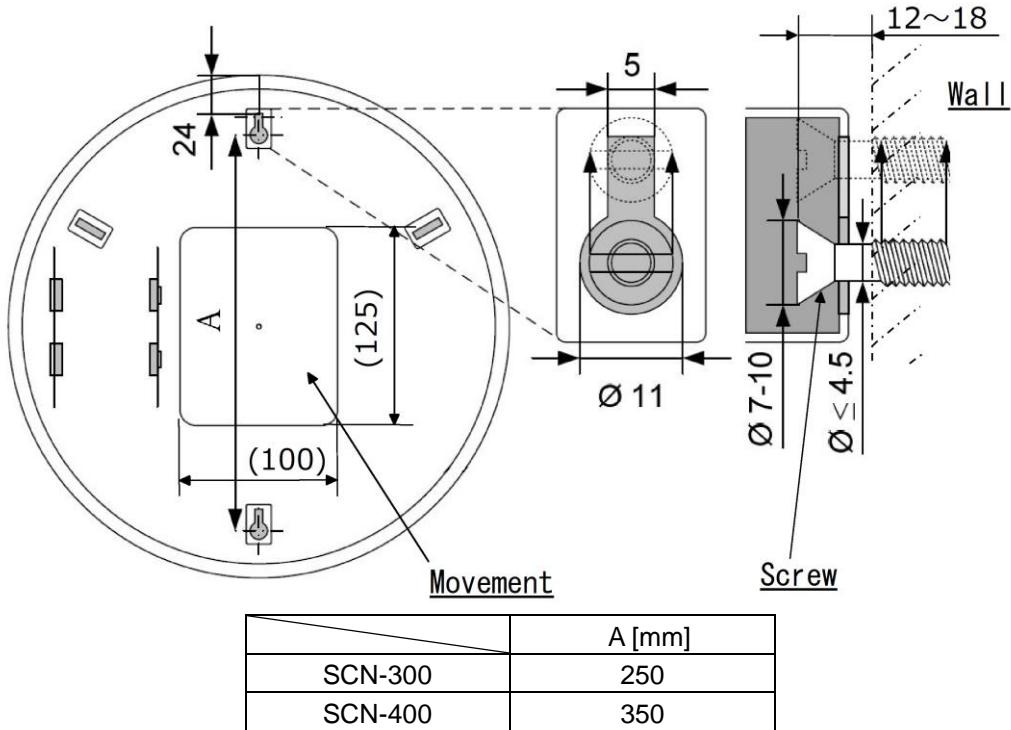


Weight [kg] : Approx. 3.5

## 5 Mounting guidelines

### 5.1 Single-sided clock

#### 5.1.1. Mounting



When fixing to the wall, the head of the screw should protrude 12 to 18 mm from the wall.

The position of the hole in the wall where the LAN cable is pulled out should avoid the area of the movement.

Do not press the movement with the LAN cable.

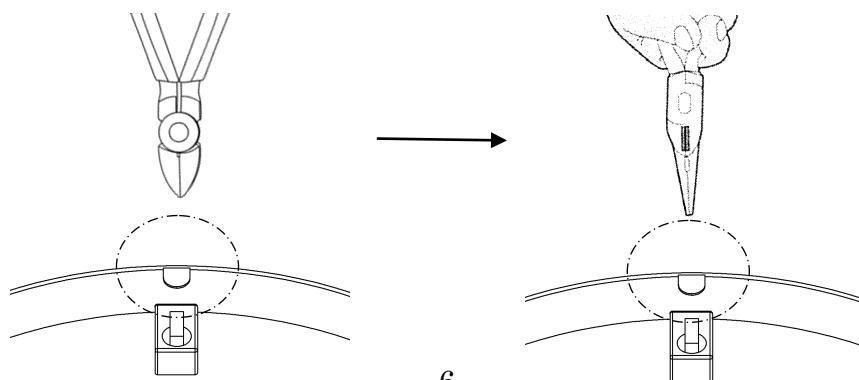
If you run the LAN cable along the wall, make a hole in the side of the clock.

Use a nipper to cut the thin part of the frame where the LAN cable passes.

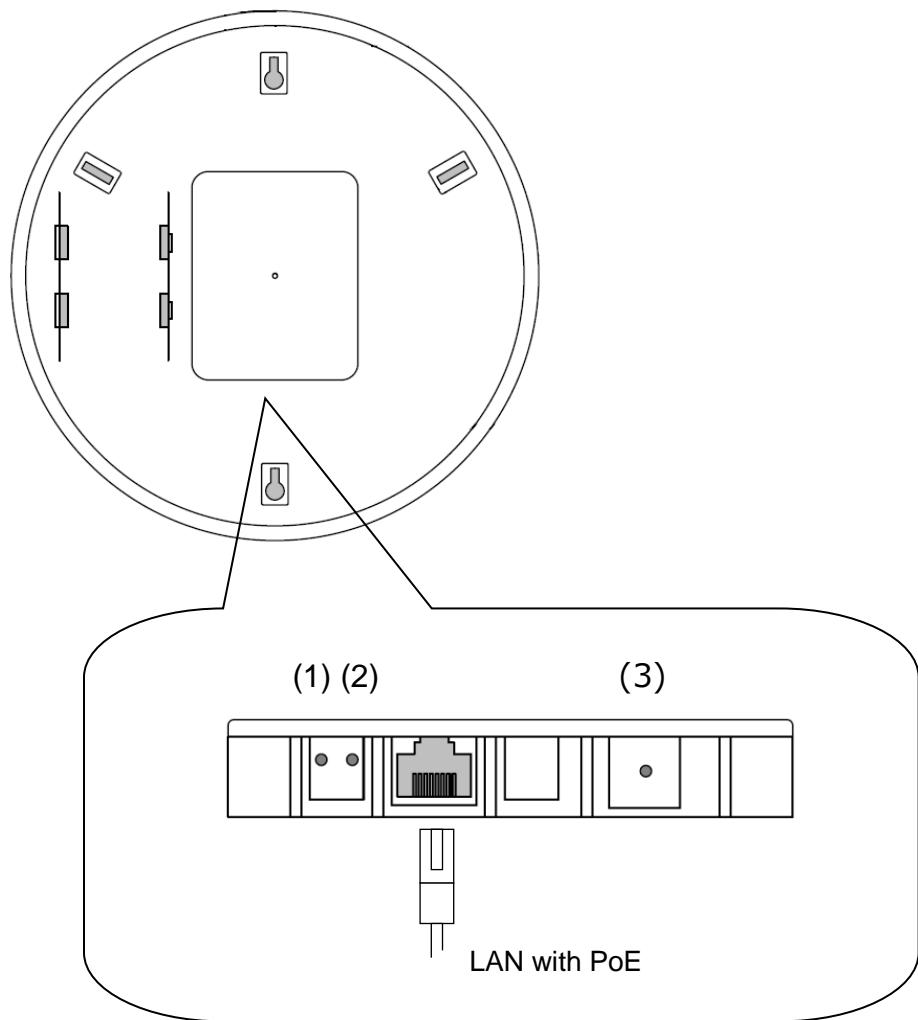
(There are four thin parts of the frame.)

Fold the thin part with long-nose pliers. At this time, support with your finger so that the frame does not break.

When finishing with a file, be careful not to let any debris enter the interior of the clock or movement.



### 5.1.2. Connections



- (1) data activity LED (yellow)
- (2) connection LED (green)
- (3) reset button

The Clock features a push- button on rear side.

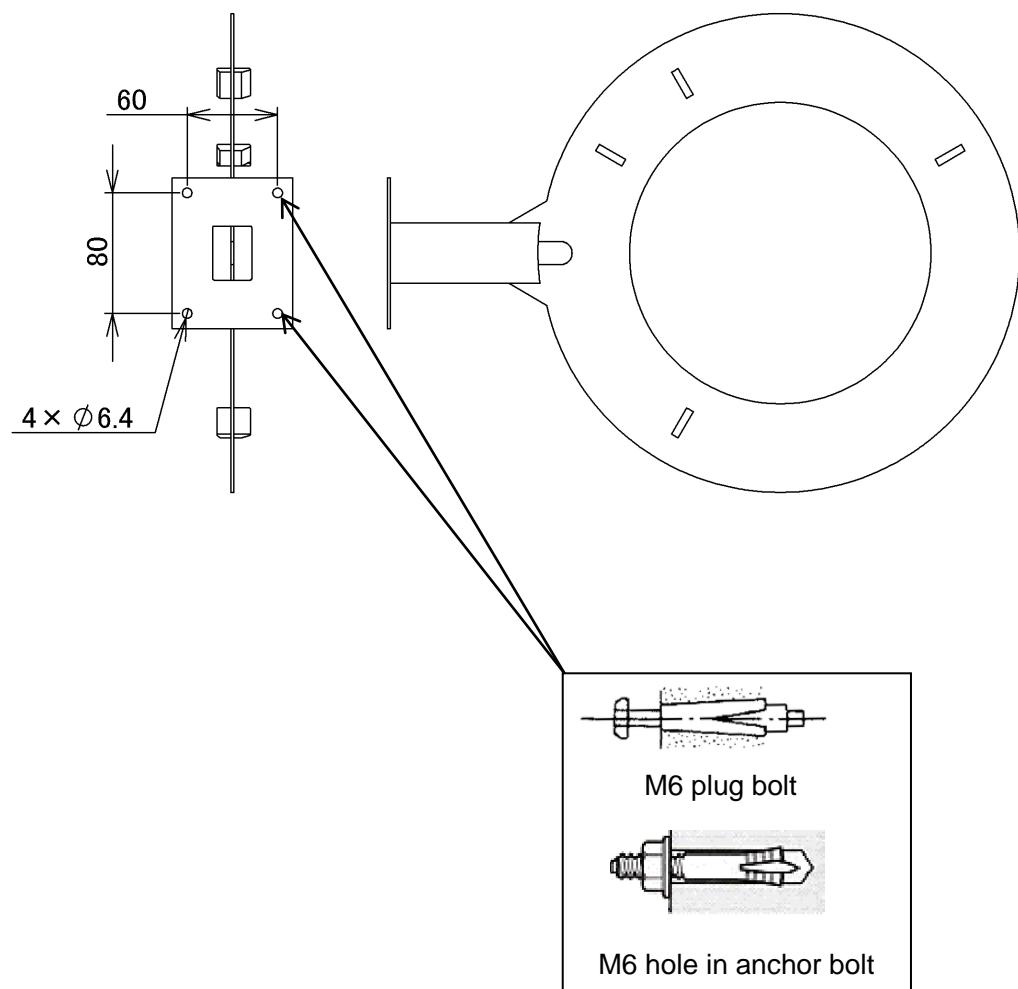
To carry out a software reset, the push- button must be held down for 3 seconds.  
If the push- button is held down for 10~20 seconds, the factory settings are loaded.  
(See manual of Clock Setup Tool)

## 5.2 Double-sided clock

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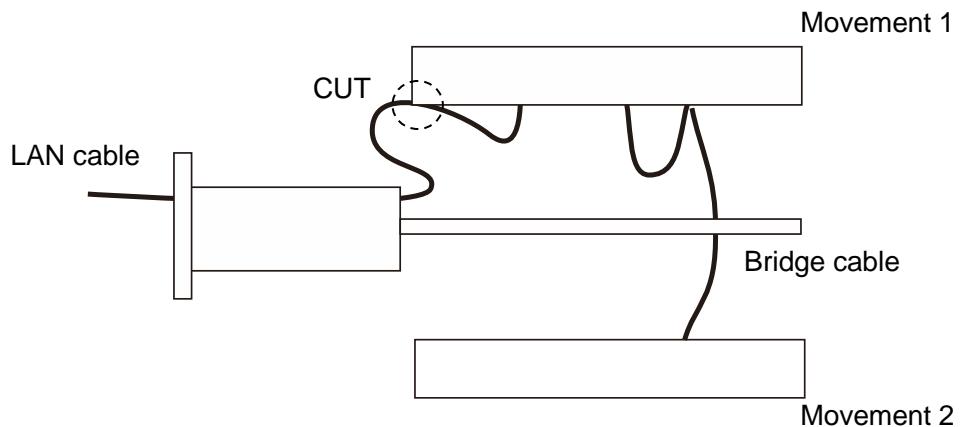
### 5.2.1. Mounting

Fix the mounting bracket with the M6 plug bolt or anchor bolt M6 hole according to the material and strength of the wall or ceiling.



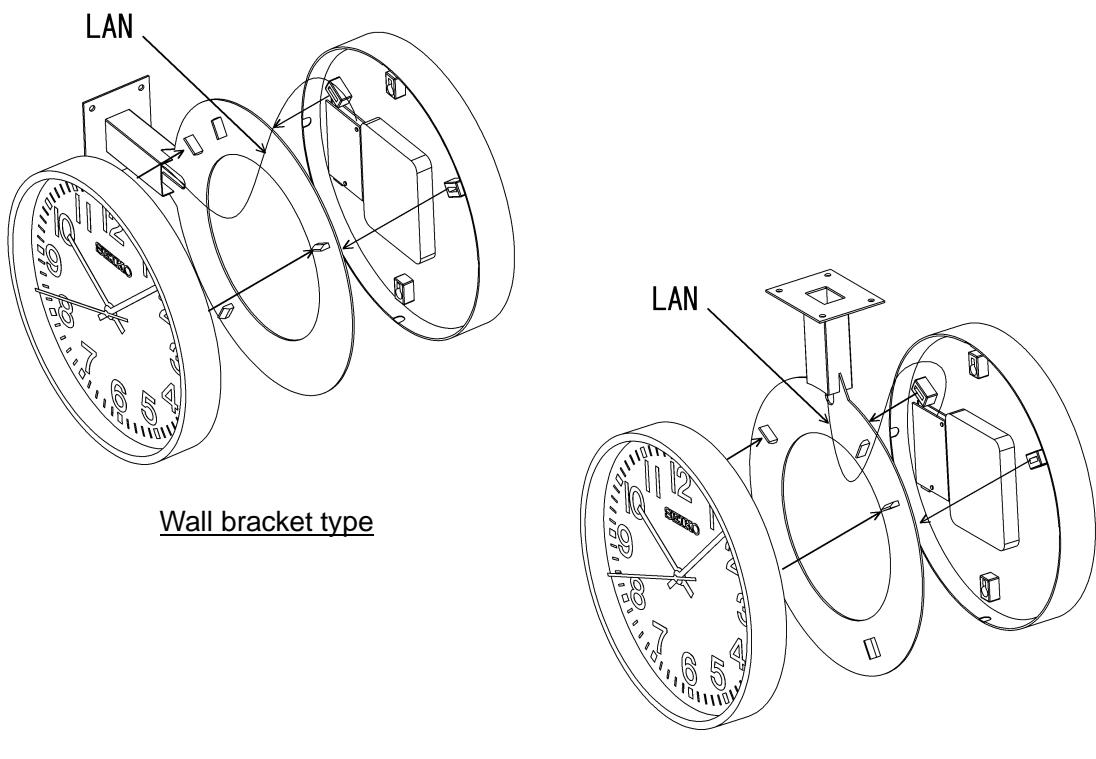
Next, make a hole in the side of the clock.

Use a nipper to cut the thin part of the frame where the LAN cable passes.  
(See single-sided clock)

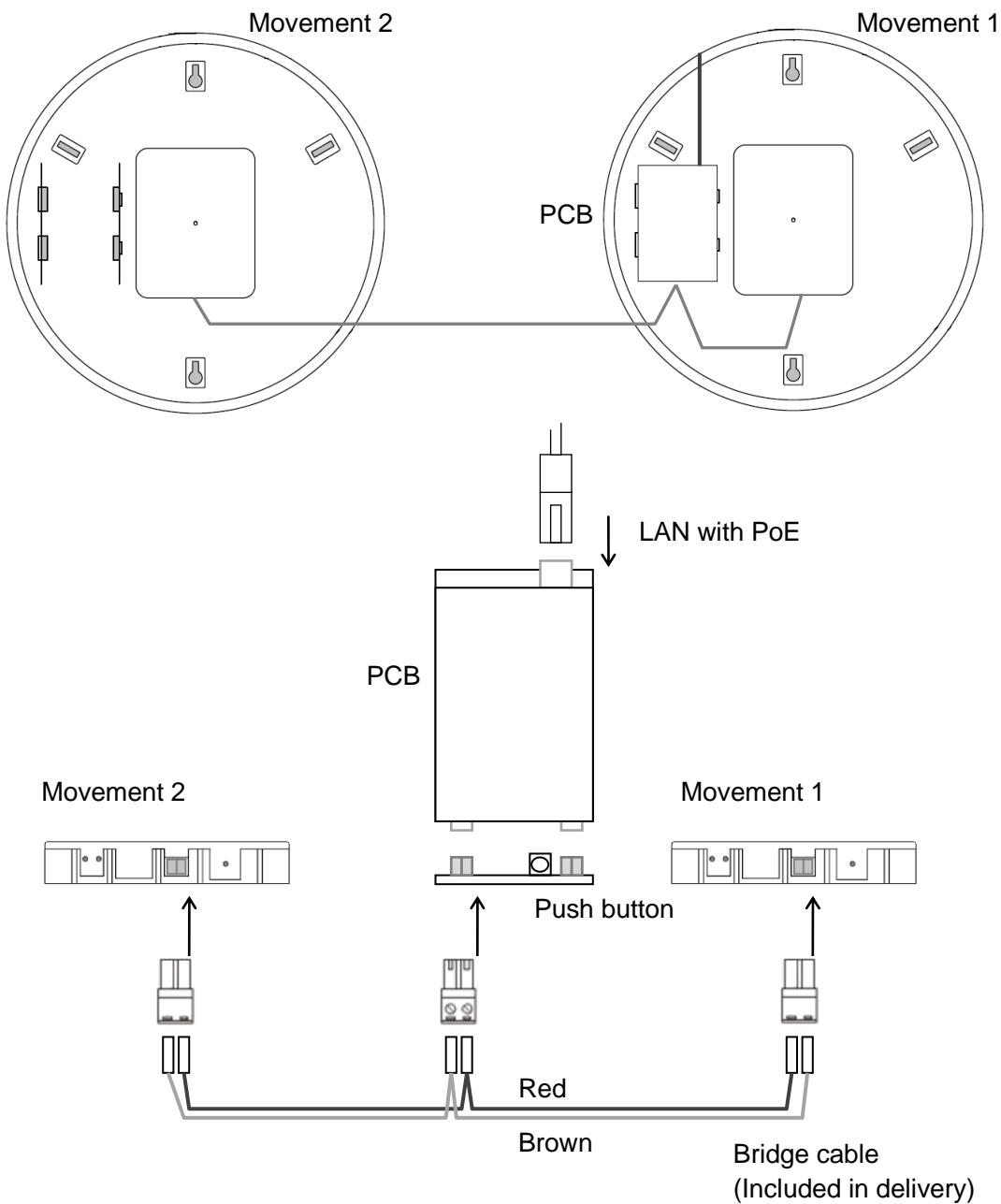


Pass the LAN cable through the mounting bracket and connect the LAN cable to the PCB connector.

Install the clock by pushing it into the mounting bracket.



### 5.2.2. Connections



The cabling must correspond to the above drawing.

The Clock features a push- button on PCB.

To carry out a software reset, the push-button must be held down for 3 seconds.  
 If the push-button is held down for 10~20 seconds, the factory settings are loaded.  
 (See manual of Clock Setup Tool)

# 6 Configuration

## 6.1 Overview

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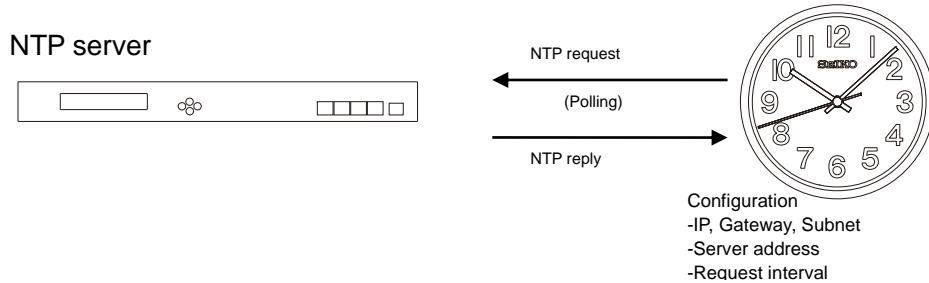
The clock is configured via PC tool “Clock Setup Tool”.  
Additionally, parameters can be given via DHCP.

## 6.2 NTP behavior

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The clock possesses a network connection and is synchronized to UTC (Coordinated Universal Time from an NTP server.

This operating mode supports the monitoring and configuration of the clock through the network connection.



The configuration can be carried out automatically by a DHCP server or manually using the software “Clock Setup Tool”.

## 7 Operation behavior

### 7.1 Power supply

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The clock can be supplied through PoE (Power over Ethernet) from a switch.  
As an alternative to the PoE switch, a PoE injector can be used.

### 7.2 DHCP

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The Clock tries to obtain the network configuration from a DHCP server. The DHCP options are automatically evaluated.  
It is the task of the network administrator to configure the DHCP options accordingly.

The clock will try to obtain the following network parameters from a DHCP server:

- [50] IP address
- [3] Gateway address
- [1] Subnet mask

### **7.3 Local time calculation**

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The clock is synchronized to UTC (Coordinated Universal Time). In order to calculate and display the local time, the Clock requires additional information in the shape of a time zone entry.

The clock can save 1 time zone entry which can be edited over the network using the PC tool “Clock Setup Tool”.

### **7.4 Accuracy / Loss of synchronization**

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The deviation in the synchronized state is usually smaller +/-50ms.

The clock is notified by indicating that 12 o'clock, 24 hours passed since synchronization was lost.

The deviation after 24 h without synchronization is typically smaller +/-2 s (quartz accuracy: 20 ppm at room temperature).

Notice: The mentioned deviations depend on the accuracy and performance of the time source (NTP server). The NTP reception can be influenced by the network load and devices (hub, switch, router, firewall, etc.).

### **7.5 Redundant time source**

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The availability of NTP servers as time source can be improved through a redundant operation in the network.

As a DHCP option or through manual configuration (“Clock Setup Tool”), up to four different NTP server addresses can be announced to the Clock. If three time requests in a row are not answered by the current server, the interface switches to the next server (if available). The duration until the change is dictated by the set request interval (default: 3 x 10 seconds). After a restart of the interface, the request begins at the first server.

## 8 Time zone table

Time zone	City / State	UTC Offset	DST Change	Standard → DST	DST → Standard
00	UTC (GMT), Monrovia	0	No		
01	London, Dublin, Lisbon	0	Yes	Last Sun. Mar. (01:00)	Last Sun. Oct. (02:00)
02	Brussels, Amsterdam, Berlin, Bern, Copenhagen, Madrid, Oslo, Paris, Rome, Stockholm, Vienna, Belgrade, Bratislava, Budapest, Ljubljana, Prague, Sarajevo, Warsaw, Zagreb	+1	Yes	Last Sun. Mar. (02:00)	Last Sun. Oct. (03:00)
03	Athens, Helsinki, Riga, Tallinn, Sofia, Vilnius	+2	Yes	Last Sun. Mar. (03:00)	Last Sun. Oct. (04:00)
04	Bucharest	+2	Yes	Last Sun. Mar. (03:00)	Last Sun. Oct. (04:00)
05	Pretoria, Harare, Kaliningrad	+2	No		
06	Amman	+2	Yes	Last Thu. Mar. (23:59)	Last Fri. Oct. (01:00)
07	UTC (GMT)	0	No		
08	Istanbul, Kuwait City, Minsk, Moscow, Saint Petersburg, Volgograd	+3	No		
09	Praia, Cape Verde	-1	No		
10	UTC (GMT)	0	No		
11	Abu Dhabi, Muscat, Tbilisi, Samara	+4	No		
12	Kabul	+4.5	No		
13	Adamstown (Pitcairn Is.)	-8	No		
14	Tashkent, Islamabad, Karachi, Yekaterinburg	+5	No		
15	Mumbai, Kolkata, Chennai, New Delhi, Colombo	+5.5	No		
16	Astana, Thimphu, Dhaka, Novosibirsk	+6	No		
17	Bangkok, Hanoi, Jakarta, Krasnoyarsk	+7	No		
18	Beijing, Hong Kong, Singapore, Taipei, Urumqi, Irkutsk	+8	No		
19	Tokyo, Seoul, Yakutsk	+9	No		
20	Gambier Island	-9	No		
21	South Australia: Adelaide	+9.5	Yes	1st Sun. Oct (02:00)	1st Sun. Apr. (03:00)
22	Northern Territory: Darwin	+9.5	No		
23	Brisbane, Guam, Port Moresby, Vladivostok	+10	No		
24	Sydney, Canberra, Melbourne, Tasmania: Hobart	+10	Yes	1st Sun. Oct. (02.00)	1st Sun. Apr. (03:00)
25	UTC (GMT)	0	No		
26	UTC (GMT)	0	No		
27	Honiara (Solomon Is), Magadan, Noumea (New Caledonia),	+11	No		
28	Auckland, Wellington	+12	Yes	Last Sun. Sep. (02:00)	1st Sun. Apr. (03:00)
29	Majuro (Marshall Is.), Anadyr	+12	No		
30	Azores	-1	Yes	Last Sun. Mar. (00:00)	Last Sun. Oct. (01:00)
31	Middle Atlantic	-2	No		
32	Brasilia	-3	Yes	3rd Sun. Oct. (00:00)	3rd Sun. Feb. (00:00)

Time zone	City / State	UTC Offset	DST Change	Standard → DST	DST → Standard
33	Buenos Aires	-3	No		
34	Newfoundland	-3.5	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
35	Atlantic Time (Canada)	-4	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
36	La Paz	-4	No		
37	Bogota, Lima, Quito	-5	No		
38	New York, Eastern Time (US & Canada)	-5	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
39	Chicago, Central Time (US & Canada)	-6	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
40	Tegucigalpa, Honduras	-6	No		
41	Phoenix, Arizona	-7	No		
42	Denver, Mountain Time	-7	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
43	Los Angeles, Pacific Time	-8	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
44	Anchorage, Alaska (US)	-9	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
45	Honolulu, Hawaii (US)	-10	No		
46	Midway Islands (US)	-11	No		
47	Mexico City, Mexico	-6	Yes	1st Sun. Apr. (02:00)	Last Sun. Oct. (02:00)
48	Adak (Aleutian Is.)	-10	Yes	2nd Sun. Mar. (02:00)	1st Sun. Nov. (02:00)
49	UTC (GMT)	0	No		
50	UTC (GMT)	0	No		
51	UTC (GMT)	0	No		
52	UTC (GMT)	0	No		
53	UTC (GMT)	0	No		
54	Ittoqqortoormiit	-1	Yes	Last Sun. Mar. (00:00)	Last Sun. Oct. (01:00)
55	Nuuk, Qaanaaq, Greenland	-3	Yes	Last Sat. Mar. (22:00)	Last Sat. Oct. (23:00)
56	Myanmar	+6.5	No		
57	Western Australia: Perth	+8	No		
58	Caracas	-4.5	No		
59	CET standard time	+1	No		
60	Not used				
61	Not used				
62	Baku	+4	Yes	Last Sun. Mar. (04:00)	Last Sun. Oct. (05:00)
63	UTC (GMT)	0	No		
64	UTC (GMT)	0	No		

※ SCN-300,400 software version 2.07～ / SCN-360 software version 2.05～

## 9 Technical data

### SCN-300, SCN-400

Mounting	Wall Mounting
Version	Single-sided
Illumination	none
Hands	3hands:H/M/S (second hand; step handling)
Time accuracy	Synchronized: <±100ms Unsynchronized: <±3 seconds / day (Reference value)
Material	Case: plastic Dial: PVC white Hands: plastic Dial Cover: transparent glass
Color	Case: gray white RAL 9002 Dial: white Hands: hour and minute: black, second: blue Pantone 294
Synchronization	Network Time Protocol (NTP)
Synchronization rate	10 - 999s
Power supply	LAN(PoE)
Power Consumption	MAX. 4W
Temperature range	-10 to +55°C
Dimension	SCN-300 : Ø 315mm x 43mm (D)
	SCN-400 : Ø 415mm x 43mm (D)
Weight	SCN-300 : Approx. 0.9kg
	SCN-400 : Approx. 1.4kg

※IPv6 is not supported

## **SCN-360**

Mounting	Ceiling / Wall bracket Mounting
Version	Double-sided
Illumination	none
Hands	3hands:H/M/S (second hand; step handling)
Time accuracy	Synchronized: <±100ms Unsynchronized: <±3 seconds / day (Reference value)
Material	Case: plastic Dial: PVC white Hands: plastic Dial Cover: transparent glass Mounting bracket: steel
Color	Case: gray white RAL 9002 Dial: white Hands: hour and minute: black, second: blue Pantone 294C Mounting bracket: gray white RAL 9002
Synchronization	Network Time Protocol (NTP)
Synchronization rate	10 - 999s
Power supply	LAN(PoE)
Power Consumption	MAX. 4W
Temperature range	-10 to +55°C
Dimension	Ø 315mm x 88mm (D)
Weight	Approx. 3.5 kg

※IPv6 is not supported

If you have any question, inquiry or request for repair regarding the Clock, please contact your SEIKO dealer or agent.

**SEIKO TIME CREATION INC.**

<https://www.seiko-stc.co.jp>