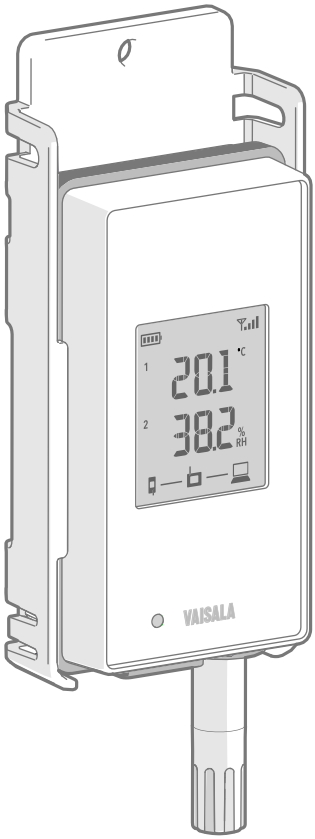
M211822EN-C

EN
DE
FR
ES
PT
ZH

Quick Guide

Vaisala VaiNet Wireless Data Logger

RFL100



VAISALA

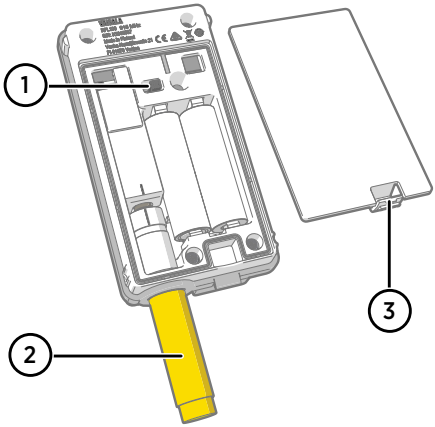
PUBLISHED BY

Vaisala Oyj
Street address: Vanha Nurmijärventie 21, FI-01670 Vantaa, Finland
Mailing address: P.O. Box 26, FI-00421 Helsinki, Finland
Phone: +358 9 8949 1

Visit our Internet pages at www.vaisala.com.

Table of Contents

Setting Up RFL100 Data Logger



1 Power switch.
2 Protection cap. Remove after installation is complete.
3 Latch of the battery cover.

1. Open the battery cover of the data logger.
2. Move the power switch to the **On** position.
3. Close the battery cover of the data logger. **Push the latch down until you hear a click.** If the cover does not close easily, push the probe in and try again.
4. Look at the display and verify that:
   - Battery indicator shows full batteries .
   - Display shows measurement readings instead of dashes or error codes. If measurement readings are not shown after a few seconds, check that the probe is properly connected.

When you turn on the RFL100 it starts to scan for VaiNet access points that are in installation mode. RFL100 will connect to the access point with the best signal strength, and wait to be accepted by the administrator of the viewLinc Enterprise Server.

Mounting RFL100

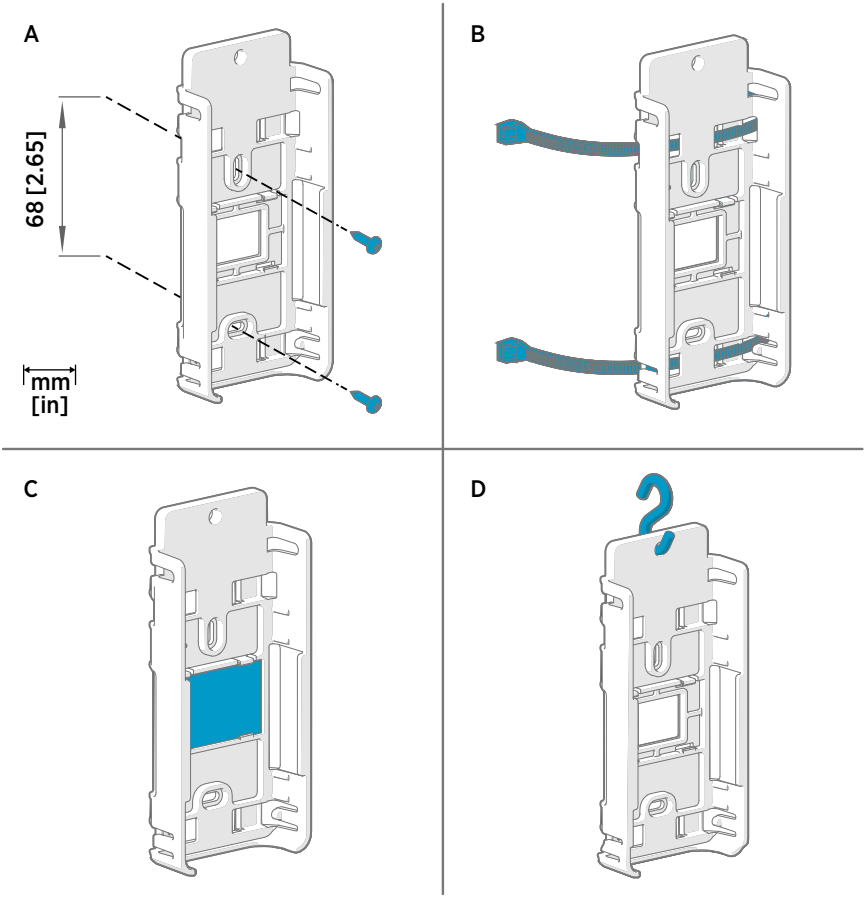


Figure 1 RFL100 Mounting Methods

A Mounting with screws. Screws and wall plugs are included with the data logger.
B Mounting with zip ties. Zip ties are included with the data logger.
C Magnetic mounting (with optional magnetic mounting bracket)
D Mounting with a hook (hook not included)

1. Select a suitable mounting location. A good location is easily accessible, protected from water and condensation, and remains within the operating temperature range of the RFL100:
   - +2 … +60 °C (+35.6 … +140 °F) with alkaline batteries
   - -20 … +60 °C (-4 … +140 °F) with lithium batteries

   Use the HMP110 probe to measure a wider range of conditions (operating temperature range -40 … +80 °C (-40 °F … +176 °F). HMP110 probe is always connected using a connection cable, so you can leave the RFL100 data logger in an environment that is suitable to its specification.

2. Attach the mounting bracket using one of the mounting methods shown in Figure 1 (page 6). Orient the bracket vertically so that the probe or probe cable points down after installation. Do not attach the RFL100 without the mounting bracket.

   CAUTION! If you are mounting the data logger higher than 2 m (6 ft) or in a location where it would pose a hazard if dropped, ensure the mounting bracket is securely fixed with screws or zip ties.

3. Slide the logger into the mounting bracket with the probe or probe cable pointing downward.
4. Peel off the protective film from the display and remove the yellow plug from the probe.

5. If the probe is attached with a cable, place the probe in the desired measurement location and secure the cable.
6. Recommended: Apply location labels to the mounting bracket and the RFL100 Data Logger according to your installation plan and company policy.

Connection Indicators

Table 1 Symbols

Symbol	Description
	Data logger
	Access point
	viewLinc Enterprise Server
	Connection OK
	Connection currently unavailable

Table 2 Connection States

Symbols on Display	Description
	Data logger is searching for an access point.
	Data logger has failed to find an access point that is in installation mode. viewLinc server icon is not shown, as the data logger has not been accepted to a viewLinc system yet.
	The data logger has failed to connect to an access point that belongs to its own network.
	Data logger is successfully connected to an access point, but there is no connection between the access point and viewLinc server.
	Data logger is successfully connected to an access point, and connection between the access point and viewLinc server is also OK. The viewLinc symbol is flashing to indicate that the data logger is waiting to be accepted to the viewLinc system as a new device.
	Data logger is successfully connected to an access point, and connection between the access point and viewLinc server is also OK. Data logger has been accepted to the viewLinc system.

RFL100 Overview

Vaisala RFL100 Data Logger is a completely wireless, battery powered humidity and temperate data logger. It is intended as a data collection point in a Vaisala viewLinc Monitoring System.

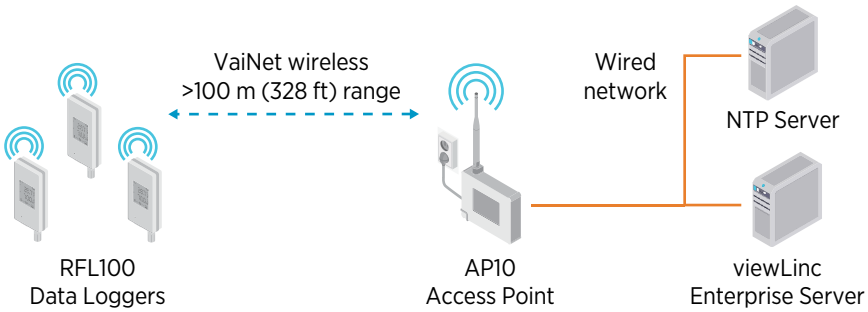


Figure 2 Connecting RFL100 to the viewLinc Monitoring System

RFL100 requires a connection to a Vaisala AP10 Access Point. AP10 can connect up to 32 loggers to the viewLinc Monitoring System. In a typical indoor space, install the AP10 within 100 meters of the RFL100. In an open space without many interfering structures, the range may be significantly higher.

RFL100 is optimized for low power operation. It reads the probe once a minute, and transmits measurement data to the access point every four minutes. Because the radio link is not continuous, remote management actions and system joining status may take some time to be updated on the display of the data logger.

Before you start installing RFL100 Data Loggers, install the viewLinc Enterprise Server and at least one AP10 Access Point within range of the RFL100. This way RFL100 can immediately discover your access point and join your system.
For more information on viewLinc Monitoring System installation, see *viewLinc Setup Guide*.

RFL100 Parts

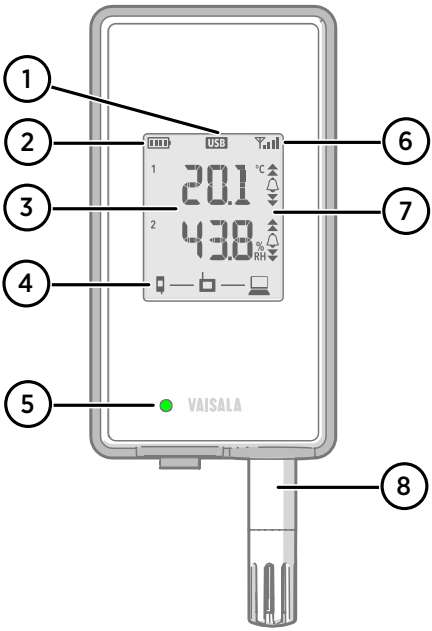


Figure 3 Front and Display

1 Service port connection indicator.
2 Battery level indicator.
3 Currently measured values.
4 Connection indicators.
5 Status LED. Blinks green for normal operation, red for error or alarm.
6 Signal strength of access point connection.
7 Alarm indicators. Alarms are configured in viewLinc Enterprise Server software.
8 Detachable probe or probe cable.

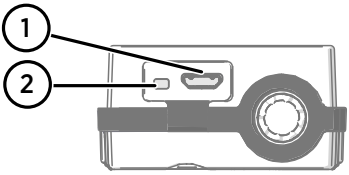


Figure 4 Under the Silicone Plug

1 Service port (Micro-USB).
2 **Refresh** button. Push to enable a faster wireless scanning interval for one hour. Also wakes up the display if it has been turned off remotely, and shows firmware version and currently connected VaiNet channel.

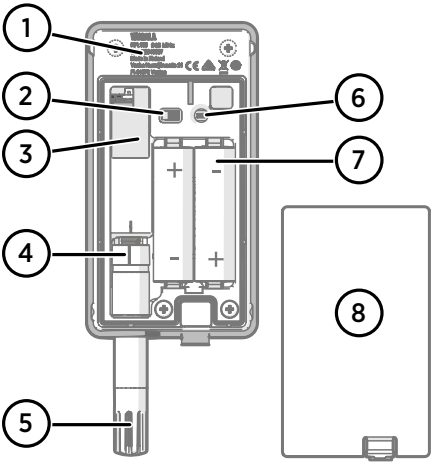


Figure 5 Rear and Inside

1 Type label.
2 On/off switch.
3 Clock battery.
4 Probe orientation mark. When connecting the probe, line up the markings on the probe and above the connector before pushing the probe to the connector.
5 Humidity and/or temperature sensors under the filter.
6 **Release** button. Push to release RFL100 from its current viewLinc system, and allow it to connect to any viewLinc system.
7 Main batteries. Use only non-rechargeable, AA size, 1.5 V alkaline (LR6) or lithium (FR6) batteries.
8 Battery cover.

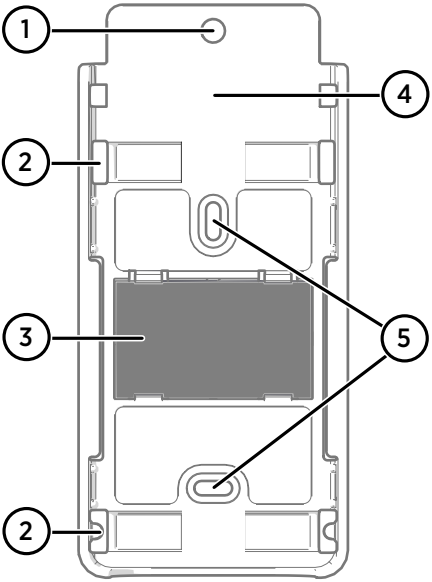


Figure 6 Mounting Bracket

1 6 mm (0.23 inch) hole for hook mounting.
2 Holes for mounting with zip ties.
3 Strong magnet (in magnetic mounting bracket only). **Handle with care.**
4 Suitable area for attaching labels.
5 3.80 mm (0.15 inch) holes for screw mounting.

RFL100 Batteries

Main Batteries

RFL100 Data Logger is powered by two AA size primary (non-chargeable) batteries with 1.5 V nominal voltage. Operation of the data logger always requires that compatible batteries with sufficient voltage (minimum 2.6 V in series) are in place. When replacing batteries, always use new batteries, not partially discharged ones. Compatible battery types are:

- 1.5 V alkaline batteries, designation IEC-LR6, ANSI 15A. Standard choice for most applications.
- 1.5 V lithium batteries, designation IEC-FR14505 (FR6), ANSI 15-LF. Typically higher capacity, better in cold temperatures.

CAUTION! Do not use batteries with a nominal voltage higher than 1.5 V.

Use of rechargeable batteries is not recommended. RFL100 will not charge batteries even if the service port is connected to a power supply.

Clock Battery

RFL100 also has a separate 3 V lithium battery (type CR1/3N button cell) to keep the real-time clock powered when the device is otherwise turned off. This battery is good for 10 years, and should only be replaced if the data logger gives the low clock battery error.

More Information

For more information on the RFL100 Data Logger, see *RFL100 User Guide M211861EN* available at www.vaisala.com.

Technical Support

Contact Vaisala technical support at helpdesk@vaisala.com. Provide at least the following supporting information:

- Product name, model, and serial number
- Name and location of the installation site
- Name and contact information of a technical person who can provide further information on the problem

For more information, see www.vaisala.com/support.

Warranty

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

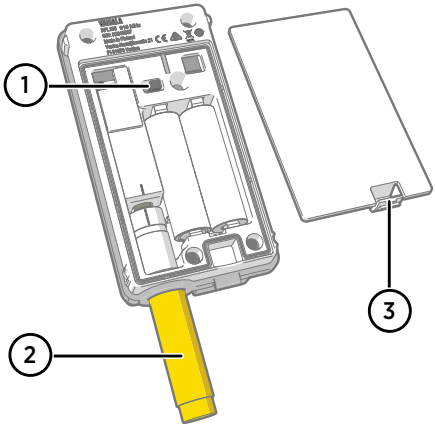
Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or Conditions of Sale for details of the warranty for each product.

Recycling

Recycle all applicable material.

Follow the statutory regulations for disposing of the product and packaging.

Einrichtung des RFL100-Datenloggers



1 Ein-/Ausschalter.
2 Schutzkappe. Nach Abschluss der Installation entfernen.
3 Verriegelung des Batteriedeckels.

1. Öffnen Sie den Batteriedeckel des Datenloggers.
2. Den Netzstecker in die **An**-Stellung bringen.
3. Schließen Sie den Batteriedeckel des Datenloggers. **Drücken Sie die Verriegelung nach unten, bis Sie ein Klicken hören.** Wenn sich der Deckel nicht leicht schließen lässt, drücken Sie die Sonde ein und versuchen Sie es erneut.
4. Betrachten Sie den Bildschirm und überprüfen Sie Folgendes:
   - Ladestandanzeige zeigt volle Batterien an .
   - Der Bildschirm zeigt die Messwerte anstelle von Bindestrichen oder Fehlercodes an. Wenn die Messwerte nicht nach einigen Sekunden angezeigt werden, überprüfen Sie, ob die Sonde richtig angeschlossen ist.

Nach dem Einschalten scannt der RFL100 nach VaiNet Access Points, die sich im Installationsmodus befinden. RFL100 stellt eine Verbindung mit dem Access Point mit der höchstmöglichen Signalstärke her und wartet, bis die Verbindung vom Administrator des viewLinc Enterprise Server akzeptiert wurde.

Montieren des RFL100

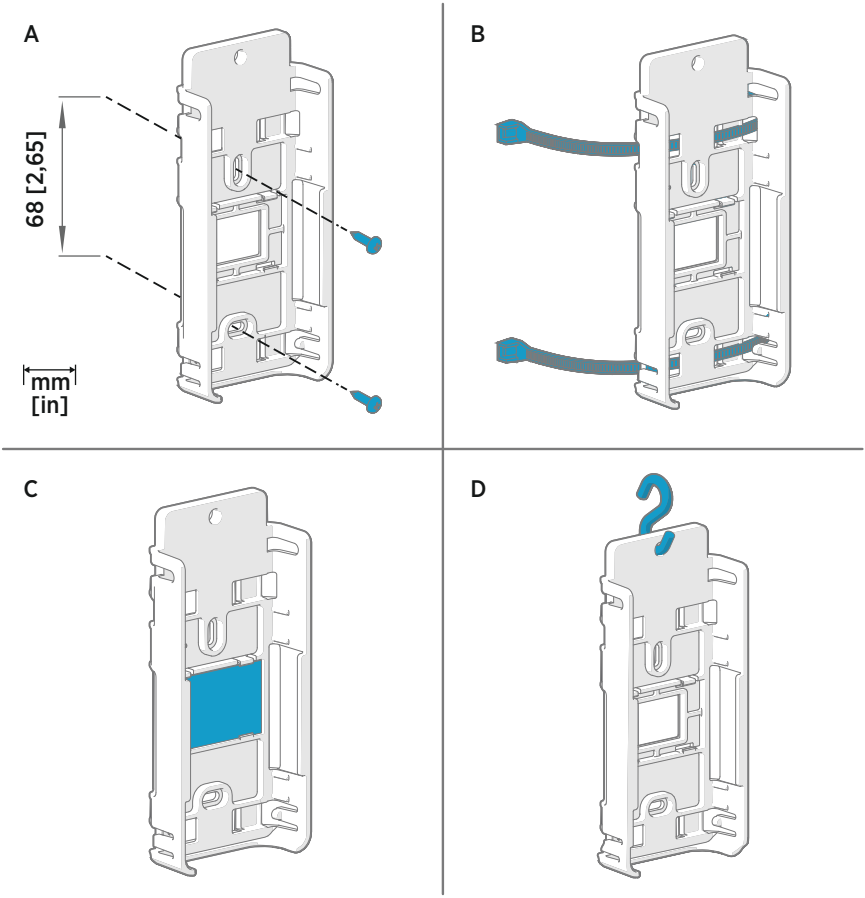


Abbildung 7 Befestigungsarten des RFL100

A Montage mit Schrauben. Schrauben und Dübel sind im Lieferumfang des Datenloggers enthalten.
B Montage mit Kabelbindern. Kabelbinder sind im Lieferumfang des Datenloggers enthalten.
C Magnetische Montage (mit optionaler magnetischer Halterung)
D Montage an einem Haken (Haken nicht enthalten)

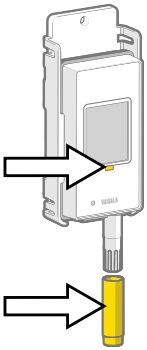
1. Wählen Sie eine geeignete Stelle für die Montage aus. Die Stelle sollte gut zugänglich, vor Wasser und Kondensierung geschützt sein und dem Betriebstemperaturbereich des RFL100 entsprechen:
   - +2 … +60 °C (+35,6 bis +140 °F) mit Alkaline-Batterien
   - -20 … +60 °C (-4 bis +140 °F) mit Lithiumbatterien

   Verwenden Sie die HMP110-Sonde zur Messung eines breiteren Bereichs (Betriebstemperaturbereich -40 bis +80 °C (-40 °F bis +176 F). Die HMP110-Sonde ist immer über ein Verbindungskabel verbunden. Daher kann der RFL100-Datenlogger in einer Umgebung bleiben, die den Spezifikationen entspricht.

2. Bringen Sie die Halterung mit einer der in Abbildung 7 (Seite 16) beschriebenen Befestigungsarten an. Richten Sie die Halterung vertikal aus, sodass die Sonde oder das Sondenkabel nach der Installation nach unten zeigt. Bringen Sie den RFL100 nicht ohne die Halterung an.

   ACHTUNG Achten Sie darauf, dass die Halterung sicher mit Schrauben oder Kabelbindern befestigt ist, wenn Sie den Datenlogger in einer Höhe über 2 m (6 Fuß) oder an einer Stelle montieren, an der er ein Sicherheitsrisiko darstellen würde, wenn er herunterfiele.

3. Schieben Sie den Datenlogger in die Halterung, sodass die Sonde oder das Sondenkabel nach unten zeigen.
4. Ziehen Sie die Schutzfolie vom Bildschirm und entfernen Sie den gelben Stecker der Sonde.



5. Wenn die Sonde mit einem Kabel befestigt ist, platzieren Sie sie an der gewünschten Messposition und sichern Sie das Kabel.
6. Empfohlen: Bringen Sie entsprechend Ihrem Installationsplan und Ihrer Unternehmensrichtlinie Positionsetiketten an der Halterung und am RFL100-Datenlogger an.

Verbindungsindikatoren

Tabelle 3 Symbole

Symbol	Beschreibung
	Datenlogger
	Access Point
	viewLinc Enterprise Server
	Verbindung OK.
	Verbindung aktuell nicht verfügbar

Tabelle 4 Verbindungsstatus

Symbole auf dem Bildschirm	Beschreibung
	Datenlogger sucht nach einem Access Point.
	Der Datenlogger konnte keinen Access Point im Installationsmodus finden. Das viewLinc-Serversymbol wird nicht angezeigt, da der Datenlogger noch nicht für das viewLinc-System freigegeben wurde.
	Der Datenlogger konnte keine Verbindung mit einem Access Point des eigenen Netzwerks herstellen.
	Der Datenlogger hat eine Verbindung mit einem Access Point hergestellt, es besteht jedoch keine Verbindung zwischen dem Access Point und dem viewLinc-Server.
	Der Datenlogger hat eine Verbindung mit einem Access Point hergestellt und es besteht eine Verbindung zwischen dem Access Point und dem viewLinc-Server. Das viewLinc-Symbol blinkt und zeigt damit an, dass der Datenlogger auf die Freigabe als neues Gerät für das viewLinc-System wartet.
	Der Datenlogger hat eine Verbindung mit einem Access Point hergestellt und es besteht eine Verbindung zwischen dem Access Point und dem viewLinc-Server. Der Datenlogger wurde für das viewLinc-System freigegeben.

RFL100 – Übersicht

Der Vaisala RFL100-Datenlogger ist ein vollständig drahtloser und batteriebetriebener Datenlogger für Feuchtigkeits- und Temperaturmessungen. Er dient zur Datenerfassung in einem Vaisala viewLinc-Überwachungssystem.

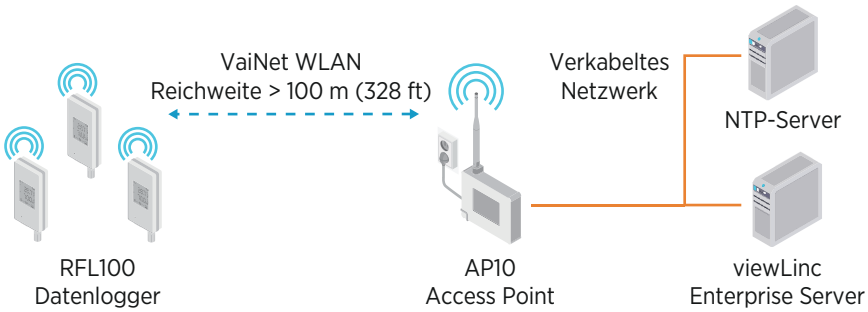


Abbildung 8 Herstellen einer Verbindung zwischen RFL100 und dem viewLinc-Überwachungssystem

Der RFL100 benötigt eine Verbindung mit einem Vaisala AP10 Access Point. Mit einem AP10 können bis zu 32 Datenlogger mit dem viewLinc-Überwachungssystem verbunden werden. Installieren Sie den AP10 in einer typischen Innenumgebung in maximal 100 Metern Entfernung zum RFL100. In einer offenen Umgebung ohne abschirmende Strukturen, kann sich die Reichweite erheblich vergrößern.

Der RFL100 ist für den energiesparenden Betrieb optimiert. Er liest die Sonde einmal pro Minute aus und übermittelt die Messdaten alle vier Minuten an den Access Point. Da keine ständige Funkverbindung besteht, kann es einige Zeit dauern, bis per Fernverwaltung vorgenommene Einstellungen und der Verbindungsstatus auf dem Bildschirm des Datenloggers aktualisiert werden.

Installieren Sie vor der Installation von RFL100-Datenloggern den viewLinc Enterprise Server und mindestens einen AP10 Access Point innerhalb der Reichweite des RFL100. Auf diese Weise erkennt der RFL100 Ihren Access Point sofort und kann eine Verbindung zu Ihrem System herstellen.
Weitere Informationen zur Installation des viewLinc-Überwachungssystems finden Sie im *viewLinc Setup Guide*.

Komponenten des RFL100

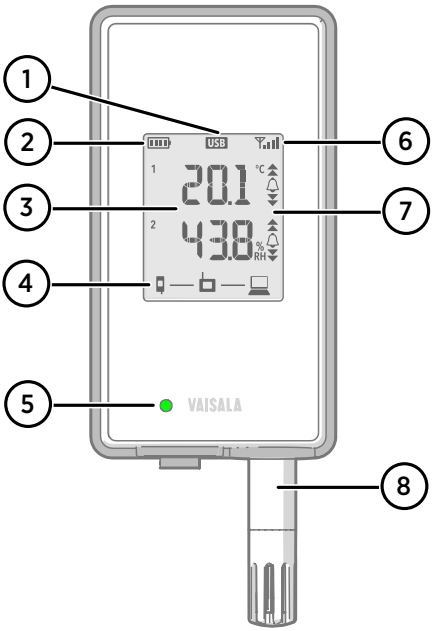


Abbildung 9 Vorderseite und Bildschirm

1 Verbindungsindikator der Serviceschnittstelle.
2 Batteriestandanzeige.
3 Aktuelle Messwerte.
4 Verbindungsindikatoren.
5 Status-LED. Blinkt grün für Normalbetrieb, rot für Fehler oder Alarm.
6 Signalstärke der Verbindung mit Access Point.
7 Alarmindikatoren. Alarme werden in der Software des viewLinc Enterprise Servers konfiguriert.
8 Abnehmbare Sonde oder Sondenkabel.

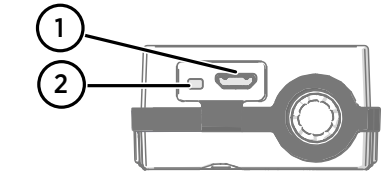


Abbildung 10 Unter dem Silikonstecker

1 Serviceschnittstelle (Micro-USB).
2 **Refresh**-Taste. Aktivieren Sie per Tastendruck für eine Stunde ein schnelleres Drahtlos-Scanintervall. Schaltet den Bildschirm ein, falls dieser per Fernsteuerung ausgeschaltet wurde, und zeigt die Firmware-Version und den aktuell verbundenen VaiNet-Kanal an.

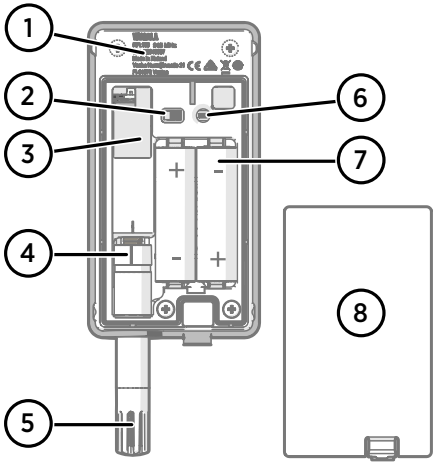


Abbildung 11 Rückseite und Innenbereich

1 Typenschild.
2 Ein-/Ausschalter.
3 Uhr-Batterie.
4 Markierung zur Sondenausrichtung. Richten Sie beim Anschließen der Sonde die Markierungen auf der Sonde und über dem Stecker aufeinander aus, bevor Sie die Sonde am Anschluss befestigen.
5 Feuchtigkeits- und/oder Temperatursensoren unter dem Filter.
6 **Release**-Taste. Drücken, um den RFL100 aus dem aktuellen viewLinc-System zu entfernen und eine Verbindung mit anderen viewLinc-Systemen zu ermöglichen.
7 Hauptbatterien. Verwenden Sie ausschließlich nicht aufladbare 1,5 V AA-Alkaline-Batterien (LR6) oder Lithiumbatterien (FR6).
8 Batteriedeckel.

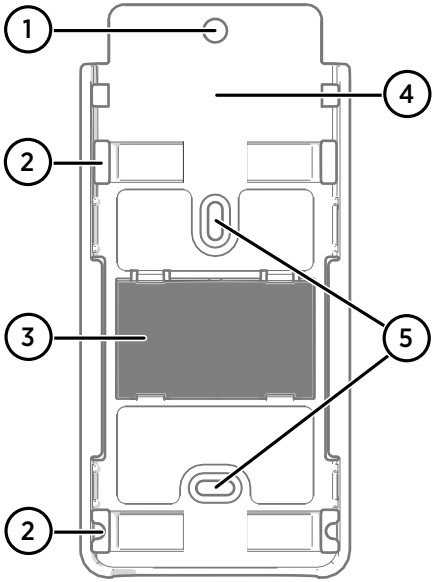


Abbildung 12 Halterung

1 Bohrung mit Durchmesser von 6 mm (0,23 Zoll) für Hakenmontage.
2 Löcher zur Montage mit Kabelbindern.
3 Starker Magnet (nur für Magnethalterung). **Behandeln Sie die Komponente vorsichtig.**
4 Geeigneter Bereich zum Anbringen von Etiketten.
5 Bohrungen mit Durchmesser von 3,80 mm (0,15 Zoll) für Schraubbefestigung.

RFL100 – Batterien

Hauptbatterien

Der RFL100-Datenlogger wird mit zwei nicht aufladbaren AA-Batterien mit einer Nennspannung von 1,5 V betrieben. Für den Betrieb des Datenloggers müssen immer kompatible Batterien mit ausreichender Spannung (Minimal 2,6 V in Reihe) vorhanden sind. Verwenden Sie beim Austausch der Batterien immer neue Batterien und nicht teilweise entladene. Kompatible Batterietypen sind:

- 1,5 V Alkaline-Batterien, Bezeichnung IEC-LR6, ANSI 15A. Standardauswahl für die meisten Anwendungen.
- 1,5 V Lithiumbatterien, Bezeichnung IEC-FR14505 (FR6), ANSI 15-LF. In der Regel höhere Kapazität, besser geeignet für niedrige Temperaturen.

ACHTUNG Benutzen Sie keine Batterien, deren Nennspannung 1,5 V übersteigt.

Vom Gebrauch aufladbarer Batterien wird abgeraten. Der RFL100 lädt die Batterien nicht wieder auf, selbst dann nicht, wenn die Serviceschnittstelle an eine Stromversorgung angeschlossen ist.

Uhr-Batterie

Der RFL100 verfügt außerdem über eine separate 3 V Lithiumbatterie (Typ CR1/3N-Knopfbatterie), über die die Echtzeit-Uhr gespeist wird, wenn das Gerät ausgeschaltet ist. Diese Batterie hält zehn Jahre und sollte nur dann ersetzt werden, wenn der Datenlogger einen niedrigen Ladestand der Uhr-Batterie anzeigt.

Weitere Informationen

Weitere Informationen zum RFL100-Datenlogger finden Sie im *RFL100 User Guide M211861EN* unter www.vaisala.com.

Technischer Support

Wenden Sie sich an den technischen Support von Vaisala unter helpdesk@vaisala.com. Geben Sie mindestens folgende Informationen an:

- Produktname, Modell und Seriennummer
- Name und Standort der Installation
- Name und Kontaktinformationen eines Technikers für weitere Auskünfte

Weitere Informationen finden Sie unter www.vaisala.com/support.

Gewährleistung

Unsere Standardgarantiebedingungen finden Sie unter www.vaisala.com/warranty.

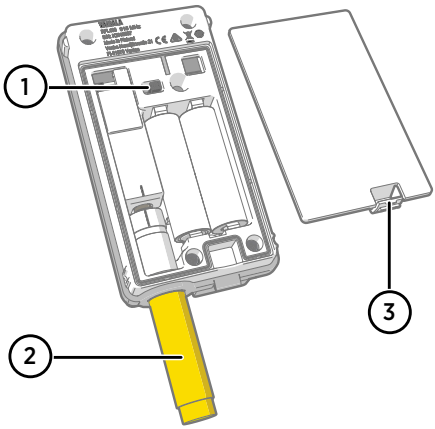
Diese Garantie deckt keine Verschleißschäden, Schäden infolge außergewöhnlicher Betriebsbedingungen, Schäden infolge unzulässiger Verwendung oder Montage oder Schäden infolge nicht genehmigter Modifikationen ab. Einzelheiten zum Gewährleistungsumfang für bestimmte Produkte enthalten der zugehörige Liefervertrag und die Verkaufsbedingungen.

Recycling

Recyceln Sie alle wiederverwertbaren Materialien.

Beachten Sie bei der Entsorgung von Produkten und Verpackung die gesetzlichen Regelungen.

Installation de l'enregistreur de données RFL100



1 Interrupteur d'alimentation.
2 Capuchon de protection. À retirer une fois l'installation terminée.
3 Taquet du couvercle de pile.

1. Ouvrez le couvercle de pile de l'enregistreur de données.
2. Placez l'interrupteur d'alimentation en position **On**.
3. Fermez le couvercle de pile de l'enregistreur de données. **Poussez le taquet vers le bas jusqu'à ce que vous entendiez un clic.** Si le couvercle ne se ferme pas facilement, poussez la sonde à l'intérieur et réessayez.
4. Regardez l'affichage et vérifiez que :
   - L'indicateur de niveau de pile indique que les piles sont pleines .
   - L'affichage montre des résultats de mesure et non pas des tirets ou des codes d'erreur. Si des résultats de mesure n'apparaissent pas après quelques secondes, vérifiez que la sonde est correctement branchée.

Lorsque vous allumez le RFL100, celui-ci commence à rechercher des points d'accès VaiNet en mode d'installation. Le RFL100 se connecte au point d'accès doté de la meilleure force du signal et attend d'être accepté par l'administrateur du serveur d'entreprise viewLinc.

Montage du RFL100

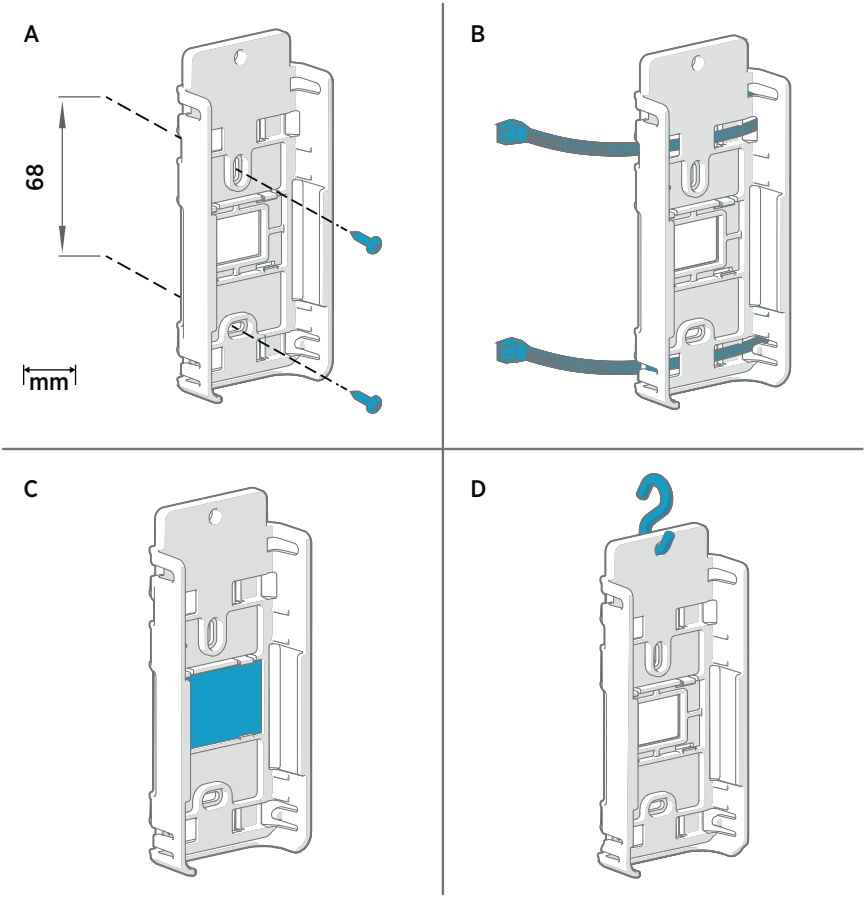


Figure 13 Méthodes de montage du RFL100

A Montage avec des vis. Les vis et les chevilles sont comprises avec l'enregistreur de données.
B Montage avec des colliers. Les colliers sont fournis avec l'enregistreur de données.
C Montage magnétique (avec support de montage magnétique en option)
D Montage avec un crochet (crochet non inclus)

1. Sélectionnez un emplacement de montage adapté. Un bon emplacement est aisément accessible, protégé de l'eau et de la condensation et reste dans la plage de température de fonctionnement du RFL100 :
   - +2 ... +60 °C avec des piles alcalines
   - -20 ... +60 °C avec des piles au lithium

   Utilisez la sonde HMP110 pour mesurer un plus large éventail de conditions (plage de température de fonctionnement de -40 à +80 °C . La sonde HMP110 est toujours connectée à l'aide d'un câble de connexion. Vous pouvez donc laisser l'enregistreur de données RFL100 dans un environnement adapté à sa norme.

2. Fixez le support de montage en utilisant l'une des méthodes de montage illustrées à la Figure 13 (page 26). Orientez le support verticalement de sorte que la sonde ou le câble de la sonde pointe vers le bas après la mise en place. Ne fixez pas le RFL100 sans le support de montage.

   ATTENTION Si vous montez l'enregistreur de données à plus de 2 m de hauteur ou dans un emplacement où sa chute pourrait s'avérer dangereuse, veillez à bien fixer le support de montage à l'aide de vis ou de colliers.

3. Faites glisser l'enregistreur dans le support de montage avec la sonde ou le câble de sonde pointant vers le bas.
4. Retirez le film de protection de l'écran, ainsi que le capuchon jaune de la sonde.

5. Si la sonde est fixée avec un câble, placez-la dans l'emplacement de mesure souhaité et fixez le câble.
6. Recommandé : Posez les étiquettes de positionnement sur le support de montage et l'enregistreur de données RFL100 conformément à votre plan d'installation et à la politique de votre entreprise.

Indicateurs de connexion

Tableau 5 Symboles

Symbole	Description
	Enregistreur de données
	Point d'accès
	Serveur d'entreprise viewLinc
	Connexion opérationnelle
	Connexion actuellement indisponible

Tableau 6 États de la connexion

Symboles à l'écran	Description
	L'enregistreur de données recherche un point d'accès.
	L'enregistreur de données n'a pas trouvé de point d'accès en mode d'installation. L'icône de serveur viewLinc n'apparaît pas, car l'enregistreur de données n'a pas encore été accepté dans un système viewLinc.
	L'enregistreur de données ne s'est pas connecté à un point d'accès appartenant à son propre réseau.
	L'enregistreur de données s'est correctement connecté à un point d'accès, mais aucune connexion n'est établie entre le point d'accès et le serveur viewLinc.
	L'enregistreur de données s'est correctement connecté à un point d'accès et la connexion entre le point d'accès et le serveur viewLinc est également opérationnelle. Le symbole viewLinc clignote pour indiquer que l'enregistreur de données attend d'être accepté dans le système viewLinc en tant que nouveau périphérique.
	L'enregistreur de données s'est correctement connecté à un point d'accès et la connexion entre le point d'accès et le serveur viewLinc est également opérationnelle. L'enregistreur de données a été accepté dans le système viewLinc.

Présentation du RFL100

L'enregistreur de données Vaisala RFL100 est un enregistreur de données d'humidité et de température alimenté par piles, totalement sans fil. Il a été conçu pour faire office de point de collecte de données dans un système de surveillance Vaisala viewLinc.

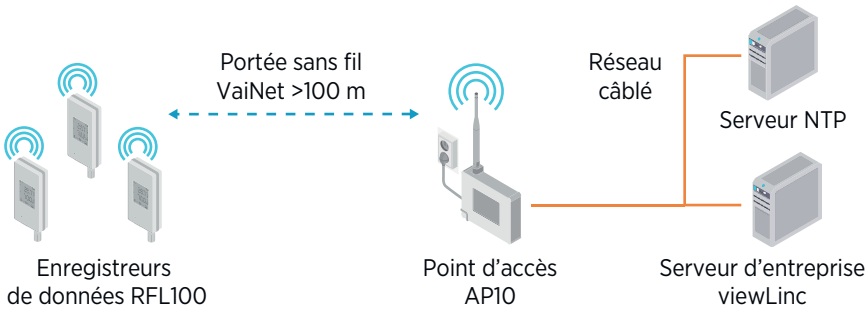


Figure 14 Connexion du RFL100 au système de surveillance viewLinc

Le RFL100 doit être connecté à un point d'accès Vaisala AP10. L'AP10 peut connecter jusqu'à 32 enregistreurs au système de surveillance viewLinc. Dans un espace intérieur standard, montez l'AP10 dans un rayon de 100 mètres par rapport au RFL100. Dans un espace ouvert ne comptant pas de nombreuses structures sources d'interférences, la portée peut être nettement plus élevée.

Le RFL100 est optimisé pour un fonctionnement à faible consommation d'énergie. Il lit la sonde une fois par minute et transmet les données de mesure au point d'accès toutes les quatre minutes. Comme la liaison hertzienne n'est pas continue, les actions de télégestion et l'état de jonction du système peuvent être longs à s'actualiser sur l'écran de l'enregistreur de données.

Avant de commencer l'installation des enregistreurs de données RFL100, installez le serveur d'entreprise viewLinc et au moins un point d'accès AP10 dans le rayon d'action du RFL100. De cette façon, le RFL100 peut immédiatement détecter votre point d'accès et rejoindre votre système.
Pour plus d'informations sur l'installation du système de surveillance viewLinc, consultez le *viewLinc Setup Guide*.

Composants du RFL100

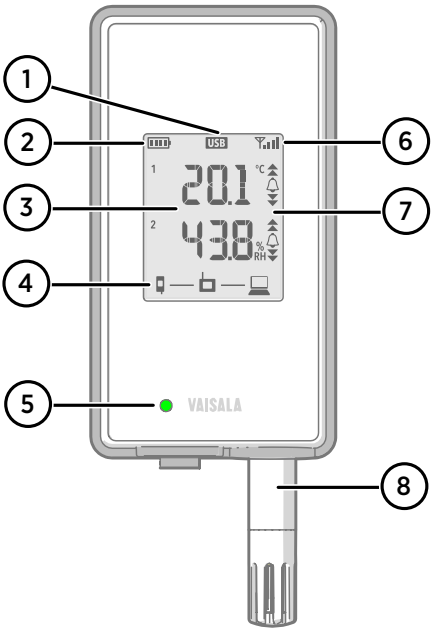


Figure 15 Face avant et afficheur

1 Indicateur de connexion du port de service.
2 Indicateur de niveau de pile.
3 Valeurs actuelles relevées.
4 Indicateurs de connexion.
5 LED d'état. Clignotement vert pour un fonctionnement normal, rouge pour une erreur ou une alarme.
6 Force du signal de la connexion du point d'accès.
7 Indicateurs d'alarme. Les alarmes sont configurées dans le logiciel serveur d'entreprise viewLinc.
8 Sonde détachable ou câble de sonde.

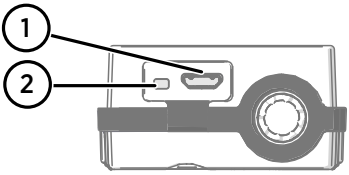


Figure 16 Sous le capuchon en silicone

1 Port de service (micro-USB).
2 Bouton **Refresh**. Appuyez dessus pour activer un intervalle de balayage sans fil plus rapide pendant une heure. Réveille également l'affichage s'il a été désactivé à distance, et indique la version du microprogramme et le canal VaiNet actuellement connecté.

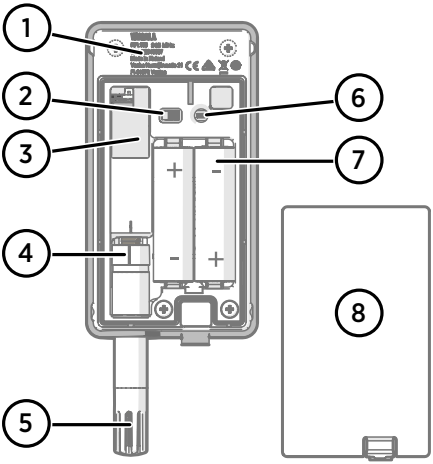


Figure 17 Vue intérieure arrière

1 Étiquette de type.
2 Interrupteur Marche/Arrêt.
3 Pile de l'horloge.
4 Marque d'orientation de la sonde. Lors du branchement de la sonde, alignez les marques sur la sonde et au-dessus du connecteur avant de pousser la sonde vers le connecteur.
5 Capteurs d'humidité et/ou de température sous le filtre.
6 Bouton **Release**. Appuyez dessus pour libérer le RFL100 de son système viewLinc actuel et lui permettre de se connecter à n'importe quel système viewLinc.
7 Piles principales. Utilisez uniquement des piles AA de 1,5 V alcalines (LR6) ou lithium (FR6) non rechargeables.
8 Couvercle de pile.

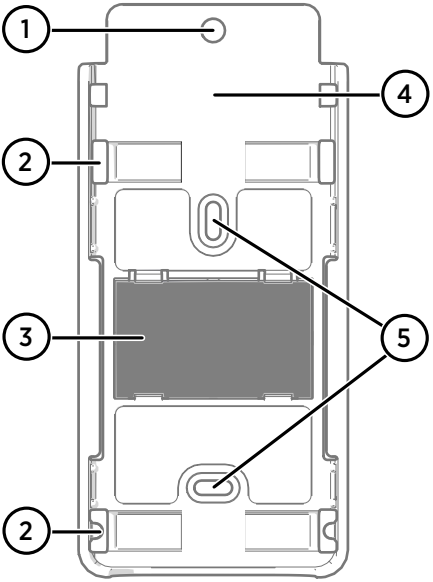


Figure 18 Support de montage

1 Trou de 6 mm pour montage avec crochet.
2 Trous pour montage avec colliers.
3 Aimant puissant (support de montage magnétique uniquement). **À manipuler avec soin.**
4 Emplacement prévu pour les étiquettes.
5 Trous de 3,80 mm pour le montage avec vis.

Piles du RFL100

Piles principales

L'enregistreur de données RFL100 est alimenté par deux piles AA principales (non rechargeables) d'une tension nominale de 1,5 V. Pour pouvoir être utilisé, l'enregistreur de données doit toujours contenir des piles compatibles d'une tension suffisante (au moins 2,6 V en série). Lorsque vous remplacez les piles, utilisez toujours des piles neuves, et non pas des piles partiellement déchargées. Les types de piles compatibles sont les suivants :

- Piles alcalines 1,5 V, désignation CEI-LR6, ANSI 15 A. Choix standard pour la plupart des applications.
- Piles lithium 1,5 V, désignation CEI-FR14505 (FR6), ANSI 15-LF. Capacité généralement plus élevée, plus adaptée aux basses températures.

ATTENTION N'utilisez pas de piles d'une tension nominale supérieure à 1,5 V.

L'utilisation de piles rechargeables n'est pas recommandée. Le RFL100 ne recharge pas les piles, même si le port de service est raccordé à une source d'alimentation électrique.

Pile de l'horloge

Le RFL100 contient également une pile lithium de 3 V (type bouton CR1/3N) pour maintenir l'alimentation de l'horloge temps réel lorsque l'appareil est par ailleurs arrêté. Cette pile a une durée de vie de 10 ans et doit être remplacée seulement si l'enregistreur de données indique une erreur de bas niveau de charge de la pile d'horloge.

Plus d'informations

Pour plus d'informations sur l'enregistreur de données RFL100, consultez le *RFL100 User Guide M211861EN* disponible à l'adresse www.vaisala.com.

Assistance technique

Vous pouvez contacter l'assistance technique Vaisala à l'adresse suivante : helpdesk@vaisala.com. Veuillez nous communiquer au minimum les informations suivantes :

- Nom du produit, modèle et numéro de série
- Nom et emplacement du site d'installation
- Nom et coordonnées d'une personne compétente sur le plan technique capable de fournir des informations complémentaires sur le problème

Pour plus d'informations, consultez le site Web www.vaisala.com/support.

Garantie

Pour connaître nos conditions de garantie standard, rendez-vous sur la page www.vaisala.com/warranty.

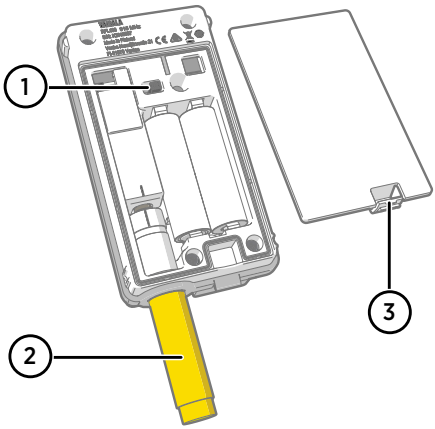
Veuillez noter qu'une telle garantie ne s'applique pas en cas de dommage dû à l'usure normale, à des conditions de fonctionnement exceptionnelles, à une négligence lors de la manipulation ou de l'installation, ou à des modifications non autorisées. Veuillez consulter le contrat d'approvisionnement applicable ou les Conditions de vente pour obtenir des détails sur la garantie de chaque produit.

Recyclage

Recyclez tous les matériaux qui peuvent l'être.

Mettez au rebut le produit et son emballage en respectant la réglementation en vigueur.

Configuración del registrador de datos RFL100



1 Interruptor de encendido.
2 Tapa de protección. Quitar después de que se complete la instalación.
3 Pasador de la cubierta de la batería.

1. Abra la cubierta de la batería del registrador de datos.
2. Mueva el interruptor de alimentación a la posición **Encendido**.
3. Cierre la cubierta de la batería del registrador de datos. **Empuje el pasador hasta que se oiga un clic.** Si la cubierta no se cierra fácilmente, presione la sonda y vuelva a intentarlo.
4. Examine la pantalla y verifique que:
   - El indicador de batería muestra las baterías totalmente cargadas .
   - La pantalla muestra lecturas de medición en vez de guiones o códigos de error. Si no se muestran las lecturas de medición después de algunos segundos, compruebe que la sonda esté conectada correctamente.

Al encender el RFL100 comienza a buscar puntos de acceso VaiNet que estén en modo de instalación. RFL100 se conectará al punto de acceso con la mejor intensidad de señal y esperará a que lo acepte el administrador de viewLinc Enterprise Server.

Montaje del RFL100

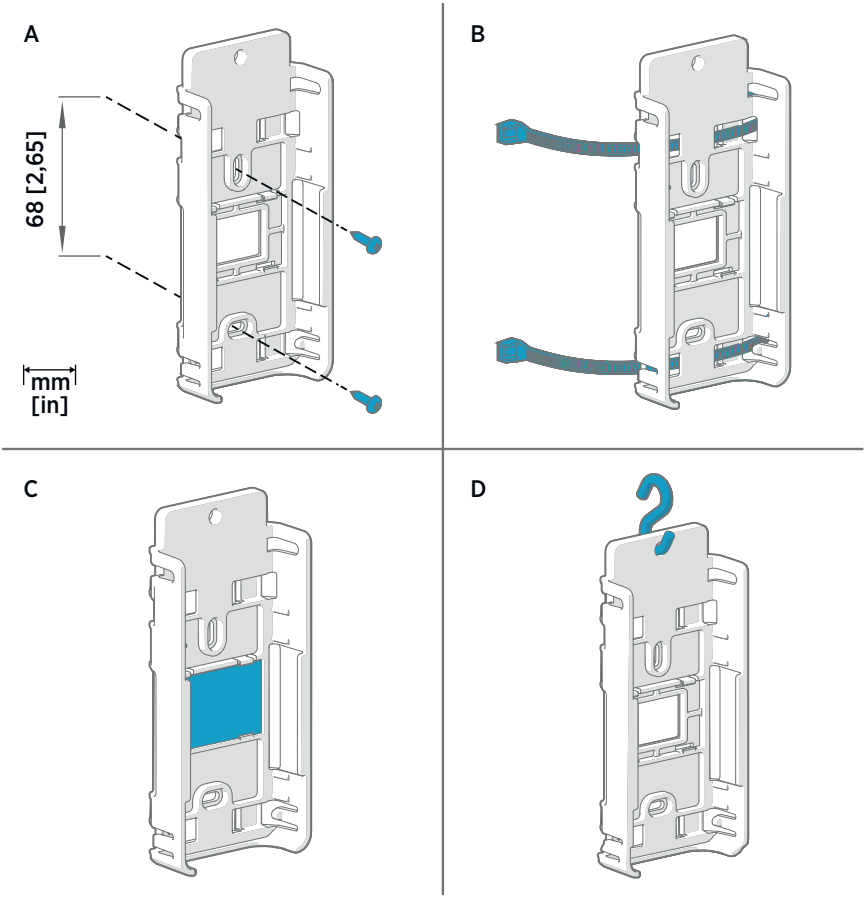


Figura 19 Métodos de montaje del RFL100

A Montaje con tornillos. Los tornillos y los tacos están incluidos en el registrador de datos.
B Montaje con abrazaderas de plástico. Las abrazaderas de plástico se incluyen con el registrador de datos.
C Montaje magnético (con soporte de montaje magnético opcional)
D Montaje con un gancho (no se incluye el gancho)

1. Seleccione una ubicación de montaje adecuada. Una buena ubicación es aquella a la que se obtiene acceso fácilmente, está protegida contra el agua y la condensación, y está dentro del rango de temperatura de funcionamiento del RFL100:
   - +2 ... +60 °C (+35,6 ... +140 °F) con baterías alcalinas
   - -20 ... +60 °C (-4 ... +140 °F) con baterías de litio

   Use la sonda HMP110 para medir una gama de condiciones más amplia: rango de temperatura de funcionamiento -40 ... +80 °C (-40 °F ... +176 °F). La sonda HMP110 siempre se conecta con un cable de conexión, por lo que puede dejar el registrador de datos RFL100 en un entorno que sea adecuado a su especificación.

2. Instale el soporte de montaje con uno de los métodos de montaje que se muestran en Figura 19 (página 36). Oriente el soporte verticalmente de modo que la sonda o el cable de la sonda apunten hacia abajo después de la instalación. No instale el RFL100 sin el soporte de montaje.

   PRECAUCIÓN Si va a montar el registrador de datos a una altura superior a 2 m (6 pies) o en una ubicación donde suponga un peligro si se case, asegúrese de que el soporte de montaje está fijado segura con tornillos o abrazaderas de plástico.

3. Deslice el registrador en el soporte de montaje con la sonda o el cable de la sonda apuntando hacia abajo.
4. Despegue la lámina protectora de la pantalla y quite el tapón amarillo de la sonda.

5. Si la sonda se ha instalado con un cable, coloque la sonda en la ubicación de medición deseada y fije el cable.
6. Recomendado: pegue etiquetas de ubicación en el soporte de montaje y el registrador de datos RFL100 de acuerdo con su plan de instalación y la política de la compañía.

Indicadores de conexión

Tabla 7 Símbolos

Símbolo	Descripción
	Registrador de datos
	Punto de acceso
	viewLinc Enterprise Server
	Conexión correcta
	Conexión no disponible actualmente

Tabla 8 Estado de conexión

Símbolos en la pantalla	Descripción
	El registrador de datos está buscando un punto de acceso.
	El registrador de datos no pudo encontrar un punto de acceso que esté en modo de instalación. El icono del servidor de viewLinc no se muestra, ya que todavía no se ha aceptado el registrador de datos en un sistema viewLinc.
	El registrador de datos no se pudo conectar a un punto de acceso que pertenece a su propia red.
	El registrador de datos está conectado correctamente a un punto de acceso, pero no hay conexión entre el punto de acceso y el servidor de viewLinc.
	El registrador de datos está conectado correctamente a un punto de acceso y la conexión entre el punto de acceso y el servidor de viewLinc también es correcta. El símbolo de viewLinc parpadea para indicar que el registrador de datos está esperando a que el sistema viewLinc lo acepte como un nuevo dispositivo.
	El registrador de datos está conectado correctamente a un punto de acceso y la conexión entre el punto de acceso y el servidor de viewLinc también es correcta. El sistema viewLinc ha aceptado el registrador de datos.

Descripción general del RFL100

El registrador de datos RFL100 de Vaisala es un registrador de datos de humedad y temperatura completamente inalámbrico que funciona a baterías. Se ha diseñado para ser punto de recopilación de datos en un sistema de monitoreo viewLinc de Vaisala.

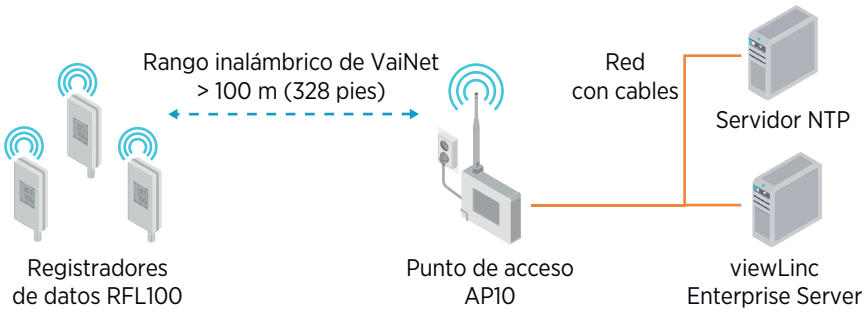


Figura 20 Conexión del RFL100 al sistema de supervisión viewLinc

RFL100 requiere una conexión a un punto de acceso AP10 de Vaisala. El AP10 puede conectar hasta 32 registradores al sistema de monitoreo viewLinc. En un espacio de interior típico, instale el AP10 a menos de 100 metros del RFL100. En un espacio abierto sin muchas estructuras que provoquen interferencias, el rango puede ser significativamente más alto.

El RFL100 está optimizado para el funcionamiento con bajo consumo de energía. Lee la sonda una vez por minuto y transmite los datos de medición al punto de acceso cada cuatro minutos. Debido a que el enlace de radio no es continuo, las acciones de administración remota y el estado de incorporación al sistema pueden tardar algún tiempo en actualizarse en la pantalla del registrador de datos.

Antes de comenzar a instalar los registradores de datos RFL100, instale el servidor viewLinc Enterprise Server y al menos un punto de acceso AP10 dentro del rango del RFL100. De esta manera, el RFL100 puede descubrir inmediatamente el punto de acceso y unirse a su sistema.
Para obtener más información sobre la instalación del sistema de monitoreo viewLinc, consulte *viewLinc Setup Guide*.

Piezas del RFL100

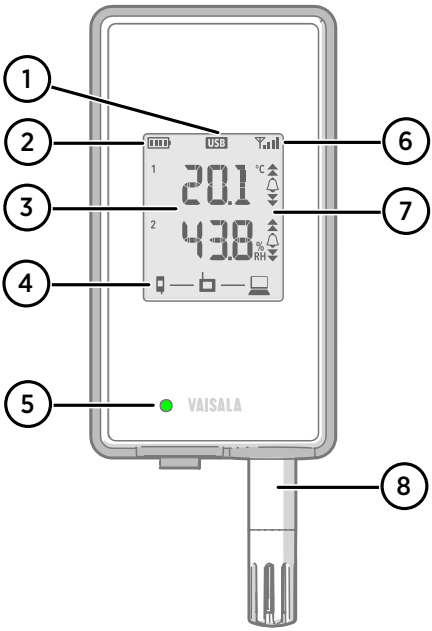


Figura 21 Parte frontal y pantalla

1 Indicador de conexión del puerto de servicio.
2 Indicador de nivel de batería.
3 Valores medidos actualmente.
4 Indicadores de conexión.
5 LED de estado. Parpadea en color verde durante el funcionamiento normal y en rojo en caso de error o alarma.
6 Intensidad de señal de la conexión del punto de acceso.
7 Indicadores de alarma. Las alarmas se configuran en el software viewLinc Enterprise Server.
8 Sonda desmontable o cable de sonda.

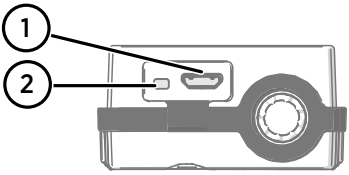


Figura 22 Debajo del tapón de silicona

1 Puerto de servicio (microUSB).
2 Botón **Refresh**. Presiónelo para activar un intervalo de exploración inalámbrica más rápido durante una hora. También activa la pantalla si se apagó de forma remota y muestra la versión de firmware y el canal de VaiNet conectado actualmente.

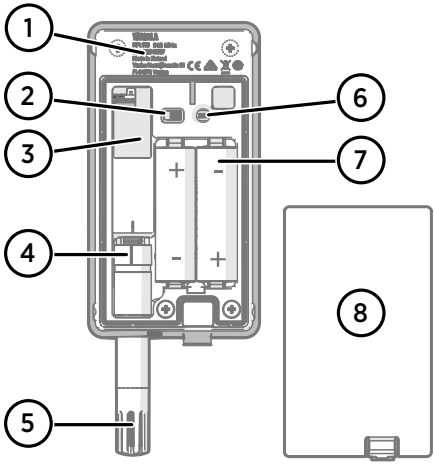


Figura 23 Parte posterior e interior

1 Etiqueta de tipo.
2 Interruptor de encendido/apagado.
3 Batería del reloj.
4 Marca de la orientación de la sonda. Al conectar la sonda, alinee las marcas de la sonda y por encima del conector antes de presionar la sonda en el conector.
5 Sensores de humedad o de temperatura debajo del filtro.
6 Botón **Release**. Presiónelo para liberar el RFL100 de su sistema viewLinc actual y permitir que se conecte a cualquier sistema viewLinc.
7 Baterías principales. Use solo baterías no recargables, tamaño AA, alcalinas (LR6) o de litio (FR6) de 1,5 V.
8 Cubierta de las baterías.

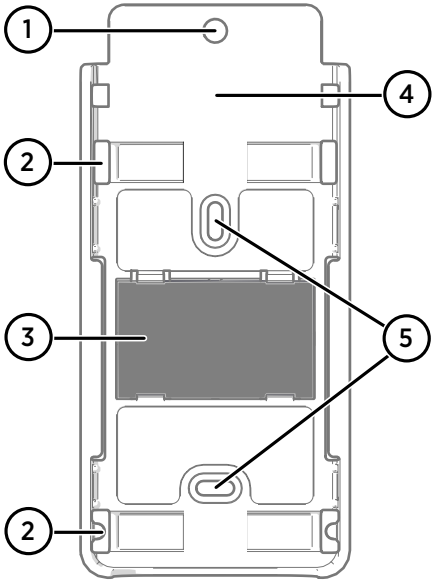


Figura 24 Soporte de montaje

1 Orificio de 6 mm (0,23 pulgadas) para el montaje con gancho.
2 Orificios para el montaje con abrazaderas de plástico.
3 Imán fuerte (solo en soporte de montaje magnético). **Manipule con cuidado.**
4 Área adecuada para pegar las etiquetas.
5 Orificios de 3,80 mm (0,15 pulgadas) para el montaje con tornillos.

Baterías del RFL100

Baterías principales

El registrador de datos RFL100 funciona con dos baterías principales de tamaño AA (no recargables) con un voltaje nominal de 1,5 V. El funcionamiento del registrador de datos siempre requiere que se usen baterías compatibles con voltaje suficiente (mínimo 2,6 V en serie). Al reemplazar las baterías, use siempre baterías nuevas, no unas que estén parcialmente descargadas. Los tipos de batería compatibles son:

- Baterías alcalinas de 1,5 V, con la denominación IEC-LR6, ANSI 15A. Es la opción estándar para la mayoría de las aplicaciones.
- Baterías de litio de 1,5 V, con la denominación IEC-FR14505 (FR6), ANSI 15-LF. Normalmente tienen una capacidad más alta, más adecuadas para temperaturas frías.

PRECAUCIÓN No use baterías con un voltaje nominal superior a 1,5 V.

No se recomienda usar baterías recargables. El RFL100 no carga las baterías aunque el puerto de servicio esté conectado a un sistema de alimentación.

Batería del reloj

El RFL100 también tiene otra batería de litio de 3 V (batería de botón tipo CR1/3N) para mantener la alimentación del reloj en tiempo real cuando se apaga el dispositivo. Esta batería tiene una duración de 10 años y solo se debe reemplazar si el registrador de datos genera el error de batería de reloj baja.

Más información

Para obtener más información sobre el registrador de datos RFL100, consulte *RFL100 User Guide M211861EN*, disponible en www.vaisala.com.

Soporte técnico

Comuníquese con el servicio técnico de Vaisala en helpdesk@vaisala.com. Proporcione, al menos, la siguiente información complementaria:

- Nombre del producto, modelo y número de serie
- Nombre y ubicación del lugar de instalación
- Nombre e información de contacto del técnico que pueda proporcionar más información sobre el problema

Para obtener más información, consulte www.vaisala.com/support.

Garantía

Para obtener nuestros términos y condiciones estándar de garantía, consulte www.vaisala.com/warranty.

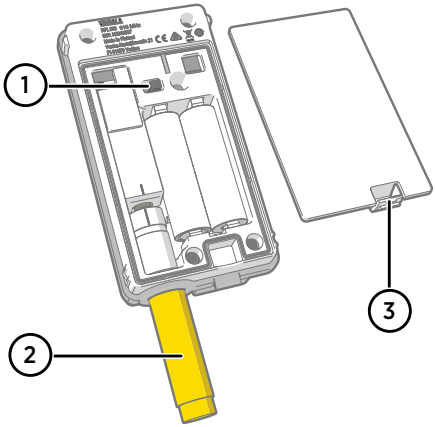
Tenga presente que dicha garantía puede perder su validez en caso de daño debido al desgaste normal, a condiciones de operación excepcionales, a manipulación o instalación negligente, o a modificaciones no autorizadas. Para conocer los detalles de la garantía de cada producto, consulte el contrato de suministro o las condiciones de venta correspondientes.

Reciclaje

Recicle todo el material que corresponda.

Siga las normas establecidas para desechar el producto y el empaque.

Configuração do Data Logger RFL100



1 Botão liga/desliga.
2 Tampa de proteção. Remover após a conclusão da instalação.
3 Trava da tampa da bateria.

1. Abra a tampa da bateria do data logger.
2. Mova o botão liga/desliga para a posição **On**.
3. Feche a tampa da bateria do data logger. **Pressione a trava para baixo até ouvir um clique.** Se a tampa não fechar com facilidade, empurre a sonda e tente novamente.
4. Observe o visor e verifique se:
   - O indicador de bateria mostra baterias totalmente carregadas .
   - O visor mostra leituras de medições, em vez de traços ou códigos de erro. Se as leituras das medições não forem mostradas após alguns segundos, verifique se a sonda está conectada corretamente.

Quando o data logger RFL100 é ligado, ele começa a procurar pontos de acesso VaiNet que estão no modo de instalação. O RFL100 conectará ao ponto de acesso com a maior intensidade de sinal e aguardará ser aceito pelo administrador do viewLinc Enterprise Server.

Montagem do RFL100

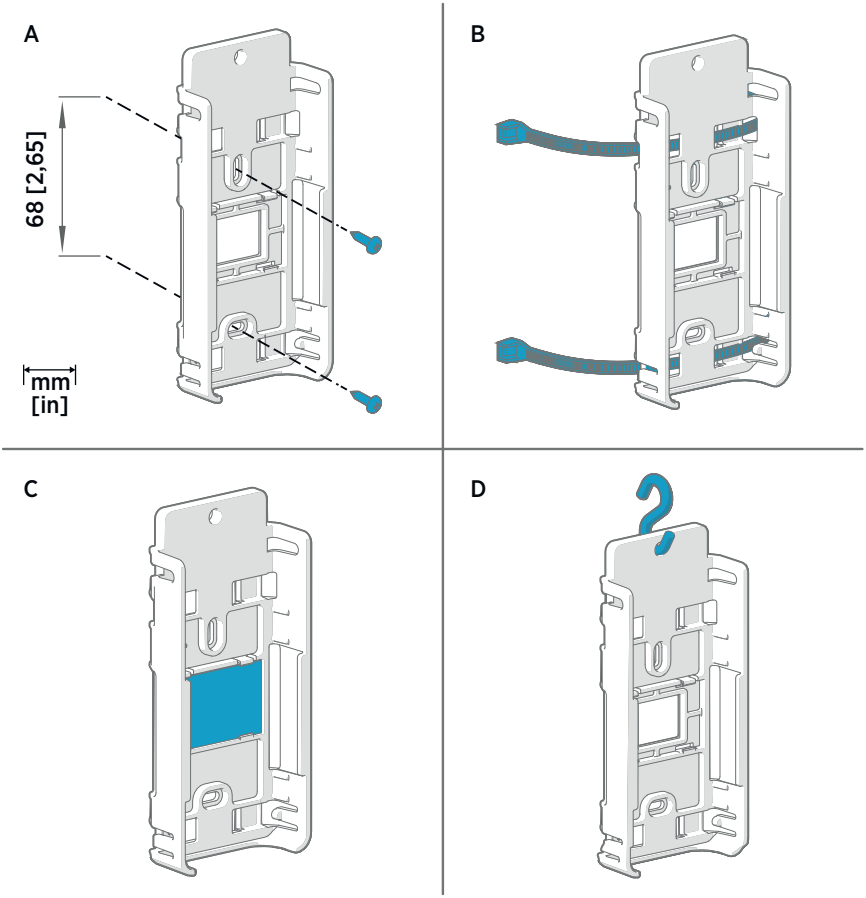


Figura 25 Métodos de montagem do RFL100

A Montagem com parafusos. Parafusos e buchas são fornecidos com o data logger.
B Montagem com braçadeiras. As braçadeiras são fornecidas com o data logger.
C Montagem magnética (com o suporte de montagem magnético opcional)
D Montagem com gancho (ganho não incluído)

1. Selecione um local de montagem adequado. Um bom local é aquele facilmente acessível, protegido contra água e condensação e permanece dentro da faixa de temperatura de operação do RFL100:
   - +2 ... +60 °C (+35,6 ... +140 °F) com pilhas alcalinas
   - -20 ... +60 °C (-4 ... +140 °F) com baterias de lítio

   Use a sonda HMP110 para medir uma faixa mais ampla de condições (faixa de temperatura de operação de -40 ... +80 °C (-40 °F ... +176 °F). A sonda HMP110 é sempre conectada por meio de um cabo de conexão. Por isso, você pode manter o data logger RFL100 remotamente em um ambiente adequado para sua especificação.

2. Fixe o suporte de montagem usando um dos métodos mostrados na Figura 25 (página 46). Oriente o suporte verticalmente de modo que a sonda ou o cabo da sonda aponte para baixo após a instalação. Não instale o RFL100 sem o suporte de montagem.

   CUIDADO Se estiver montando o data logger em uma altura superior a 2 m (6 ft) ou em um local que poderia ser perigoso se ele caísse, certifique-se de que o suporte de montagem seja fixado firmemente com parafusos ou braçadeiras.

3. Deslize o logger para o suporte de montagem com a sonda ou o cabo da sonda apontando para baixo.
4. Remova o filme protetor do visor e remova o plugue amarelo da sonda.

5. Se a sonda estiver conectada a um cabo, coloque a sonda no local de medição desejado e prenda o cabo.
6. Recomendado: Aplique etiquetas de localização ao suporte de montagem e ao Data Logger RFL100 de acordo com seu plano de instalação e as políticas da empresa.

Indicadores de conexão

Tabela 9 Símbolos

Símbolo	Descrição
	Data Logger
	Ponto de acesso
	viewLinc Enterprise Server
	Conexão OK
	Conexão indisponível no momento

Tabela 10 Estados de conexão

Símbolos no visor	Descrição
	O data logger está procurando um ponto de acesso.
	O data logger falhou ao encontrar um ponto de acesso que está no modo de instalação. O ícone do servidor viewLinc não é mostrado, pois o data logger ainda não foi aceito em um sistema viewLinc.
	O data logger falhou ao conectar a um ponto de acesso que pertence à sua própria rede.
	O data logger se conectou com êxito a um ponto de acesso, mas não há conexão entre o ponto de acesso e o servidor viewLinc.
	O data logger se conectou com êxito a um ponto de acesso e a conexão entre o ponto de acesso e o servidor viewLinc está OK. O símbolo do viewLinc está piscando para indicar que o data logger está esperando para ser aceito no sistema viewLinc como um novo dispositivo.
	O data logger se conectou com êxito a um ponto de acesso e a conexão entre o ponto de acesso e o servidor viewLinc está OK. O data logger foi aceito no sistema viewLinc.

Visão Geral do RFL100

O Data Logger RFL100 Vaisala é um data logger de umidade e temperatura totalmente sem fio e alimentado por bateria. Ele deve ser usado como um ponto de coleta de dados no Sistema de Monitoramento viewLinc da Vaisala.

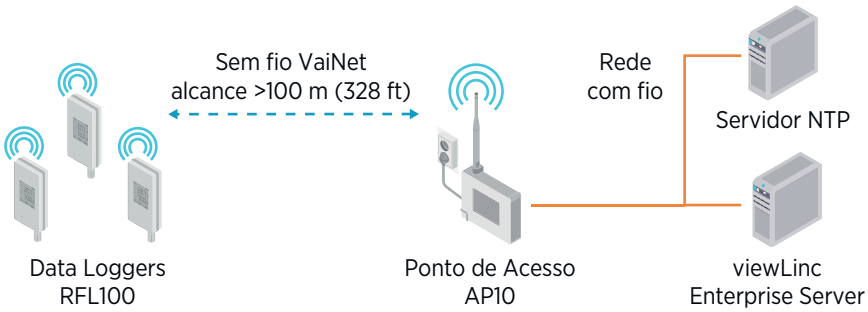


Figura 26 Conexão do RFL100 ao Sistema de Monitoramento Continuo.

O RFL100 requer uma conexão para um Ponto de Acesso Vaisala AP10. O AP10 pode conectar até 32 data loggers no Sistema de Monitoramento viewLinc. Em áreas internas típicas, instale o AP10 até 100 metros do RFL100. Em espaços abertos sem muitas estruturas para interferir, o alcance pode ser significativamente maior.

O RFL100 é otimizado para operação com baixo consumo de energia. Ele lê a sonda uma vez por minuto e transmite dados de medição para o ponto de acesso a cada quatro minutos. Como o link via rádio não é continuo, ações de gerenciamento remoto e status de ingresso ao sistema podem demorar algum tempo para ser atualizados no visor do data logger.

Antes de instalar os data loggers RFL100, instale o viewLinc Enterprise Server e pelo menos um Ponto de Acesso AP10dentro do alcance do RFL100. Dessa forma, o RFL100 pode descobrir imediatamente seu ponto de acesso e ingressar em seu sistema.
Para obter mais informações sobre a instalação do Sistema de Monitoramento viewLinc, consulte o *viewLinc Setup Guide*.

Componentes do RFL100

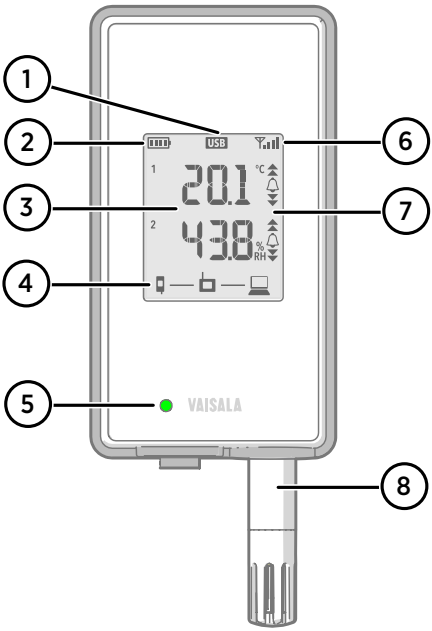


Figura 27 Frente e visor

1 Indicador de conexão da porta de serviço.
2 Indicador de nível da bateria.
3 Valores medidos no momento.
4 Indicadores de conexão.
5 LED de status. Pisca em verde para operação normal, vermelho para erro ou alarme.
6 Intensidade de sinal da conexão do ponto de acesso.
7 Indicadores de alarme. Os alarmes são configurados no software viewLinc Enterprise Server.
8 Sonda ou cabo de sonda desconectável.

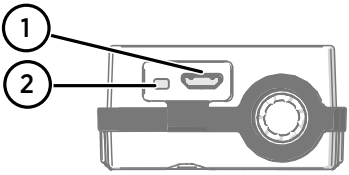


Figura 28 Sob o plugue de silicone

1 Porta de serviço (micro-USB).
2 Botão **Refresh**. Pressione para habilitar um intervalo de varredura sem fio mais rápido por uma hora. Também ativa o visor, se ele foi desativado remotamente, e mostra a versão do firmware e o canal VaiNet conectado no momento.

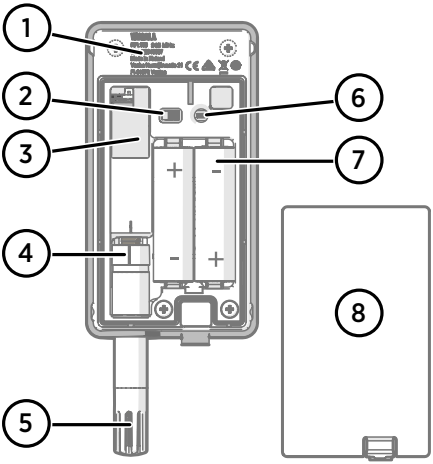


Figura 29 Traseira e interior

1 Etiqueta de tipo.
2 Botão liga/desliga.
3 Bateria do relógio.
4 Marca de orientação da sonda. Ao conectar a sonda, alinhe as marcas na sonda e acima do conector antes de empurrar a sonda na direção do conector.
5 Sensores de umidade e/ou temperatura sob o filtro.
6 Botão **Release**. Pressione para liberar o RFL100 de seu sistema viewLinc atual e permitir que ele se conecte a qualquer sistema viewLinc.
7 Baterias principais. Use somente pilhas não recarregáveis AA de 1,5 V alcalinas (LR6) ou de lítio (FR6).
8 Tampa da bateria.

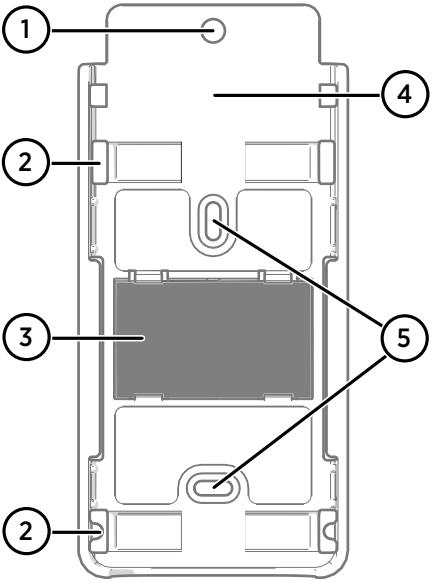


Figura 30 Suporte de montagem

1 Furo de 6 mm (0,23 pol.) para montagem com gancho.
2 Furos para montagem com braçadeiras.
3 Ímã forte (somente no suporte de montagem magnético). **Manuseie com cuidado.**
4 Área adequada para fixação de etiquetas.
5 Furos de 3,80 mm (0,15 pol.) para montagem com parafusos.

Baterias do RFL100

Baterias principais

O Data Logger RFL100 é alimentado por duas pilhas não recarregáveis AA com tensão nominal de 1,5 V. A operação do data logger exige sempre que pilhas compatíveis com tensão suficiente (mínimo de 2,6 V em série) sejam usadas. Ao substituir as pilhas, use sempre pilhas novas, e não pilhas parcialmente descarregadas. Os tipos de pilhas compatíveis são:

- Pilhas alcalinas de 1,5 V, designação IEC-LR6, ANSI 15A. A escolha padrão para a maioria das aplicações.
- Pilhas de lítio de 1,5 Vm, designação IEC-FR14505 (FR6), ANSI 15-LF. Em geral, possuem maior capacidade e funcionam melhor em temperaturas frias.

CUIDADO Não use pilhas com tensão nominal superior a 1,5 V.

O uso de pilhas recarregáveis não é recomendado. O RFL100 não carregará baterias mesmo que a porta de serviço esteja conectada a uma fonte de alimentação.

Bateria do relógio

O RFL100 também possui uma bateria de lítio de 3 V separada (tipo botão CR1/3N) para manter o relógio de tempo real ativo quando o dispositivo está desligado. A duração dessa bateria é de 10 anos e deverá ser substituída somente se o data logger mostrar o erro de bateria do relógio fraca.

Mais informações

Para obter mais informações sobre o Data Logger RFL100, consulte o *RFL100 User Guide M211861EN* que está disponível em www.vaisala.com.

Suporte técnico

Contate o suporte técnico da Vaisala em helpdesk@vaisala.com. Forneça as seguintes informações de suporte:

- Nome, modelo e número de série do produto
- Nome e endereço do local de instalação
- Nome e informações de contato de um técnico que possa fornecer informações adicionais sobre o problema

Para obter mais informações, consulte www.vaisala.com/support.

Garantia

Para obter os termos e condições de garantia padrão, consulte www.vaisala.com/warranty.

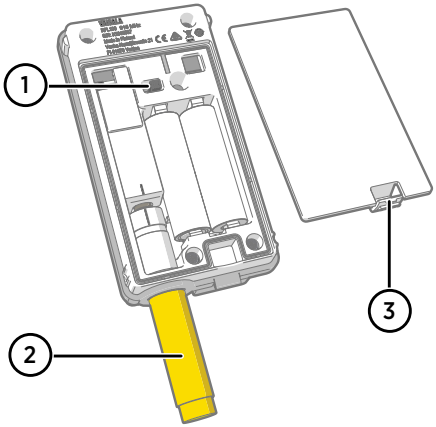
Observe que essa garantia poderá não ser válida em caso de danos resultantes da utilização e desgaste normais, condições de funcionamento excepcionais, manuseio ou instalação negligentes ou modificações não autorizadas. Consulte o contrato de fornecimento ou as Condições de venda aplicáveis para obter detalhes relativos à garantia de cada produto.

Reciclagem

Recicle todos os materiais aplicáveis.

Cumpra as normas legais aplicáveis ao descarte do produto e da embalagem.

设置 RFL100 数据记录仪



1 电源开关。
2 保护盖。安装完毕后拆下。
3 电池盖闩锁。

1. 打开数据记录仪的电池盖。
2. 将电源开关移动到**打开**位置。
3. 关闭数据记录仪的电池盖。**向下按闩锁，直到听到咔哒声。**如果盖不能轻松关闭，请向内按探头，然后重试。
4. 查看显示屏并验证：
   - 电池指示器是否显示满电量。
   - 显示屏是否显示测量读数而非短划线或错误代码。如果在几秒后不显示测量读数，请检查是否已正确连接探头。

打开 RFL100 后，它将开始扫描处于安装模式的 VaiNet 接入点。RFL100 将会连接到信号强度最强的接入点，并等待 viewLinc Enterprise Server 管理员接受。

中文

安装 RFL100

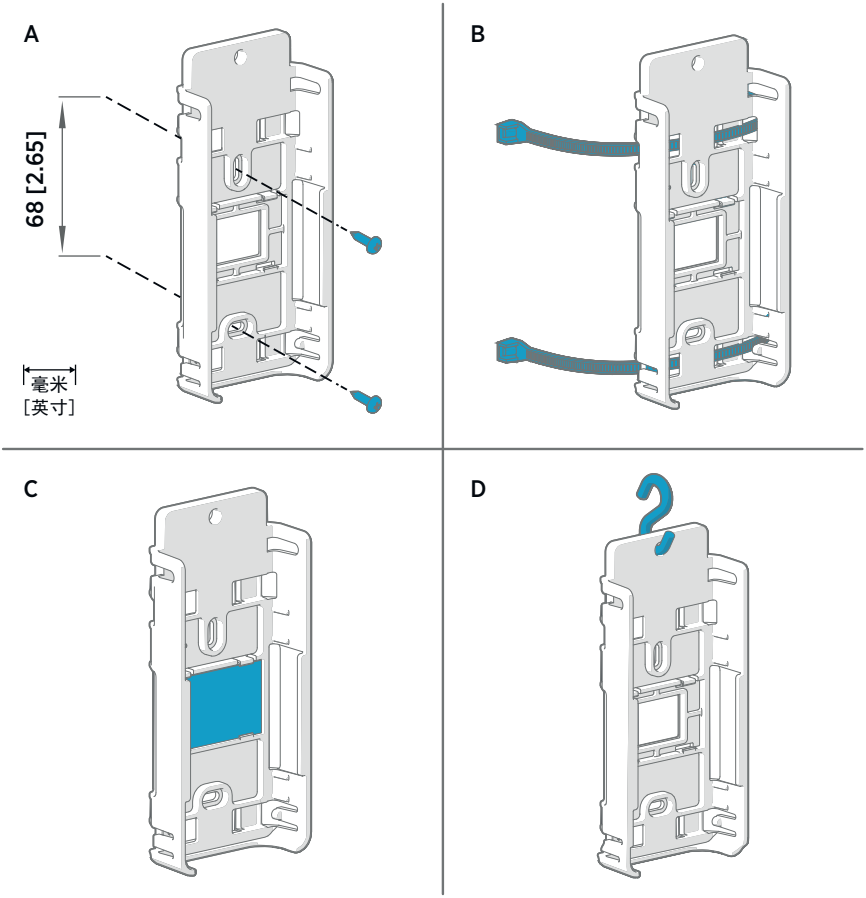


图 31　RFL100 安装方法

A　使用螺钉进行安装。数据记录仪附带螺钉和墙壁电源插头。
B　使用束线带进行安装。数据记录仪附带束线带。
C　磁性安装（带有可选的磁性安装支架）
D　使用挂勾进行安装（不含挂勾）

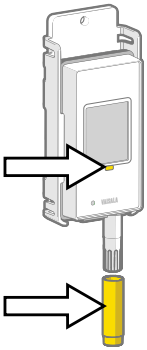
1. 选择适当的安装位置。合适的位置应便于接近、不受水和冷凝影响，并且保持在 RFL100 的工作温度范围内：
   - +2 ...+60 °C (+35.6 ...+140 °F)（使用碱性电池）
   - -20 ...+60 °C (-4 ... +140 °F)（使用锂电池）

使用 HMP110 探头可测量更宽的条件范围（工作温度范围 -40 ...+80 °C (-40 °F ...+176 °F)。HMP110 探头始终使用连接电缆进行连接，因此可以将 RFL100 数据记录仪放在与其规格相适应的环境中。

2. 使用图 31 (页 56)所示的安装方法之一连接安装支架。让支架处于垂直方向，使探头或探头电缆在安装后指向下方。在没有安装支架的情况下请勿连接 RFL100。

警告 如果数据记录仪的安装高度大于 2 米（6 英尺）或者安装在坠落后可能带来危险的位置，请确保用螺钉或束线带将安装支架牢牢固定。

3. 将记录仪滑入到安装支架中，让探头或探头电缆指向下方。
4. 从显示屏上撕掉保护膜并从探头上取下黄色塞子。



5. 如果探头用电缆连接，请将探头放在所需的测量位置并固定电缆。
6. 建议：按照安装计划和公司政策向安装支架和 RFL100 数据记录仪上粘贴位置标签。

连接指示器

表 11　符号

符号	说明
	数据记录仪
	接入点
	viewLinc Enterprise Server
	连接正常
	连接当前不可用

表 12　连接状态

显示屏上的符号	说明
	数据记录仪正在搜索接入点。
	数据记录仪找不到处于安装模式的接入点。未显示 viewLinc 服务器图标，因为 viewLinc 系统尚未接受该数据记录仪。
	数据记录仪未能连接到属于其自己网络的接入点。
	数据记录仪已成功连接到接入点，但该接入点未连接到 viewLinc 服务器。
	数据记录仪已成功连接到接入点，并且该接入点与 viewLinc 服务器之间的连接也正常。viewLinc 符号闪烁指示数据记录仪正在等待 viewLinc 系统接受其成为新设备。
	数据记录仪已成功连接到接入点，并且该接入点与 viewLinc 服务器之间的连接也正常。数据记录仪已被 viewLinc 系统接受。

RFL100 概述

Vaisala RFL100 数据记录仪是一种完全无线的电池供电湿度和温度数据记录仪。它适合用作 Vaisala viewLinc 监控系统中的一个数据采集点。

图 32　将 RFL100 连接到 viewLinc 监控系统

RFL100 需要连接到 Vaisala AP10 接入点。AP10 最多可以将 32 个记录仪连接到 viewLinc 监控系统。在典型室内空间中，将 AP10 安装在 RFL100 周围 100 米以内的范围内。在没有许多干扰结构的开放空间中，范围可能高得多。

RFL100 已针对低功耗运行进行了优化。它每分钟读取一次探头，并且每四分钟向数据点传输一次测量数据。由于无线电链路不是连续的，远程管理操作和系统加入状态在数据记录仪的显示屏上可能需要一段时间才会更新。

在开始安装 RFL100 数据记录仪之前，请在 RFL100 的有效范围内安装 viewLinc Enterprise Server 和至少一个 AP10 接入点。这样，RFL100 可以立即发现您的接入点并加入您的系统。
有关 viewLinc 监控系统安装的更多信息，请参见 viewLinc Setup Guide。

RFL100 部件

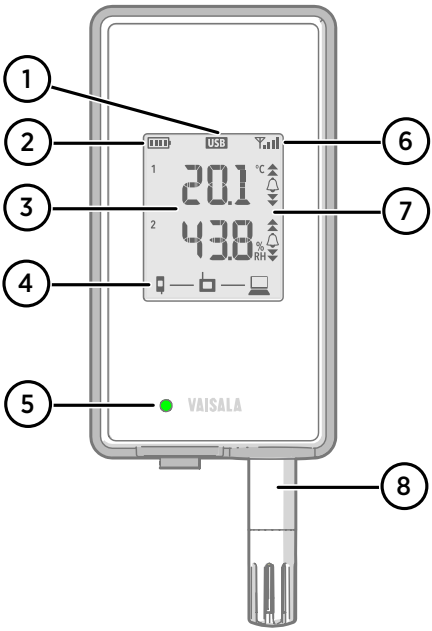


图 33　正面和显示屏

1　服务端口连接指示器。
2　电池电量指示器。
3　当前测量的值。
4　连接指示器。
5　状态灯。闪烁绿光表示正常运行，闪烁红光表示错误或警报。
6　接入点连接的信号强度。
7　警报指示器。警告是在 viewLinc Enterprise Server 软件中配置的。
8　可拆卸探头或探头电缆。

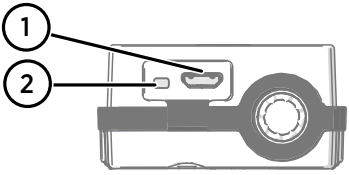


图 34　硅树脂塞的下面

1　服务端口 (Micro-USB)。
2　**Refresh** 按钮。按下此按钮可启用更快的无线扫描间隔，持续一小时。还可唤醒显示屏（如果已被远程关闭），并显示固件版本和当前连接的 VaiNet 通道。

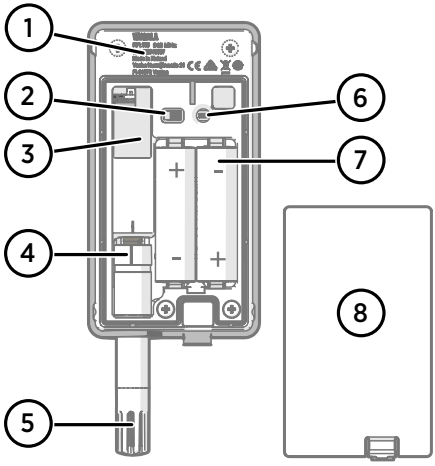


图 35　背面和内部

1　类型标签。
2　打开/关闭开关。
3　时钟电池。
4　探头方向标记。连接探头时，先对齐探头上以及接头上方的标记，然后再将探头按到接头上。
5　过滤器下方的湿度和/或温度传感器。
6　**Release** 按钮。按下此按钮可从当前的 viewLinc 系统中释放 RFL100，并允许它连接到任何 viewLinc 系统。
7　主电池。只能使用非可充电的 1.5 V AA 碱性电池 (LR6) 或锂电池 (FR6)。
8　电池盖。

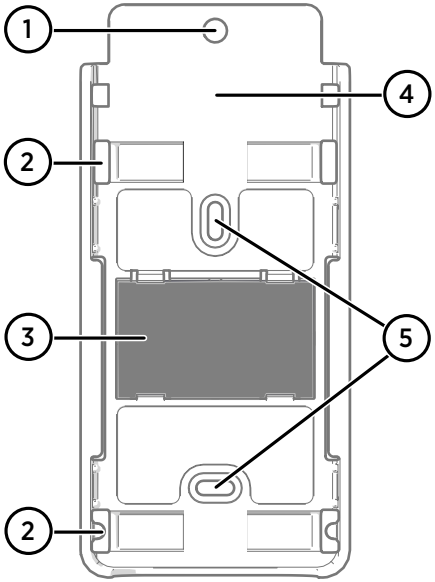


图 36　安装支架

1　用于挂勾安装的 6 毫米（0.23 英寸）孔。
2　用于束线带安装的孔。
3　强磁体（仅在磁性安装支架中）。**请小心处理。**
4　适合粘贴标签的区域。
5　用于螺钉安装的 3.80 毫米（0.15 英寸）孔。

RFL100 电池

主电池

RFL100 数据记录仪由两节标称电压为 1.5 V 的 AA 主电池（不可充电）供电。数据记录仪运行时始终需要使用电压足够高（最低 2.6 V 串联）的兼容电池。在更换电池时，应始终使用新电池，而不是部分放电的电池。兼容的电池类型为：

· 1.5 V 碱性电池，牌号 IEC-LR6、ANSI 15A。适合大多数应用的标准选择。

- 1.5 V 锂电池，牌号 IEC-FR14505 (FR6)、ANSI 15-LF。容量通常更高，更适用于低温环境。

警告 请勿使用标称电压高于 1.5 V 的电池。

建议不要使用可充电电池。即使服务端口已连接到电源，RFL100 也不会为电池充电。

时钟电池

RFL100 还有一个单独的 3 V 锂电池（CR1/3N 型钮扣电池），当设备关闭时，可为实时时钟供电。此电池可以正常工作 10 年，只应在数据记录仪显示时钟电池电量低错误时进行更换。

更多信息

有关 RFL100 数据记录仪的更多信息，请参见 RFL100 User Guide M211861EN，网址为 www.vaisala.com。

技术支持

请与 Vaisala 技术支持部门联系：helpdesk@vaisala.com。请至少提供以下支持信息：

- 产品名称、型号和序列号
- 安装地点的名称和位置
- 可对问题提供更多信息的技术人员的姓名和联系信息

有关详细信息，请参见 www.vaisala.com/support。

质保

有关标准质保条款和条件，请参见 www.vaisala.com/warranty。

请注意，因正常磨损、异常工作环境、操作或安装疏忽或未经授权的改动导致的设备损坏，不在任何此类质保的范围之列。 有关每种产品质保的详细信息，请参见适用的供货合同或销售条款。

产品回收

回收再利用所有可用材料。

请遵守有关处置产品和包装的法律规定。

Regulatory Compliances

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING! Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

WARNING! This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

ISED Compliance Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This device has a PCB integrated inverted F-antenna with a gain of 1 dBi.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Le présent appareil dispose d'une antenne F inversée intégrée à la carte avec un gain de 1 dBi.

CAUTION! This device requires a separation distance of at least 20 cm. This distance must be maintained between the user and the device when the device is operating.

ATTENTION Cet appareil nécessite une distance de séparation d'au moins 20 cm. Cette distance doit être maintenue entre l'utilisateur et l'appareil lorsque l'appareil est en fonctionnement.

EU Declaration of Conformity

BG: С настоящото Vaisala Oyj декларира, че този тип радиосъоръжение RFL100 е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: www.vaisala.com/declarationofconformity

CS: Tímto Vaisala Oyj prohlašuje, že typ rádiového zařízení RFL100 je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: www.vaisala.com/declarationofconformity

DA: Hermed erklærer Vaisala Oyj , at radioudstyrstypen RFL100 er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: www.vaisala.com/declarationofconformity

DE: Hiermit erklärt Vaisala Oyj , dass der Funkanlagentyp RFL100 der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: www.vaisala.com/declarationofconformity

EL:Με την παρούσα ο/η Vaisala Oyj , δηλώνει ότι ο ραδιοεξοπλισμός RFL100 πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: www.vaisala.com/declarationofconformity

EN: Hereby, Vaisala Oyj declares that the radio equipment type RFL100 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.vaisala.com/declarationofconformity

ES: Por la presente, Vaisala Oyj declara que el tipo de equipo radioeléctrico RFL100 es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: www.vaisala.com/declarationofconformity

ET: Käesolevaga deklareerib Vaisala Oyj , et käesolev raadioseadme tüüp RFL100 vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil: www.vaisala.com/declarationofconformity

FI: Vaisala Oyj vakuuttaa, että radiolaitetyyppi RFL100 on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: www.vaisala.com/declarationofconformity

FR: Le soussigné, Vaisala Oyj , déclare que l'équipement radioélectrique du type RFL100 est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: www.vaisala.com/declarationofconformity

HR: Vaisala Oyj ovime izjavljuje da je radijska oprema tipa RFL100 u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: www.vaisala.com/declarationofconformity

HU: Vaisala Oyj igazolja, hogy a RFL100 típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: www.vaisala.com/declarationofconformity

IT: Il fabbricante, Vaisala Oyj , dichiara che il tipo di apparecchiatura radio RFL100 è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: www.vaisala.com/declarationofconformity

LT: Aš, Vaisala Oyj , patvirtinu, kad radijo įrenginių tipas RFL100 atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu: www.vaisala.com/declarationofconformity

LV: Ar šo Vaisala Oyj deklarē, ka radioiekārta RFL100 atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: www.vaisala.com/declarationofconformity

MT: B'dan, Vaisala Oyj , niddikjara li dan it-tip ta' tagħmir tar-radju RFL100 huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej: www.vaisala.com/declarationofconformity

NL: Hierbij verklaar ik, Vaisala Oyj , dat het type radioapparatuur RFL100 conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: www.vaisala.com/declarationofconformity

PL: Vaisala Oyj niniejszym oświadcza, że typ urządzenia radiowego RFL100 jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym: www.vaisala.com/declarationofconformity

PT: O(a) abaixo assinado(a) Vaisala Oyj declara que o presente tipo de equipamento de rádio RFL100 está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet: www.vaisala.com/declarationofconformity

RO: Prin prezenta, Vaisala Oyj declară că tipul de echipamente radio RFL100 este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: www.vaisala.com/declarationofconformity

SK: Vaisala Oyj týmto vyhlasuje, že rádiové zariadenie typu RFL100 je v súlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese: www.vaisala.com/declarationofconformity

SL: Vaisala Oyj potrjuje, da je tip radijske opreme RFL100 skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: www.vaisala.com/declarationofconformity

SV: Härmed försäkrar Vaisala Oyj att denna typ av radioutrustning RFL100 överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress: www.vaisala.com/declarationofconformity

OSS Licenses

This document contains the licenses and notices for open source software used in this product. With respect to the open source software listed in this document, if you have any questions, please contact us at opensourcesw@vaisala.com.

Library	Version	License	Copyright
jsmn	N/A	MIT	Serge A. Zaitsev
aes	N/A	BSD-3-clause	Brian Gladman
cmac	N/A	MIT	Lander Casado, Philippas Tsigas
mbedTLS [1)]	2.2.0-apache	Apache 2.0	ARM Limited, All Rights Reserved
SystemView	V2.40a	BSD-3-clause	SEGGER Microcontroller GmbH & Co. KG
CMSIS	V4.30	BSD-3-clause	ARM LIMITED

1) aes.c, aes.h, check_config.h, config.h, sha256.c, sha256.h

Copyright (c) 2010 Serge A. Zaitsev

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 1998-2008, Brian Gladman, Worcester, UK. All rights reserved.

LICENSE TERMS

The redistribution and use of this software (with or without changes) is allowed without the payment of fees or royalties provided that:

1. source code distributions include the above copyright notice, this list of conditions and the following disclaimer;

2. binary distributions include the above copyright notice, this list of conditions and the following disclaimer in their documentation;

3. the name of the copyright holder is not used to endorse products built using this software without specific written permission.

DISCLAIMER

This software is provided 'as is' with no explicit or implied warranties in respect of its properties, including, but not limited to, correctness and/or fitness for purpose.

Copyright (C) 2009 Lander Casado, Philippas Tsigas

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal with the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimers.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimers in the documentation and/or other materials provided with the distribution.

In no event shall the authors or copyright holders be liable for any special, incidental, indirect or consequential damages of any kind, or any damages whatsoever resulting from loss of use, data or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of this software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE CONTRIBUTORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS WITH THE SOFTWARE

(c) 2015 - 2016 SEGGER Microcontroller GmbH & Co. KG

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of SEGGER Microcontroller GmbH & Co. KG nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL SEGGER Microcontroller BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR

CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2009 - 2015 ARM LIMITED

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of ARM nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL COPYRIGHT HOLDERS AND CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (C) 2006-2015, ARM Limited, All Rights Reserved

SPDX-License-Identifier: Apache-2.0

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity

(including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

VAISALA

www.vaisala.com