

Instruction Manual

Compact User Interface

CI



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Visit our Internet pages at www.vaisala.com.

General safety considerations



Warning! If this device is used against manufacturer's instructions, user safety may be compromised.

Warranty

For standard warranty terms and conditions, see www.vaisala.com/warranty.

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- Name and location of the installation site
- Name and contact information of a technical person who can provide further information of the problem

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Disposal

When wishing to dispose of an obsolete instrument or any parts of an instrument, please observe local and national regulations and requirements for the disposal of electrical and electronic equipment.



Symbols and terms used in this manual:



This indicates a **warning**. It provides safety precaution information needed to avoid injury while operating the refractometer system.



This indicates that something is **important** for the operation of the refractometer system.

Note. Notes contain additional information and hints.

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1 Description

The Compact user interface CI is a compact, light-weight display for monitoring and operating a Vaisala K-PATENTS® refractometer. It is ideal for applications where prism wash and additional inputs/outputs are not needed. CI is operated by the touch-screen display. It is mainly intended for control room environment. There is a protective cover available for industrial environment. CI has IP66 rating. An epoxy coated version of the CI is recommended for field installations.



Figure 1.1 Compact user interface CI

2 Mounting

The Compact user interface CI can be mounted on a wall with a wall mounting adapter or on a VESA 200x100 wall mounting arm, or on a table with a table stand. It also has a panel mounting option. The mounting location should be easily accessible.

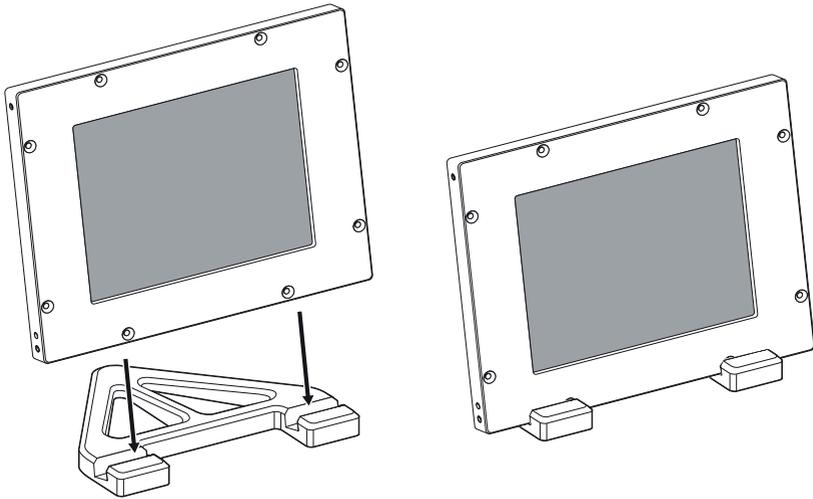


Figure 2.1 Table stand

If the Compact user interface is installed in an industrial environment instead of a control room, a protective display shield is recommended. To mount the display shield, first screw two M5x 12 DIN912 A2 screws in upper two holes of the CI frame. Then install the hinges and shield to lower M5 holes with M5x12 ISO 14581 TX A2 screws.



Figure 2.2 VESA wall mounting adapter

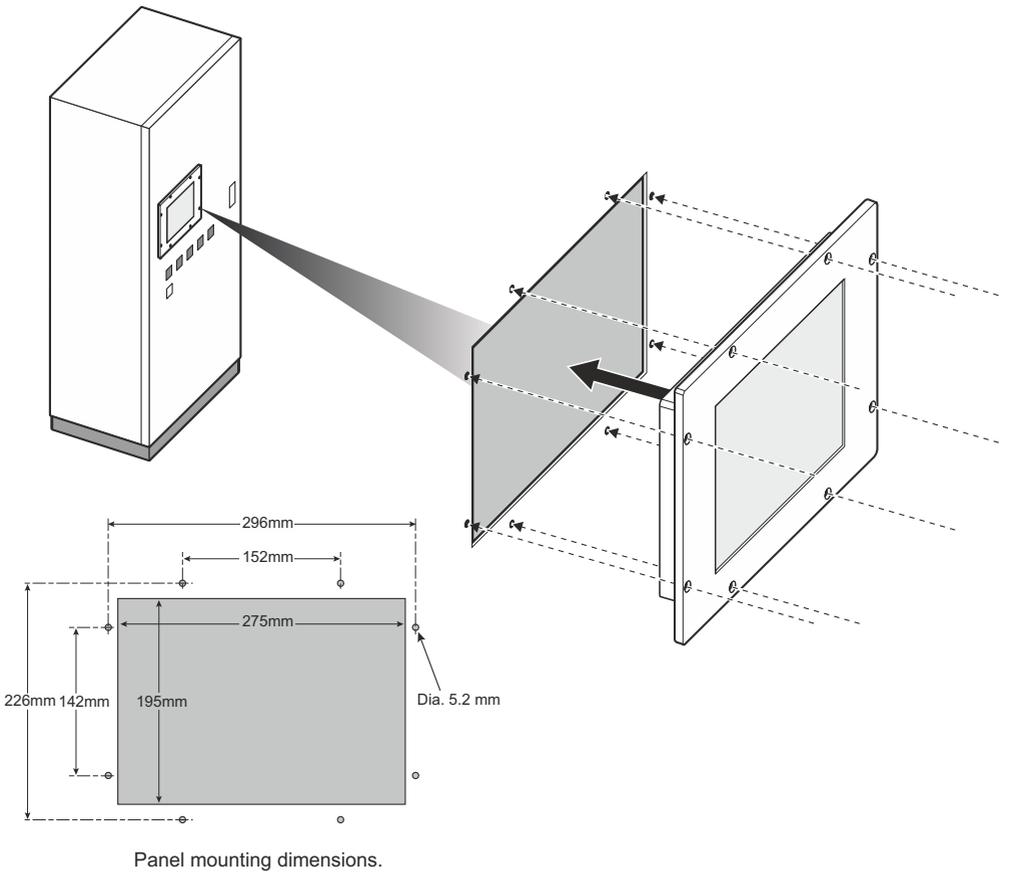


Figure 2.3 Panel mounting option

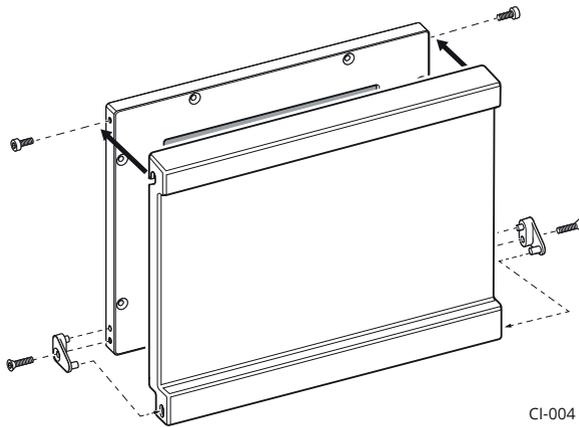
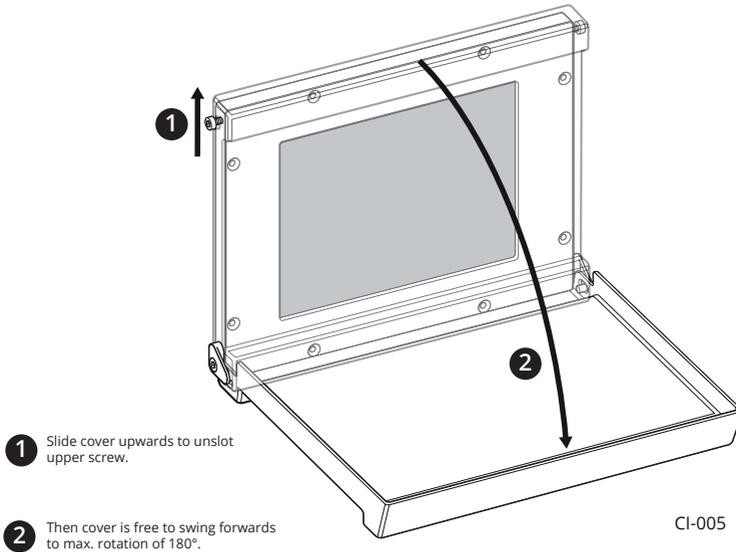


Figure 2.4 Display shield installation

CI-004



- 1** Slide cover upwards to unslot upper screw.
- 2** Then cover is free to swing forwards to max. rotation of 180°.

Figure 2.5 Opening the display shield

CI-005

2.1 Connections

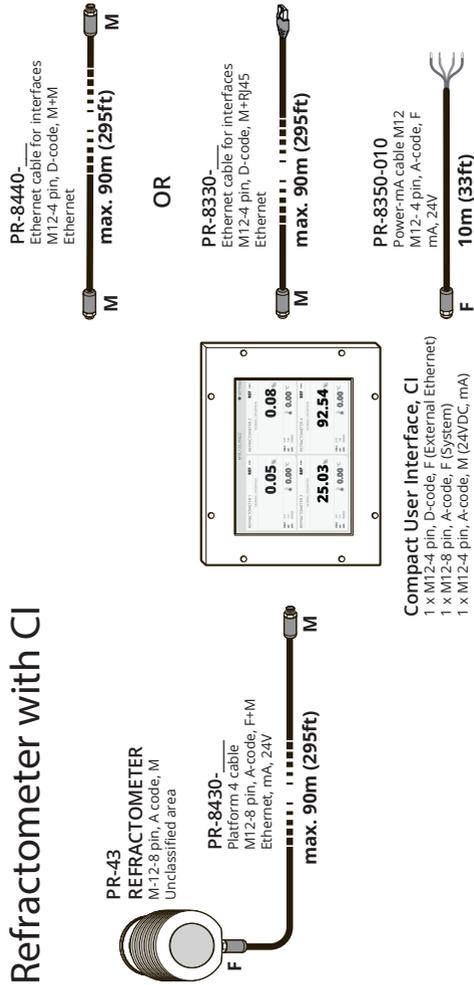


Figure 2.6 CI connections

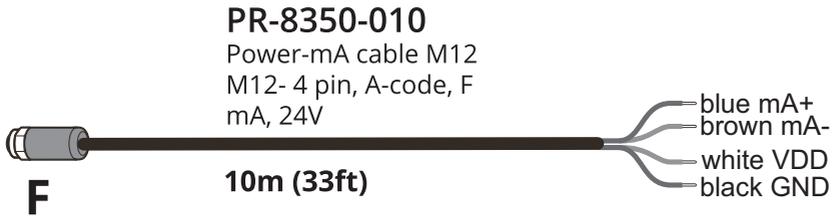


Figure 2.7 Connecting CI to power

2.1.1 Refractometer cable connection

The refractometer is connected to the CI with a Platform 4 cable PR-8430, a M12 male-female 8 pins A-coded cable. Refractometer connection can be made while the CI is powered. The maximum length of the PR-8430 cable is 90 meters (295 ft), but with a Platform 4 cable extender PR-8660 another max. 90 meters long Platform 4 cable can be added, bringing the maximum total length to 180 meters (590 ft).

2.1.2 Ethernet cable connection

If you wish to connect the CI with e.g. a laptop, you can purchase Interconnecting cable PR-8330 with a M12-4-pin connector in one end and a RJ-45 connector in the other end. The ethernet connection is used to get access to the CI web pages.

3 Use

Power up the CI. A startup display shows briefly, then the CI goes into the Main display. The CI is operated by tapping the touch screen. If you find that the touch screen is difficult to use with fingers, try tapping it with e.g. the blunt end of a pen or use your nail instead of the whole fingertip. The screen works even when you are wearing gloves.



Figure 3.1 Compact user interface displays

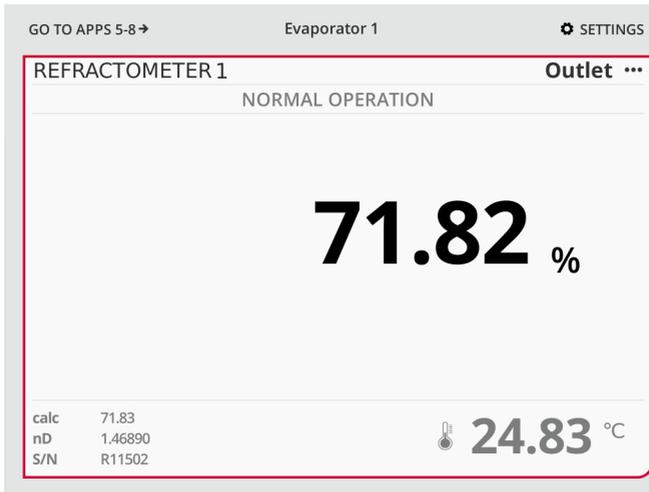


Figure 3.2 Access application data and configuration by tapping application window

3.1 Refractometer connection

Refractometer's connection to the CI is configured under the title *Instrument* in the *Settings > Network* menu. By default the refractometer's IP address is configured via BOOTP server running on the CI. To reconnect a refractometer you can just replug its cable to the CI – the IP address is configured automatically. Refractometer connection can be made while the CI is powered.

3.2 Activating and removing apps

The Main display may be empty even when a refractometer is connected to the CI. This means that an application must be activated. Go to *Settings > Applications*, tap on the empty application slot and select the app type and source for that slot. After choosing settings for the app, tap *Done* to exit the setup.

Note: Activating Recipe app is not possible in the Compact user interface CI. Recipe app requires external inputs provided by the Multichannel user interface MI.

The empty application slot may contain an earlier app configuration. In that case a dialog will open during app activation and the earlier app configuration can be re-enabled. If necessary the app can also be removed. Go to *Settings > Applications* and tap *Remove* on the application slot. Accept the removal by tapping *Ok*. The removed app's configuration will be saved until another kind of application is added to the same slot.



Figure 3.3 Empty Main display. Tap *Settings* to activate an app

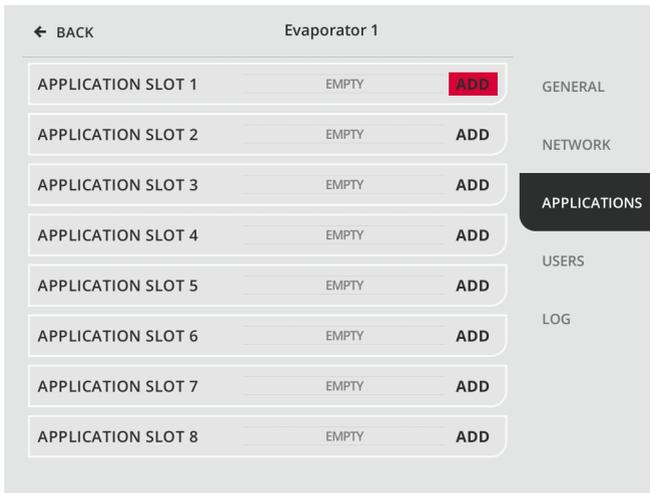


Figure 3.4 Selecting an empty application slot to activate the app



Figure 3.5 Selecting a source to activate the app, here application type *Ref* is already selected

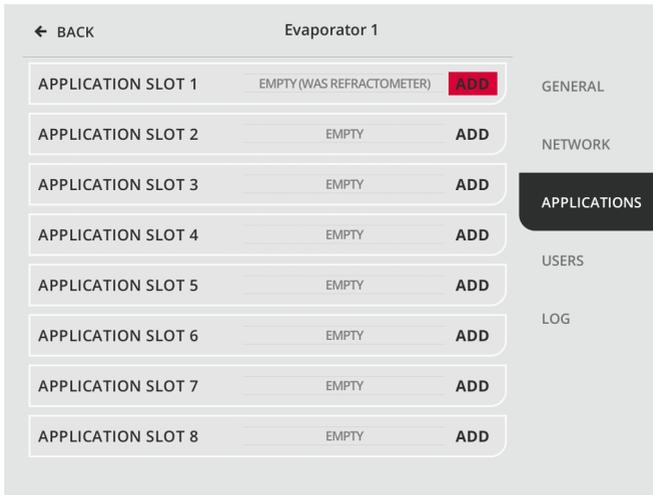


Figure 3.6 Selecting an empty application slot that contains old refractometer app configuration

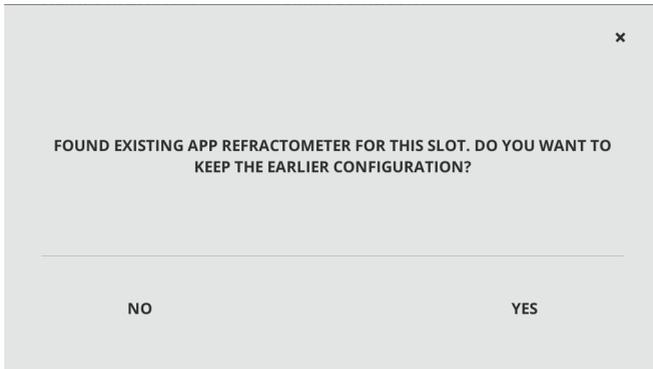


Figure 3.7 The earlier app configuration can be re-enabled

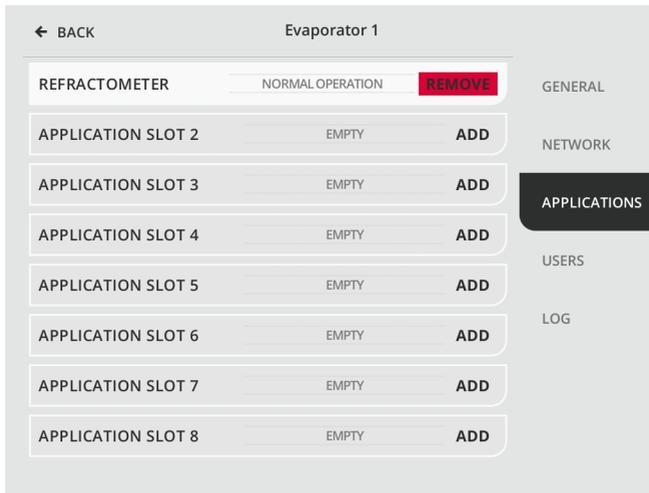


Figure 3.8 If necessary, the app can also be removed

3.3 Configuring mA output

To set the mA output values tap anywhere in the application window and then select *Calibration* > *Sensor*. In the list, tap the parameter you want to change, type the new numbers with the number pad and approve the change by tapping *Done*. Minimum and maximum values set the measurement range. If your measurement unit is CONC% and you want to measure the range 15–25 CONC%, the output signal for minimum 15 will be 4 mA and for maximum 25 it'll be 20 mA. Default mA sets an mA default output value that the refractometer returns to in certain situations. The value can be set to a low or high mA value, e.g. 3.0 mA or 22 mA.

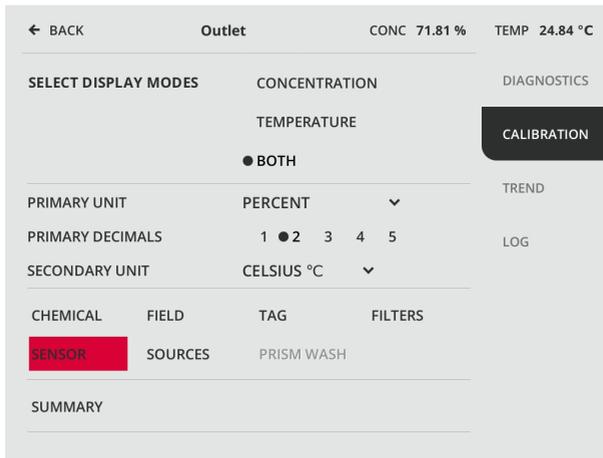


Figure 3.9 Select *Sensor* on Calibration display to configure mA output

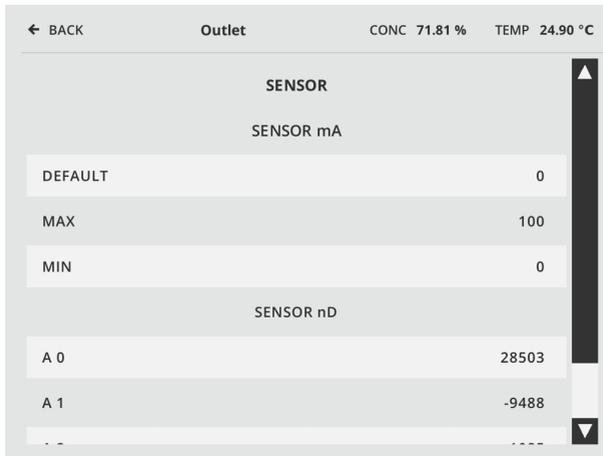


Figure 3.10 Configure the mA output parameters

3.4 Managing users

Some functions of the CI, e.g. calibration, are only available to a user who is logged into the system. The **master user password is written on the delivery data sheet** that is shipped with the CI. However, K-Patents recommends that a user name and a password is set separately for every user who needs to have frequent access to the restricted functions. Go to *Settings*, then select *Users* to add and remove users. To add a new user, tap *+ Add user*. To remove a user, tap the name of that user, then *Remove user*.

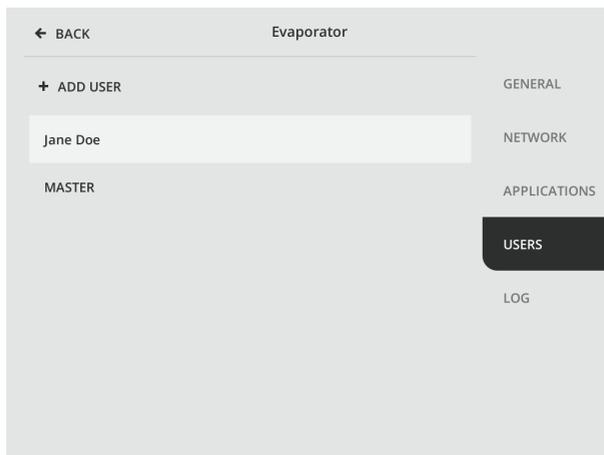


Figure 3.11 Users display

3.5 Ethernet connection

The CI has a built-in web server with a home page. The CI home page allows you to browse files or upload an update or a license file. To access the CI web page use IP address found under the title *Ethernet* in the *Settings > Network* menu.

The default *IP address mode* setting for the CI is *Auto*. In this mode the CI gets the IP address from an external DHCP server. If that fails the IP address will fall back to a static IP setting. Alternatively *IP address mode: Static* configures the CI to use a static IP address only. After choosing settings for the network, tap *Apply* to save all settings.

After factory reset the default IP address of the CI is 192.168.1.11.

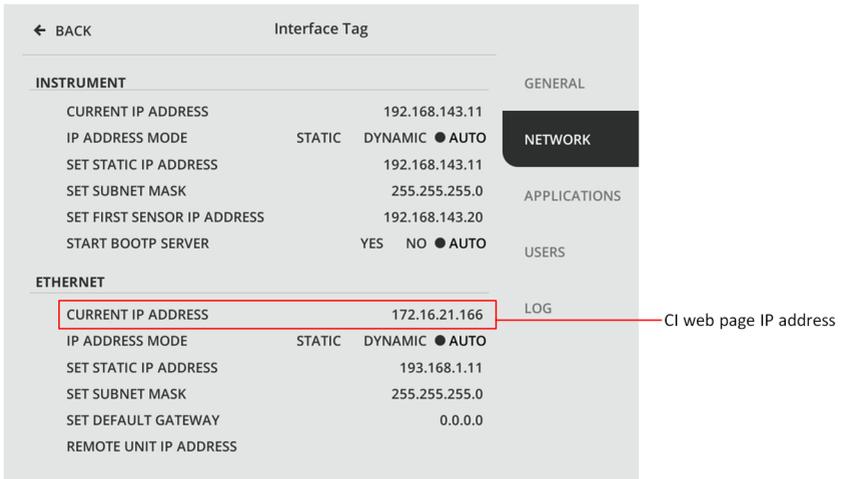


Figure 3.12 To access the CI web page use the IP address found in the *Settings > Network* menu

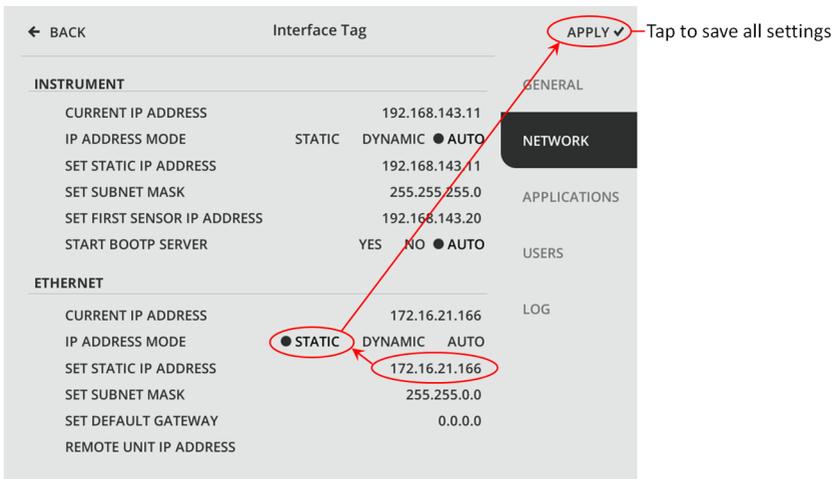


Figure 3.13 Steps to configure a static IP address for CI

4 Maintenance

4.1 Battery replacement

A small Lithium battery keeps time in the Compact user interface CI when it isn't powered. Vaisala recommends that this battery is replaced every five years.

Note: Only instrument timekeeping is affected by the battery, i.e. trends, log and verification may get wrong times if the CI has been powered off with an empty battery. Measurement is not affected.

To replace the battery, you need a Lithium CR2032, 3V battery and a Torx TX20 screw driver.

1. Place the CI on a table face down.
2. Open the screws in the four corners of the backplate.
3. Carefully move the backplate away from you to expose the battery.
4. Replace the battery. + sign comes on top.
5. Move the backplate back in place. Make sure that all the cables are inside the backplate, then screw on the backplate.
6. Turn on the CI, check time and adjust as needed in the instrument settings.

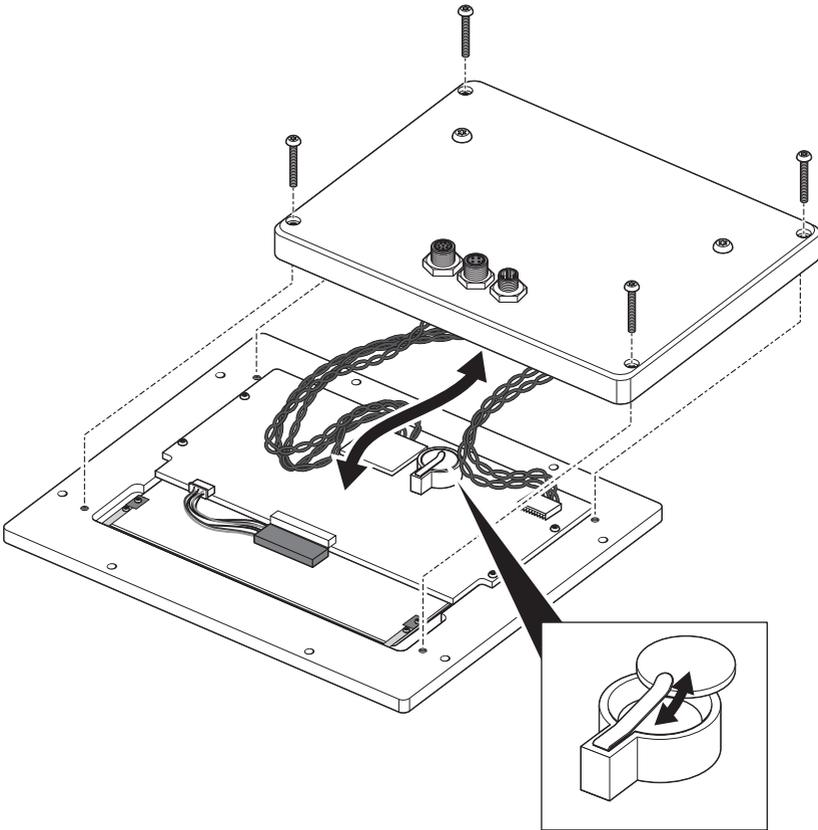
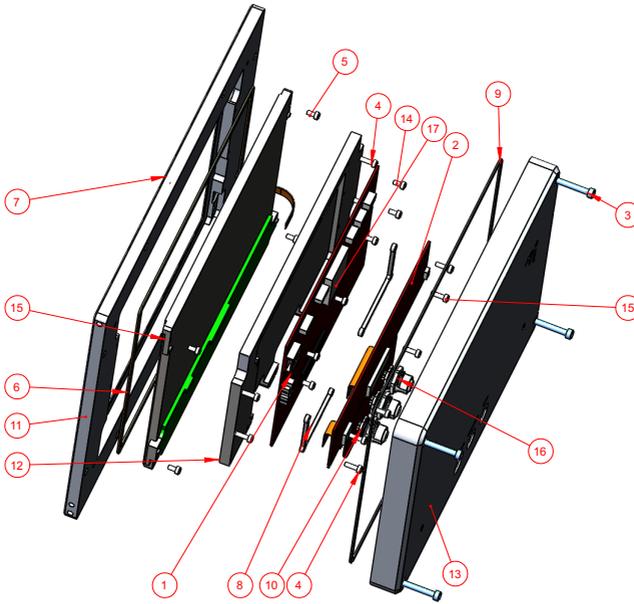


Figure 4.1 Battery replacement



Item No.	Part Number	Description	Qty
1	3117	MI Processor card PR-50018	1
2	3118	MI Display adapter card PR-50029	1
3		DIN7985 TX A2 M4x25 Screw	4
4		DIN7985 TX A2 M3x10 Screw	10
5		DIN7985 TX A2 M2.5x6 Screw	6
6	3494	MTR display gasket	1
7	3603	MI flat sticker	1
8	3461	MI PCB spacer	2
(8)	(Optional)	Spacer M3x3.1mm	6
9	3633	MI door back sealing	1
10	3655	LI connector card PR-50042	1
		Including FPM O-ring(3pcs)	
11	2895	MI door frame	1
12	3116	MI door middle frame	1
13.1	3436	LI backplate, anodized	1
13.2	3984(EC)	LI backplate, Epoxy coated	1
14		DIN7985 TX A2 M3x6 Screw	6
15	3755	CI Display (Ampire 1024768-F)	1
16	3987	M16 grounding nut	3
17		Battery CR2032	1

Figure 4.2 Compact user interface CI parts

5 Specifications

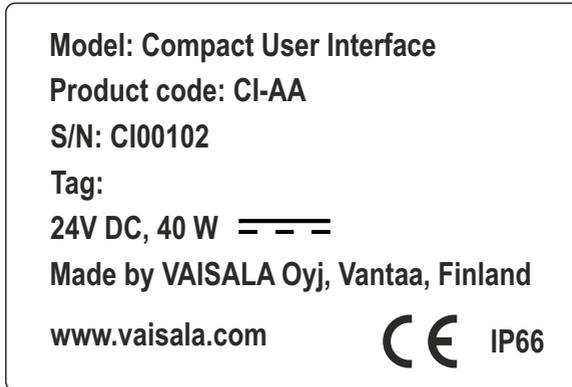


Figure 5.1 CI nameplate

Display:	10" color touch screen display 1024x768, 4-wire resistive
Power:	+24VDC±10%, Max 10W
Electrical classification:	General purpose, ordinary locations
Connections:	1xM12-4pin, D-coded, F (External Ethernet) 1xM12-8pin, A-coded, F (Refractometer) (1xM12-4pin A-coded, M(24VDC, (mA)))
Inputs/outputs:	Power, Ethernet (Instruments and external)
Dimensions:	H 242mm x W 312mm x D 49mm
Materials:	Aluminum frame
IP classification:	IP66, Type 4X
Installation:	Indoor/outdoor, max. 50°C (122°F), min. 0°C (32°F), must be protected from rain and direct sunlight. During installation highest relative humidity of ambient air 80%. Highest altitude 2000 m above sea level.
Weight:	5 kg (11 lbs)
Mounting:	Panel mounting: 8pcs M5 screw VESA 200x100: 4pcs M6 screws
Cables:	PR-8430 Platform 4 cable M12-8pin, A-coded, F+M Ethernet, length max. 90 m
Regulatory compliance:	Electromagnetic compatibility: IEC 61326-1:2012/EN 61326-1:2013

5.1 Connector specifications

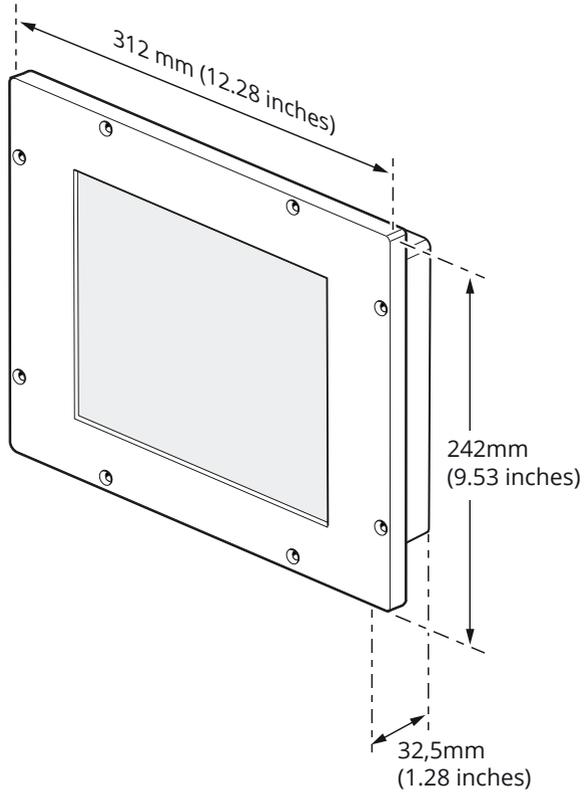


Figure 5.2 Panel dimensions

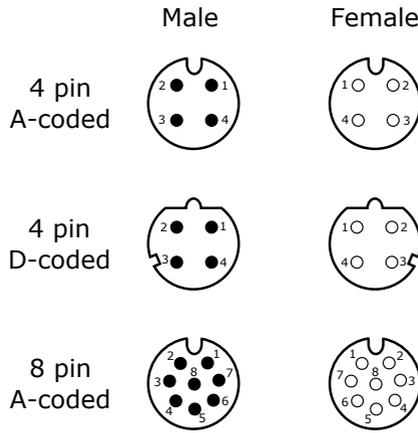


Figure 5.3 Pin order

M12 - 4pin A code				M12 - 4pin D code				M12 - 8-pin A code						
Pairs		J5 - power		Pairs		J4 - ethernet		Pairs		J6 - system				
1	2	Pin	Colour	1	2	Pin	Colour	1	2	3	4	Pin	Colour	Signal
				x		1	wh/og	x				6	wh/og	Eth TX+
				x		3	og	x				4	og	Eth TX-
x		1						x				1	wh/bu	mA+
x		3						x				7	bu	mA-
				x		2	wh/gn		x			5	wh/gn	Eth RX+
				x		4	gn		x			8	gn	Eth RX-
	x	2								x		2	wh/bn	VDD
	x	4								x		3	bn	GND
Pairs for this one are optional														

Figure 5.4 Cable pinout for the different connection types

A EU declaration of conformity



2019-09-01A/JAMO

1 (1)

EU DECLARATION OF CONFORMITY

Manufacturer: Vaisala Oyj
Mail address: P.O. Box 26, FI-00421 Helsinki, Finland
Street Address: Vanha Nurmijärventie 21, Vantaa, Finland

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration:

K-Patents Compact User Interface CI

The object of the declaration described above is in conformity with Directives:

RoHS Directive (2011/65/EU)
EMC Directive (2014/30/EU)

The conformity is declared using the following standards:

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use – EMC requirements – intended for use in industrial locations

Signed for and on behalf of Vaisala Oyj, in Vantaa, on 1st September 2019

Jukka Lyömiö
Standards and Approvals Manager

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