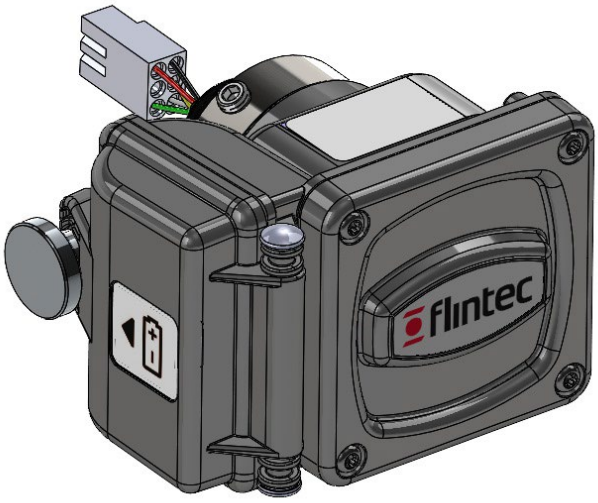
User Manual



CC PRO-A – 30/50klb

Table of Contents

1 Product Description

The CC P*RO*-A *(**PeR**formance **O**ptimization)* is an adaptor to convert a wired loadcell into a wireless system. The CC P*RO*-A system transmits polished-rod load data and position sensing data wirelessly, solving the industry wide problem of cable failures. The CC P*RO*-A technology sets our product apart from other wireless products currently available in the market. The primary advantage we bring is extremely low power consumption. Despite the low power consumption, the product can deliver a continuous flow of data, high signal strength and long battery life.

We also offer position sensing capability synchronized with the load measurement. This eliminates the need for hall effect sensors or inclinometers and the costly maintenance. The wireless enclosure also incorporates independent compartments for both the wireless technology and the battery. This allows for easy, single-handed access to the battery for replacement in the field. The pre-wired 'D cell' battery is inexpensive and commercially available.

- Data-Rate: 100 readings per second.
- Power Consumption: 12–18-month Battery Life.
- Signal Strength: ≥ +10dBm, 30-300m (Line-of-Sight).
- HazLoc Approval: UL rated Class 1, Division 1 Environments (see Label for Full Approval).
- Security: Proprietary Wireless Transmission Protocol.
- Ease of Use: Independent Battery Access, Commercially Available Battery.
- Weatherproof: IP67 Rating -70°F to 175°F (-55°C to +80°C).

Contents of Box:

- Transmitter (*Remote*).
- *Base* Unit (Receiver).
- Antenna (Wi-Fi).
- Antenna (Load Cell RF).
- 10ft RF Extension Cable (Load Cell RF).
- Antenna Mounting Bracket (Load Cell RF).
- Magnetic Cable Clamps (3pcs) for RF Extension Cable.
- Lithium Battery.

Accessories (Sold Separately):

P/N 53-003004 - OD-73mm [2-7/8"], ID-39.7mm [1-9/16"], H-14mm [0.56"] Stainless Steel Washers.

P/N 52-0091955 - OD-88.6mm [3.49"], ID-42.4mm [1.67"], H-19mm [3/4"] Nickel Plated Load Spacer.

P/N 50-102581 - OD-74.9mm [2.95"] and ID-42.2mm [1.66"] Nickel Plated Spherical Washer (Male).

P/N 50-102582 - OD-74.9mm [2.95"] and ID-42.2mm [1.66"] Nickel Plated Spherical Washer (Female).

P/N 43-0124643 - SMA 50ft Antenna Extension Kit.

P/N 50-114493 - OD-124.46mm [4.9"] and ID-42.2mm [1.66"], H-29.2mm [1.15"] Nickel Plated Load Spacer (Female spherical washer match with 50-102581 male part).

P/N 52-0093380 – Pole Mount U Bolt Bracket.

P/N CC1W-ACCKIT-1 – M4 Allen Key, PG11 Gland & 5/16” Wrench.

P/N 43-003704 – 10ft SMA Low Loss RF Extension Cable.

P/N 43-003703 – 50ft SMA Low Loss RF Extension Cable.

2 Mounting Instructions

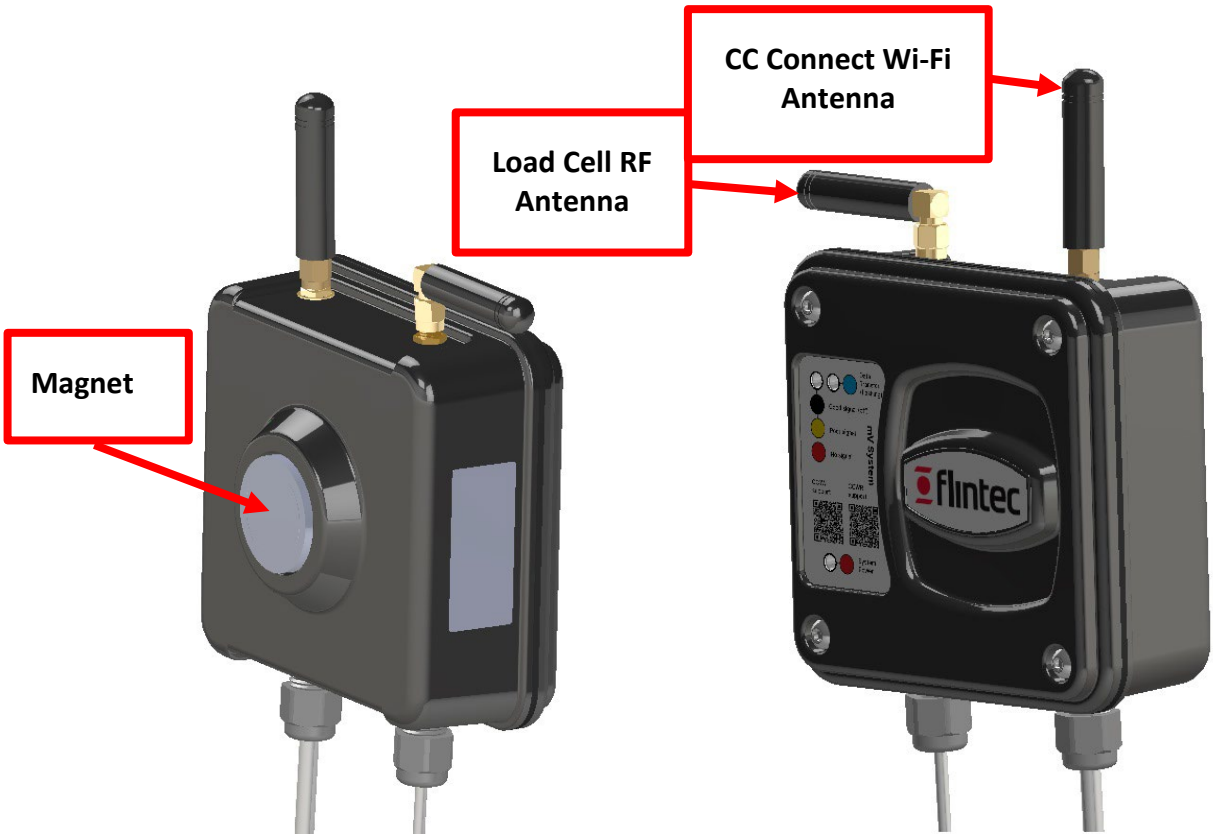
IMPORTANT

The employees responsible for the equipment installation and verification must take into consideration all the actions concerning this subject specified in IEC 60079-14:2013 ed. 5.0 (electrical installations design, selection and erection) standard. In addition to general specifications associated with any system installed in hazardous location, special attention to be paid for specific requirements regarding essential safety.

2.1 Base Unit

The Base unit is supplied with a magnet to the rear for easy mounting to a suitable metallic surface, usually inside the controller cabinet. It is IP67 rated and is suitable to be mounted inside or outside (within 3 feet) of the controller cabinet (cables & signals are not to be extended).

The Base must be mounted outside the hazardous area and is not intended to meet the hazardous location safety standards.



2.2 Base Unit Mounting

The Base unit can be attached on round profile poles with the optional mounting brackets and U-bolts. Other methods can be considered if the supplied methods are unsuitable.

An optional RF extension cable supplied can be used to mount the antenna closer to the Remote away from steel structures/elevate higher to gain better RF performance.

IMPORTANT: In order to achieve the best RF performance (Load Cell RF), the antenna attached must be perpendicular/horizontal to the polished rod.

2.3 Antenna Recommendations

Antenna Details

- **Omni Directional Antenna**

  CC PRO-A Base unit is equipped with an Omni-directional antenna to provide the widest possible signal coverage.

- **SMA Connector (Male)**

  The antenna is provided with a threaded, weatherproof, SMA male connector. This connector must be properly tightened to the mating connector on the enclosure.

- **Horizontal Alignment**

  Perpendicular/horizontal alignment of the antenna, relative to the polished rod, is essential.

- **Line-of-Sight**

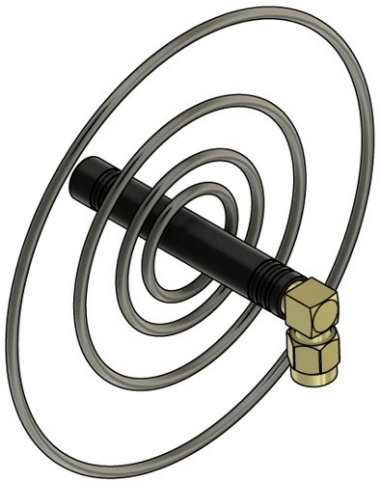
  Is important to ensure line of sight to the load cell is not compromised by obstacles. The Base unit should be mounted in such a way as to minimize obstacle interference.

  Note: Fresnel Zone (the area around the visual line-of-sight that radio waves spread out into after they leave the antenna) must be as clear as possible. Obstacles may weaken signal strength.

- **Antenna Height**

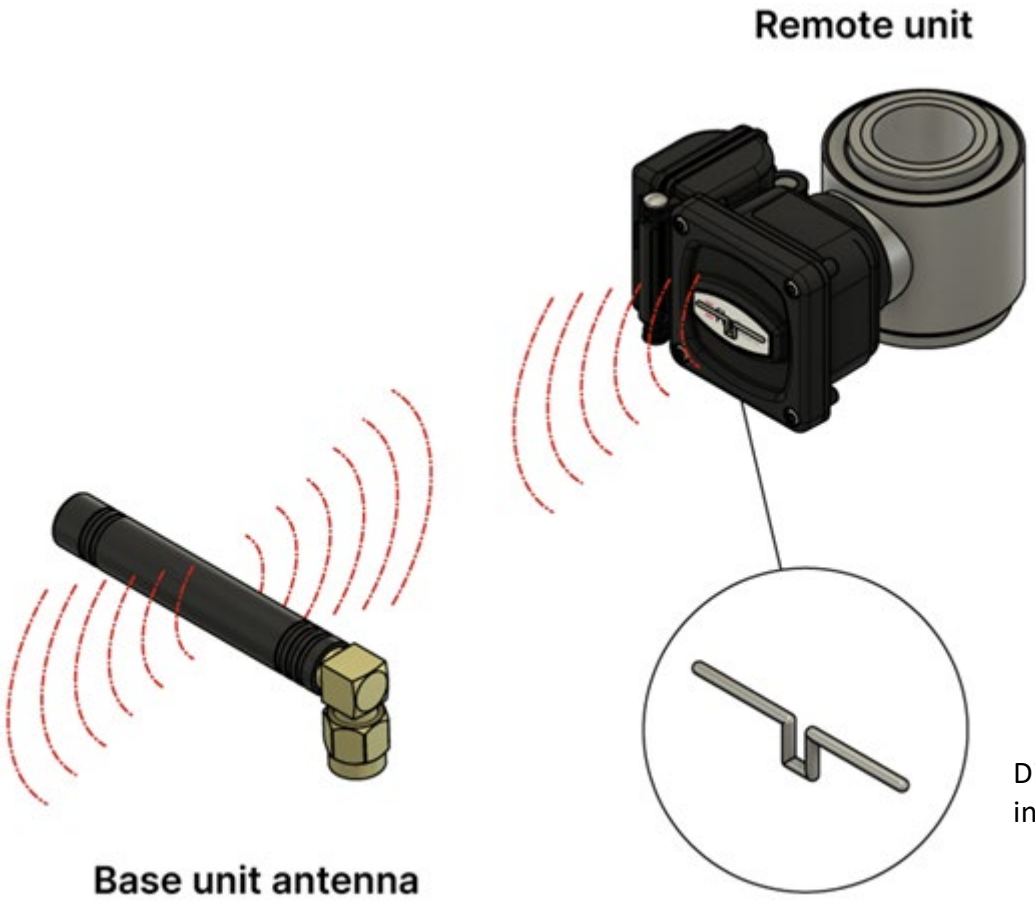
  The Base unit antenna can be positioned flexibly using the antenna extension cable. Mounting the antenna at a higher position to the Base unit may help to achieve a cleaner line of sight.

  Note: The use of the antenna extension cable should not result in the line of sight being compromised. The antenna should only be extended higher than the Base unit, it should not be positioned close to the ground.



2.4 Antenna Propagation

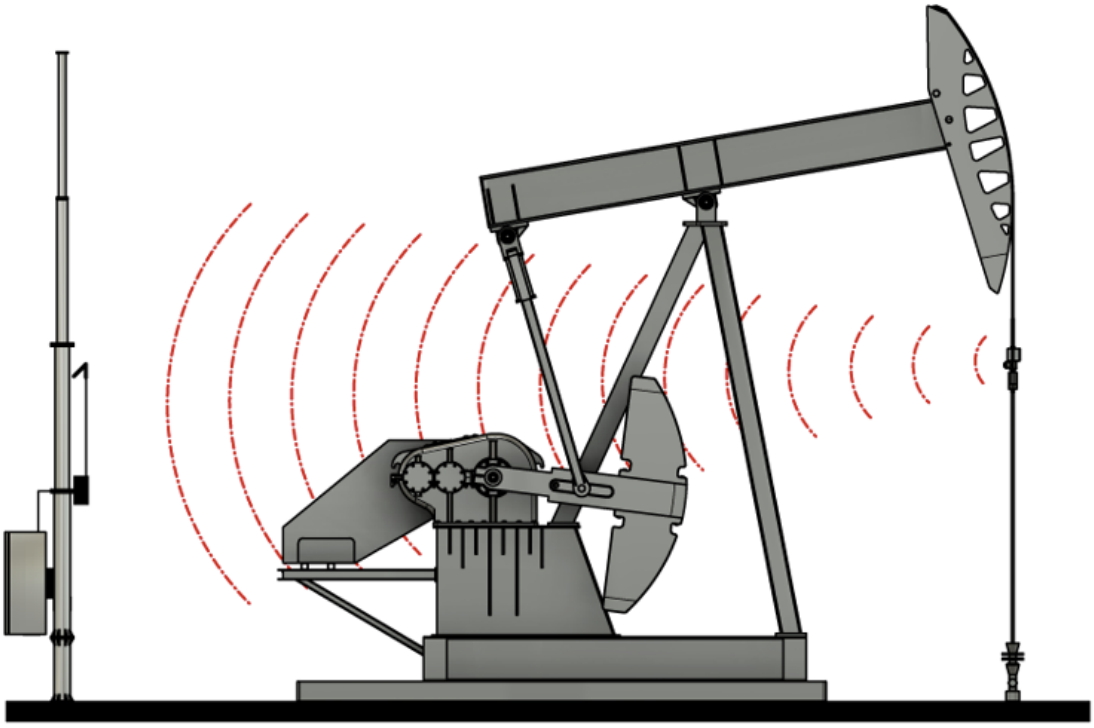
- The strongest signal radiates perpendicularly to the base unit's antenna length.
- The remote unit's strongest signal radiates from the logo, where the dipole antenna is situated.



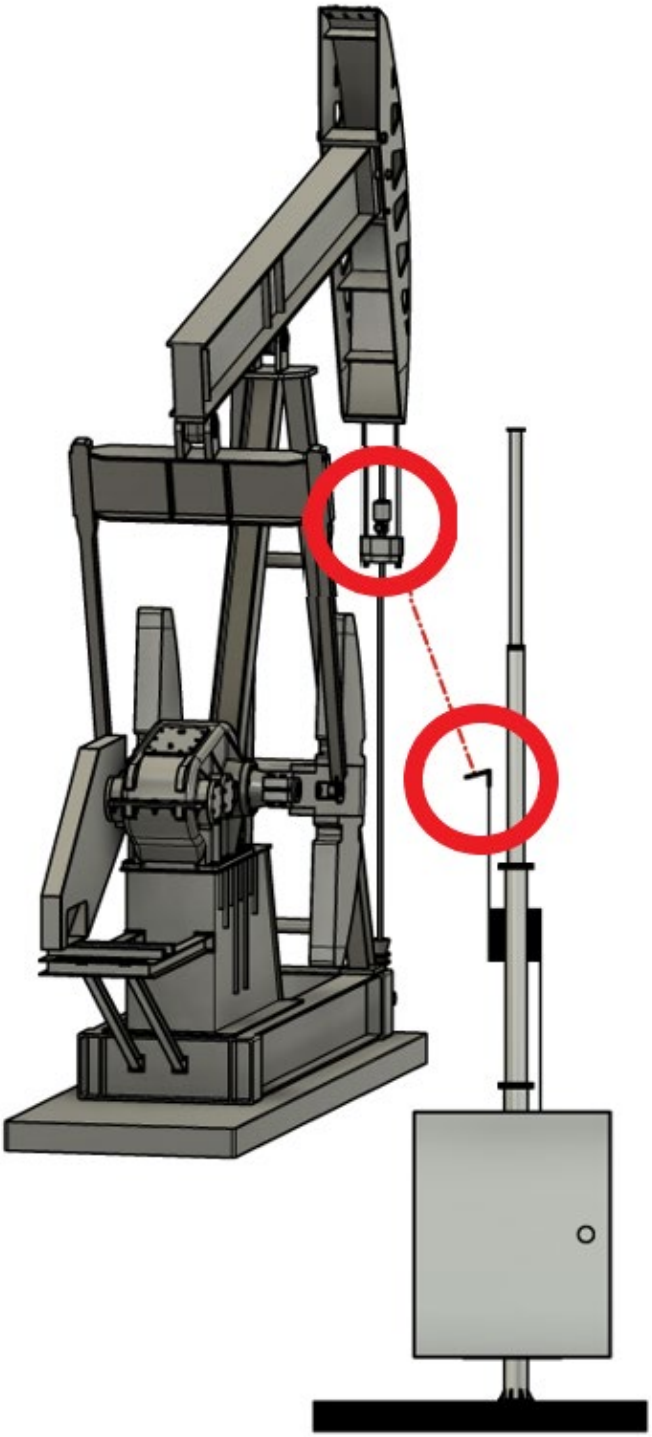
Dipole antenna inside the *Remote*.

Pump Jack Wells

- Mount the antenna as high as possible.
- Use the antenna extension cable to reach the additional height.
- An ideal place to mount the antenna is on the nearby mast.

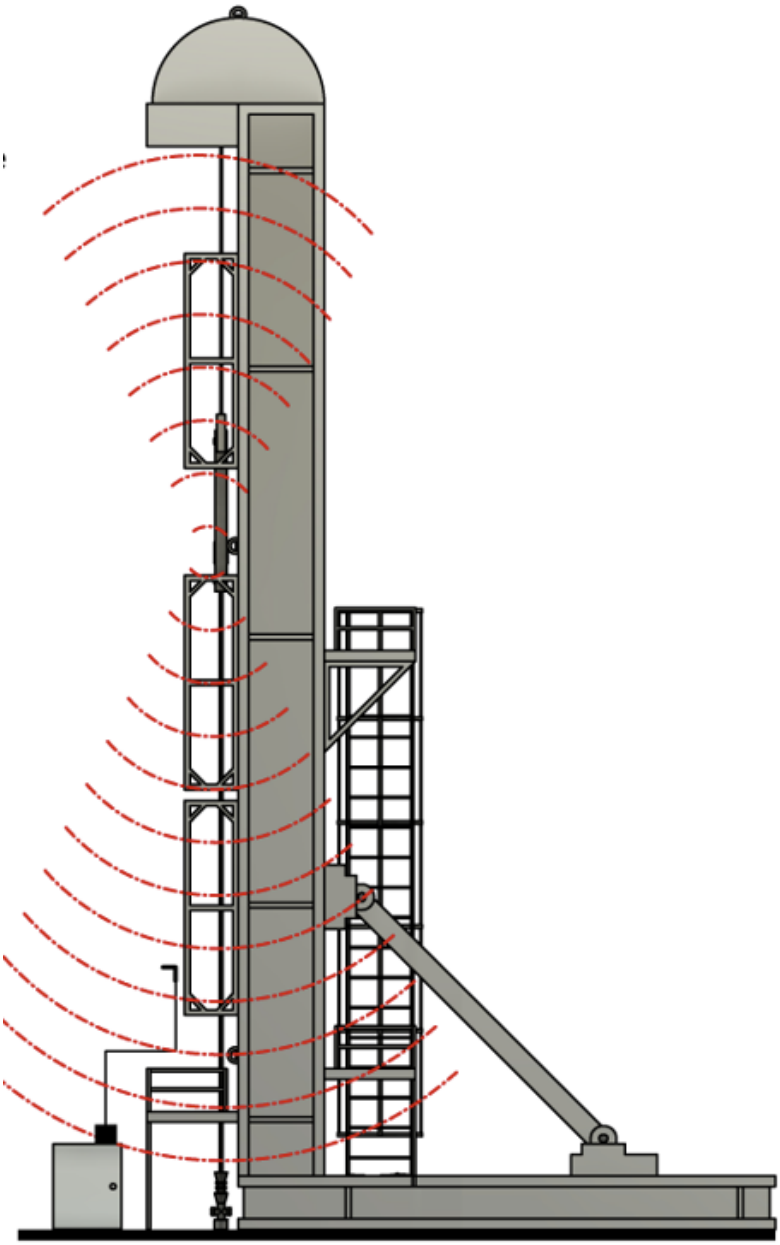


Line of Sight Communication



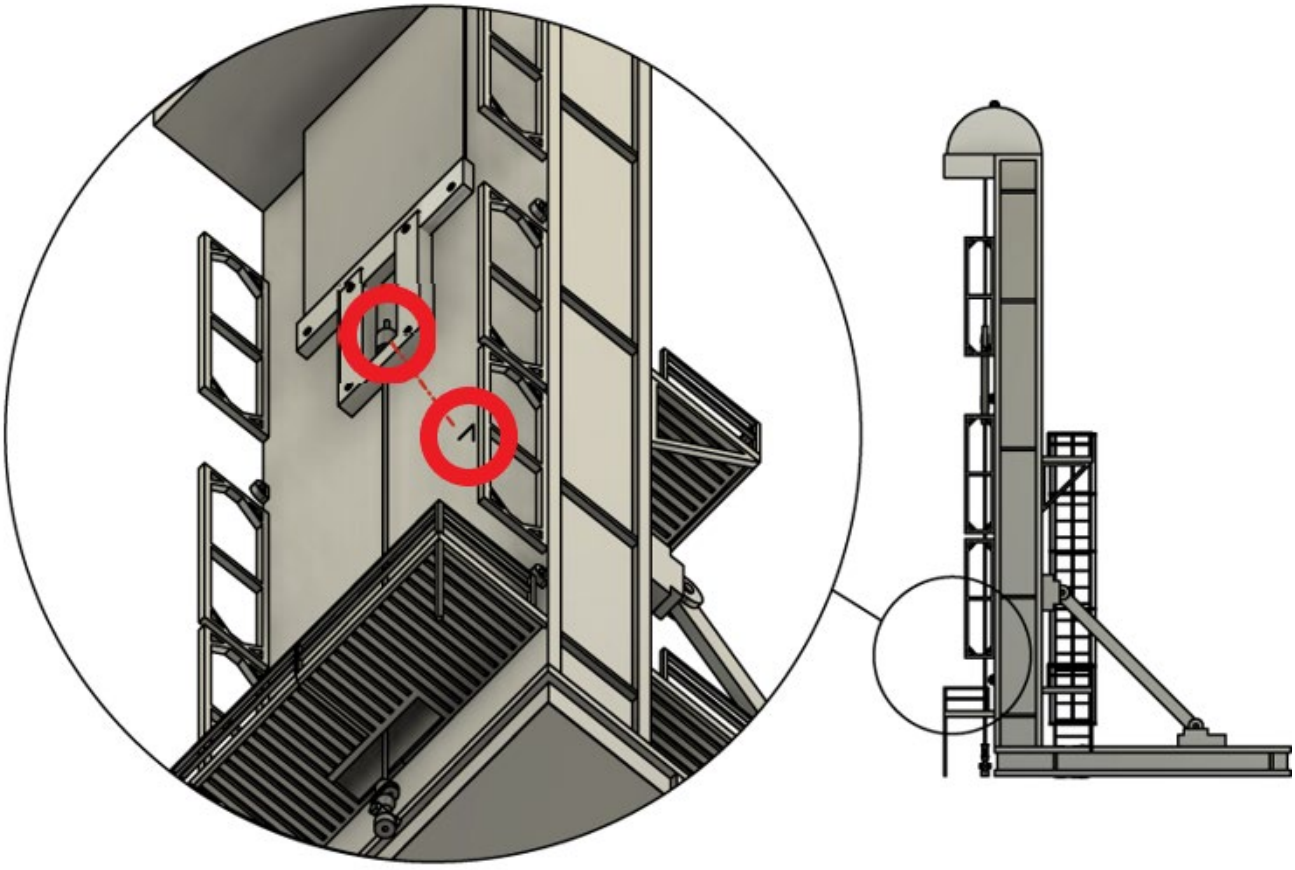
Long Stroke Wells

- Mount the antenna as high as possible.
- Use the antenna extension cable to reach the additional height.
- An ideal place to mount the antenna is on the wind shield handrails.



Line of Sight Communication

- Ensure line-of-sight communication between the two devices.
- For optimal performance, ensure the line-of-sight is maintained throughout the pumps cycle.



2.5 Remote Unit (Wireless Loadcell)

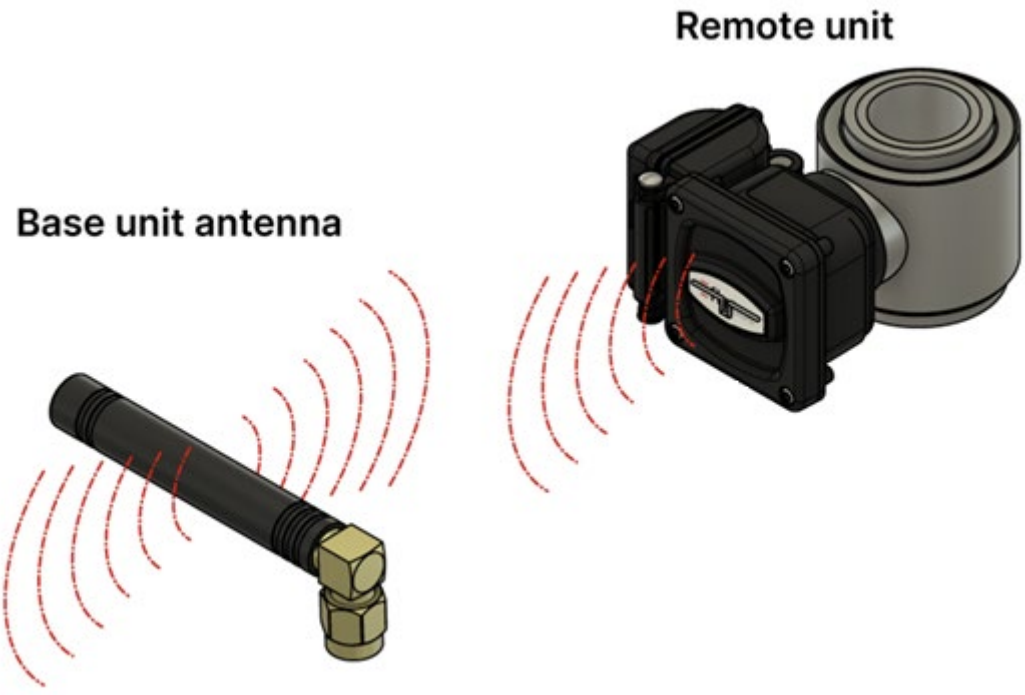
The *Remote* is mounted on the polished rod and secured with appropriate mounting brackets or fasteners.

IMPORTANT:

Position the Remote (plastic enclosure at front of load cell) so the best possible line of sight is achieved for the RF signal to propagate.

2.6 Remote Antenna

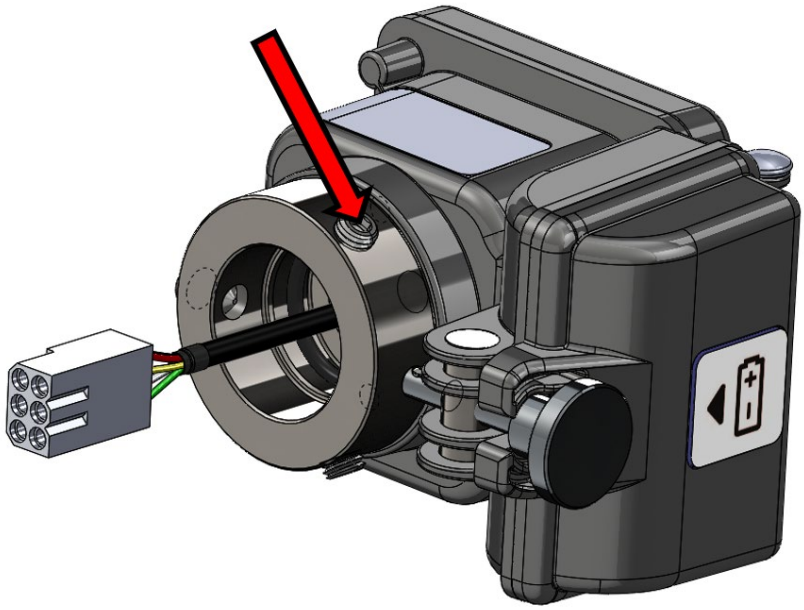
The *Remote* has an internal antenna (for loadcell data) to talk to the *Base* unit. The *Base* antenna is horizontally polarised and should match the orientation of the *Remote*.



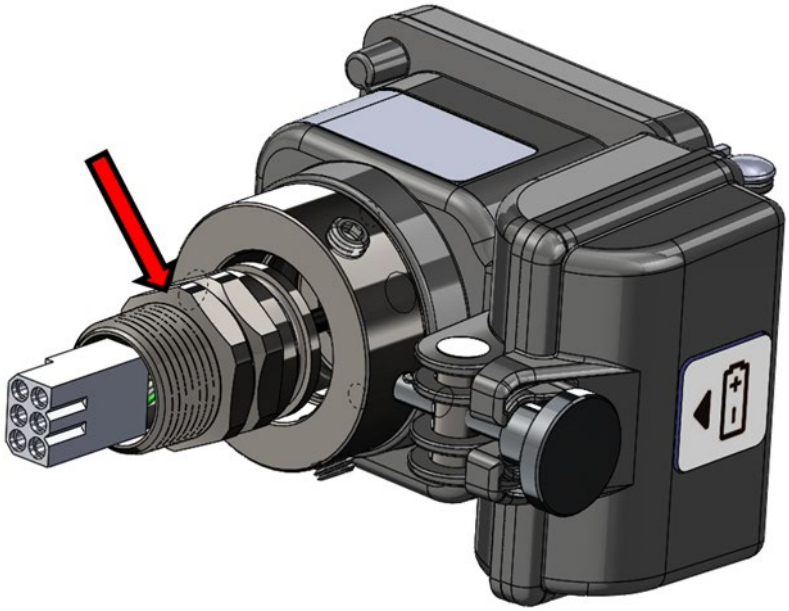
2.6.1 Attaching Loadcell to Remote

Note: Due to the potential for mismatch in adaptor and Remote metals, care must be taken to ensure the 3/4NPT fitting does not cross thread. It is recommended an anti-seize compound is used when installing the adaptor during the installation process.

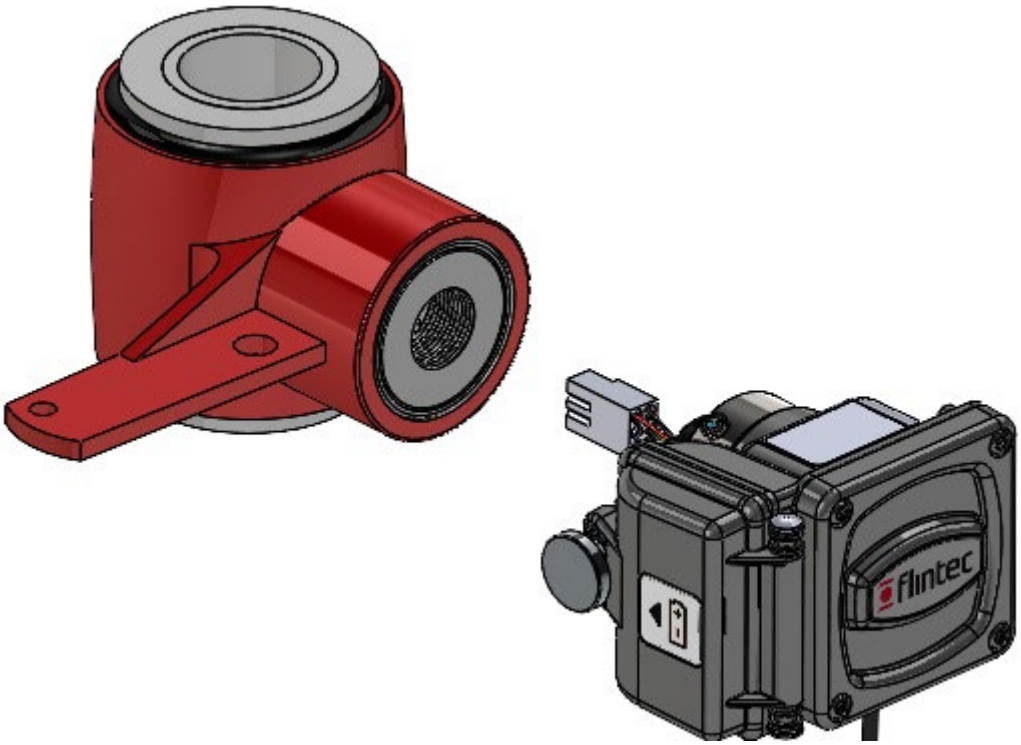
- Loosen the 3 retaining screws.



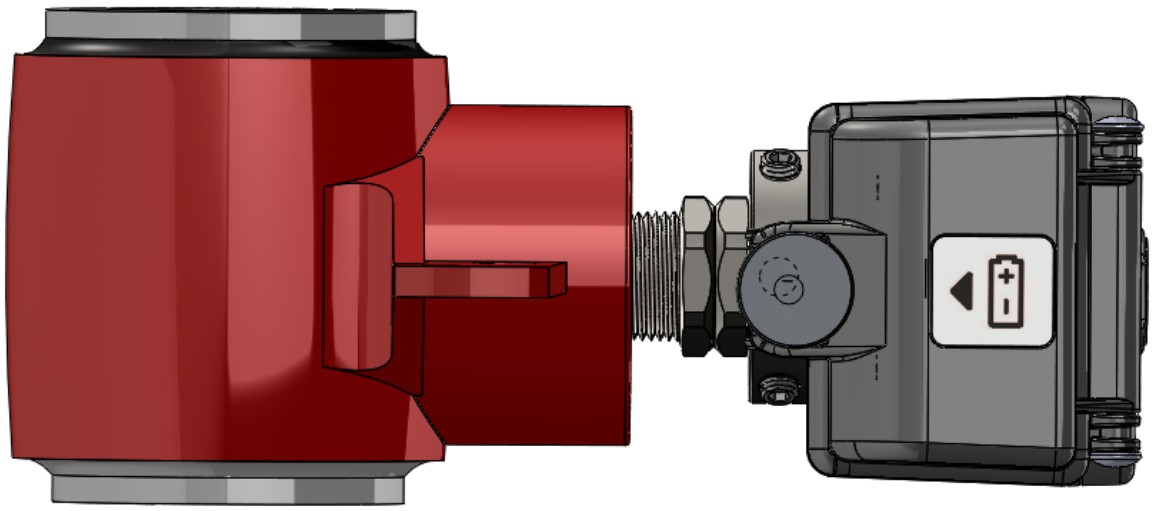
- Insert the load cell adaptor (3/4-14 NPT) and keep free/loose from the assembly.



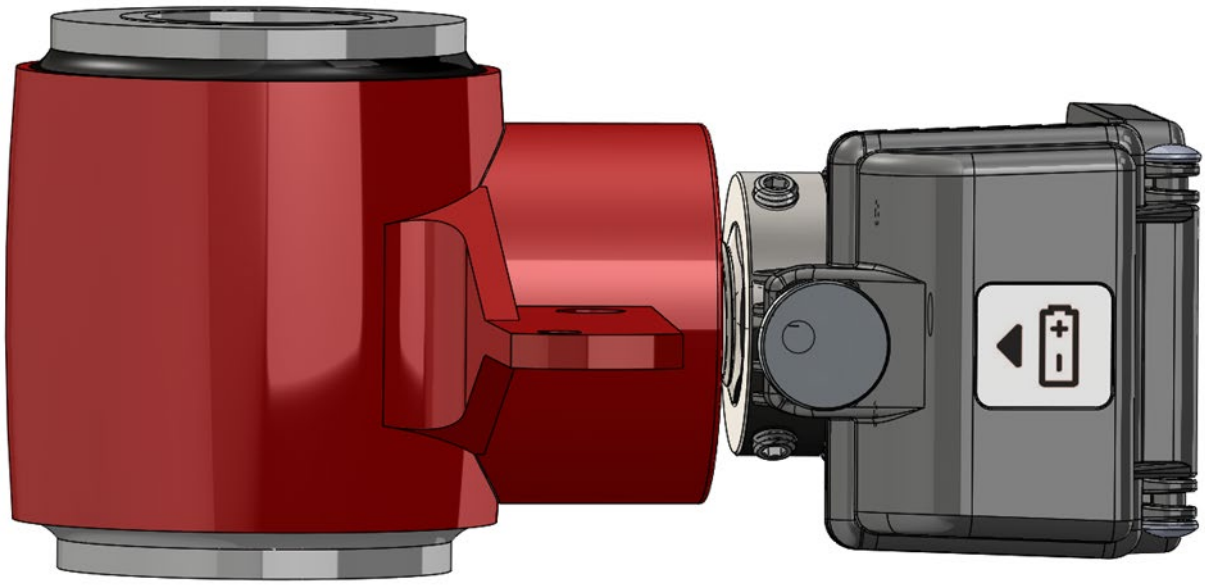
- Mate the CC PRO-A cable connector to the connector inside the load cell.



- Fit the load cell adaptor to the load cell over the cable and tighten with a hand tool.

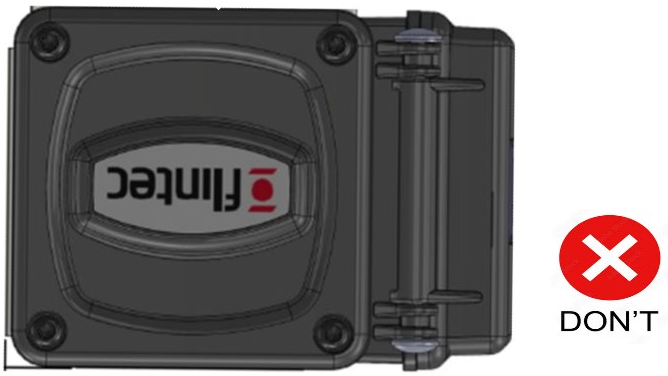


- Push the Remote assembly into the load cell adaptor, making sure the Remote module is level with the load cell and battery compartment. To prevent damage from moving parts like rod rotator arm ensure the assembly is as shown below.
- Final step, tighten the set/retaining screws.



2.7 Remote Orientation

During installation the orientation of the *Remote* is critical to correct operation. The approved orientation (see below) is for the Flintec badge to be read normally, i.e. not tilted to side or upside down.



2.8 Battery Installation

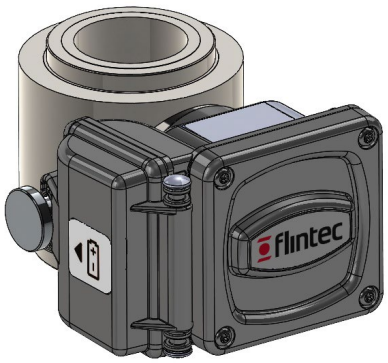
The CC PRO-A *Remote* unit is powered by a battery, positioned within the battery enclosure.

- Damaged or wet batteries **MUST NOT** be installed.
- Damaged or wet batteries must be discarded and replaced.

WARNING: The CC PRO-A is certified for use with TADIRAN TL-5930/F.

Ensure the battery cable tucks cleanly inside the compartment to prevent damage when the battery enclosure door is closed.

Advertisement: Le CC PRO-A est certifié pour une utilisation avec le TADIRAN TL-5930/F. Assurez-vous que le câble de la batterie rentre proprement à l'intérieur du compartiment pour éviter tout dommage lorsque la porte du boîtier de la batterie est fermée.



1. Unscrew the door locking bolt.
2. Push the captive bolt to the side.
3. Open the battery compartment door.
4. Install the battery.
5. Close the battery compartment door.
6. Hand-tighten the locking bolt to seal the cavity.

3 Equipment Maintenance

The only live maintenance permitted for this product is replacement of the *Remote* battery in non-hazardous area.

Repair is not permitted. La réparation n'est pas autorisée.

Health and safety standards in the workplace must be strictly observed for all personnel conducting maintenance tasks.

This manual must be read and carefully kept accessible. The manual should be referenced before conducting any installation or maintenance tasks.

3.1 Battery Replacement

The CC PRO-A *Remote* is powered by a **TADIRAN – TL-5930/F** D cell battery.

1. Unscrew the door locking bolt.
2. Push the captive bolt to the side.
3. Open the battery compartment door.
4. Remove the original battery by releasing the tab on the battery connector.
5. Install the battery – ensure the locking tab is engaged.
6. Close the battery compartment door – Ensure the cable does not become trapped/pinched.
7. Hand-tighten the locking bolt to seal the cavity.

WARNING: Do not replace battery when an explosive atmosphere is present.

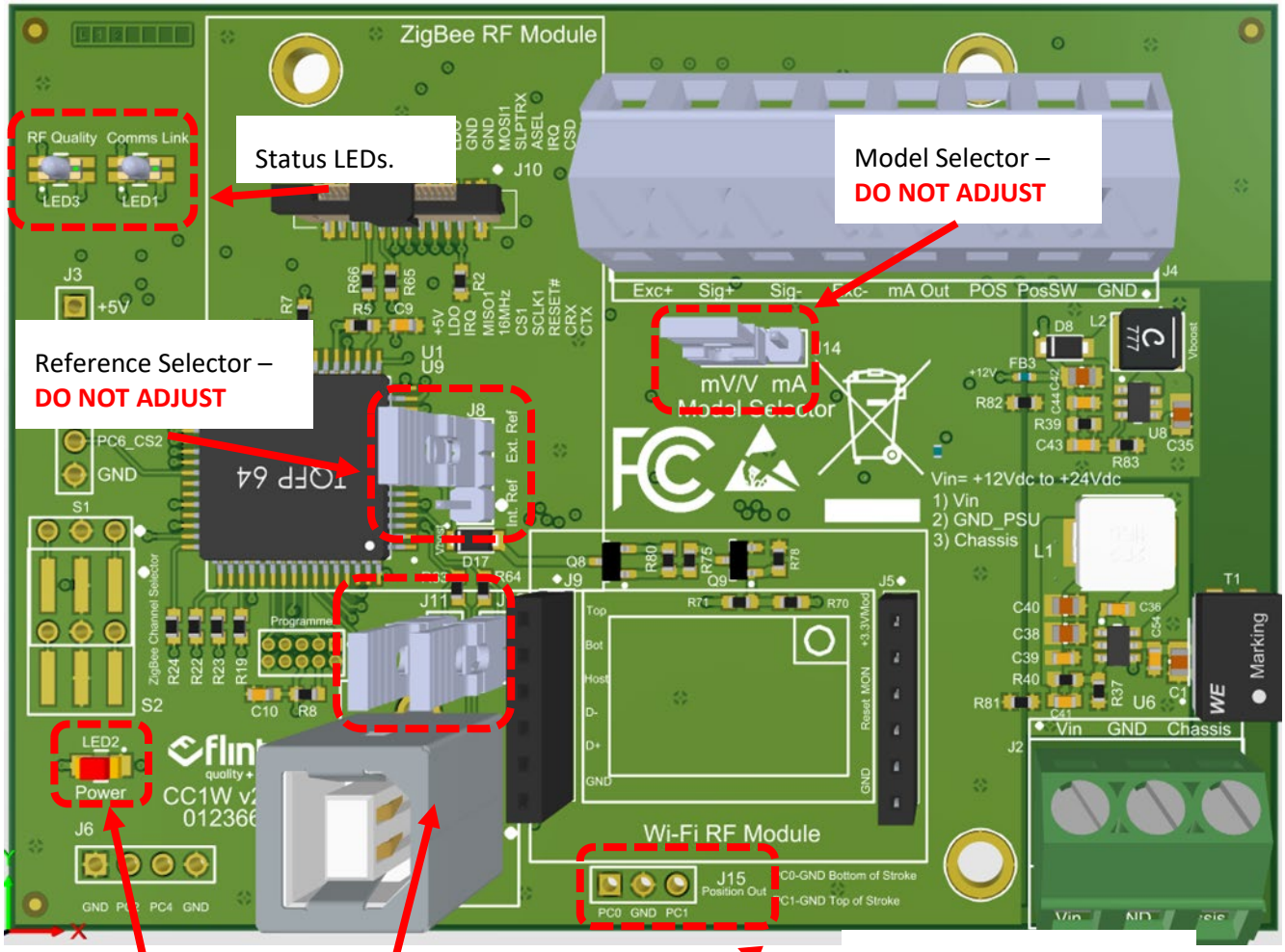
Avertissement: Ne remplacez pas la batterie en présence d'une atmosphère explosive.

IMPORTANT:

Please refer to battery manufacturer, TADIRAN's guidelines (LTN0111), for disposal of Lithium batteries.

4 Base Unit Operation

4.1 Base Unit Features



Power LED

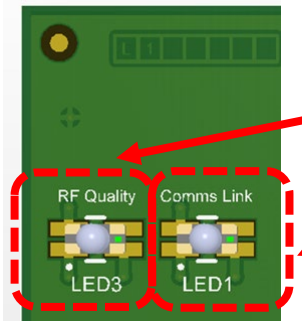
J11 & J12 USB Jumpers

Fit for Normal operation.

Remove if using the USB.

Note: USB Connector. Must remove jumpers before connecting the USB Cable.

Manual Position Sense Selector. Normally set via CC Connect app.



Indicator LED

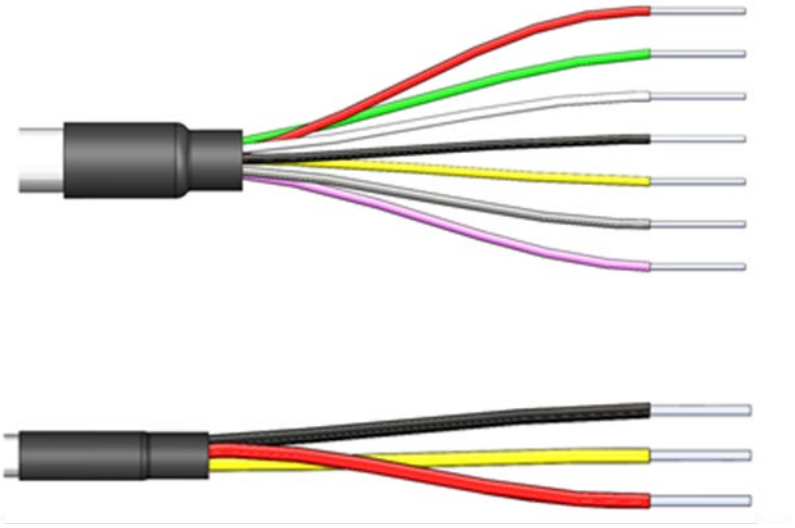
Communications LED

4.2 External Cable Connections

4.2.1 Cable Connections for mV Model

SIGNAL CABLE COLOR CODE	
RED	Exc+
GREEN	Sig+
WHITE	Sig-
BLACK	Exc-
YELLOW	Shield
GRAY	Position+
VIOLET	Position-

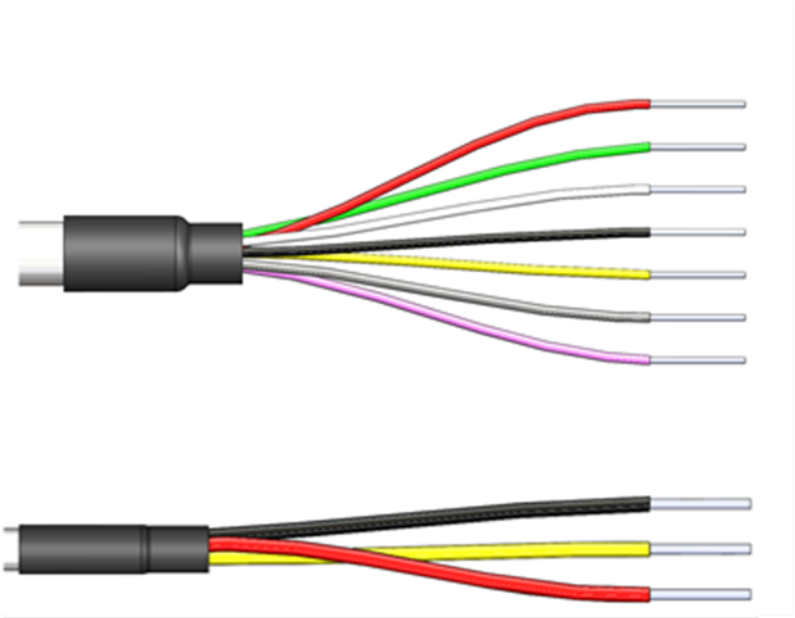
POWER CABLE COLOR CODE	
BLACK	GND
YELLOW	Shield
RED	+9V to +30V



4.2.2 Cable Connections for mA Model

SIGNAL CABLE COLOR CODE	
RED	Vref+
GREEN	mA+
WHITE	mA-
BLACK	Vref-
YELLOW	Shield
GRAY	Position+
VIOLET	Position-

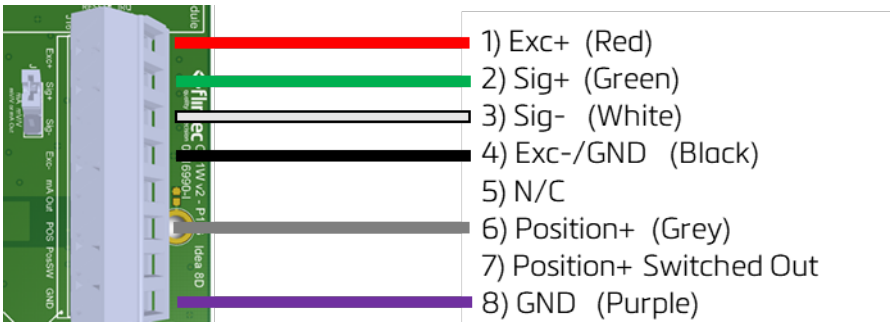
POWER CABLE COLOR CODE	
BLACK	GND
YELLOW	Shield
RED	+9V to +30V



4.3 Internal Cable Connections

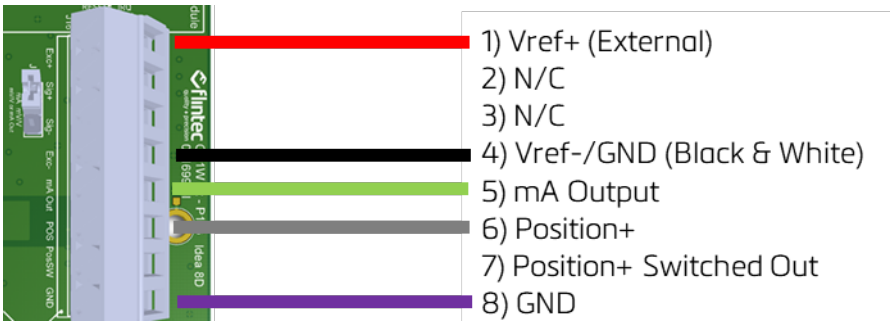
4.3.1 CC PRO-A with mV Output

All functions listed in this section should not exceed +5VDC (except for Excitation+ 10VDC).



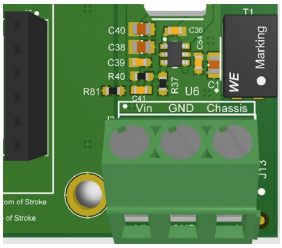
4.3.2 CC PRO-A with mA Output

All functions listed in this section should not exceed +5VDC (except for Vref+ 10VDC).



4.3.3 Power Supply Connections

The power supply input rating is +9VDC to +30VDC. Do not exceed or apply incorrect polarity.



WARNING: Insulate unused leads to prevent shorting.

Advertisement: Isolez les fils inutilisés pour éviter les courts-circuits.

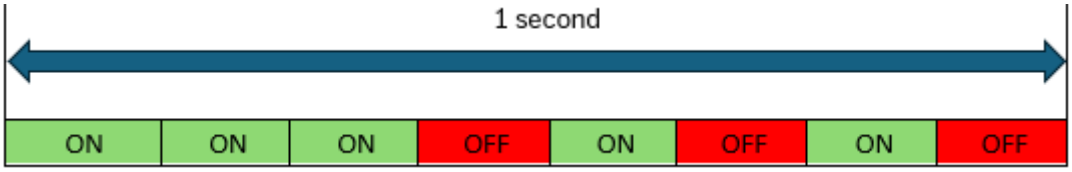
4.4 Normal Operation

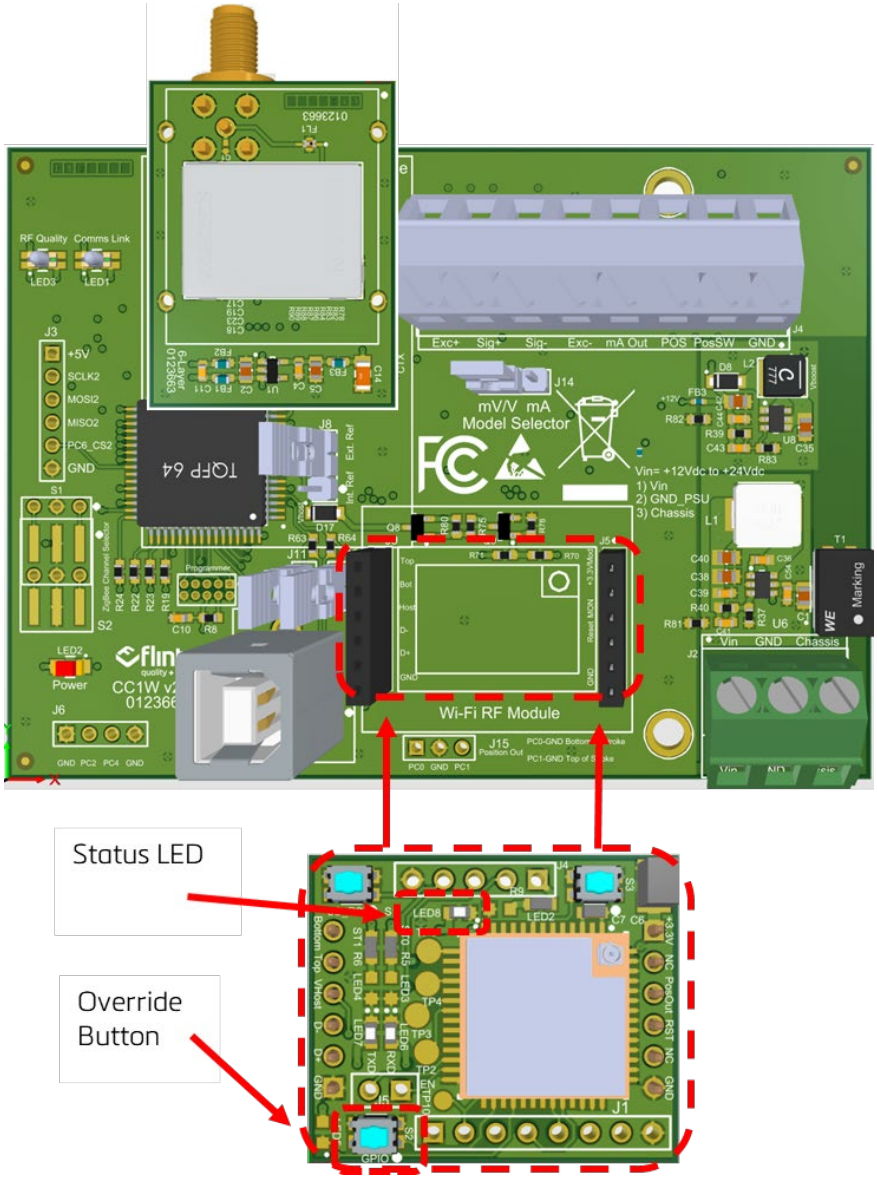
1. Disconnect or turn off power to the Base unit.
2. Ensure the Base antenna is connected.
3. The Remote antenna is installed by the manufacturer; to preserve safety certifications, it is not intended to be removed.
4. Ensure the manufacturer-supplied battery is connected to the Remote unit first.
5. Connect or turn on power to the Base unit.
6. The Base and Remote will connect on the last-used radio channel in a few seconds.
7. If the Base unit is set to use an alternate channel, it will switch the load cell to that channel. This only takes a few seconds.
8. Normal operation begins.
   A reconstructed version of the mV/V nominal load cell output will appear at the Base output (for mA variant this is a 4-20mA current loop).

4.5 Factory Password Recovery

To activate the password recovery feature, press the override button inside the CC PRO-A *Base* module. If using the CC Connect application, press the power-override button before opening the application, then open and it will prompt you for a new password. The recovery state will last for 2 minutes to enter the new password. Each ON/OFF period is 1/8th second.

3/8sec ON; 1/8sec OFF; 1/8sec ON; 1/8sec OFF; 1/8sec ON; 1/8sec OFF

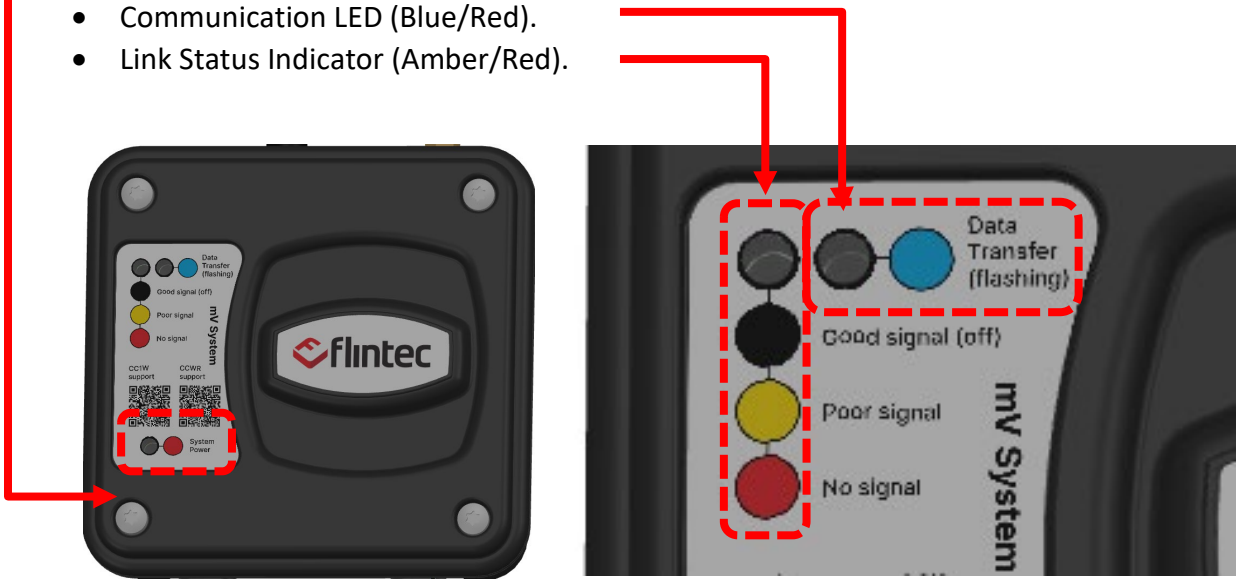




4.6 Base Unit Status Indicators

LED Status Indicators

- Power On Indicator (Red).
- Communication LED (Blue/Red).
- Link Status Indicator (Amber/Red).



Flashing Pattern of Blue/Red Comms LED.	Status.
Approx. 25Hz Blue Flashes.	Normal Operation.
Single Red Flash.	Communications Error.
1-4 Blue Flashes, then 1-4 Blue Flashes.	Successfully Switched to Selected Channel.
1-4 Blue Flashes, then 10 rapid Blue Flashes.	Failed to Switch to Selected Channel.
3 Rapid Blue Flashes.	Communication with Remote Lost, Reverting to Default Channel.
20 Rapid Blue Flashes.	Communication with Remote Lost on Default Channel.

Flashing Pattern of Amber/Red Link LED.	Status.
No Flashing.	Normal Operation.
Amber Flashing.	Poor RF Link Quality/Signal Strength. Potentially dropped data packets.
Red Flashing.	Very poor RF Link Quality/Signal Strength. Remote communication bad/High level of data packets lost.

4.7 Base Unit Wireless Channel Selection

The CC PRO-A system does not require any intervention inside the *Base* housing. All diagnostic and performances settings are all found within the CC Connect application. (including the channel change).

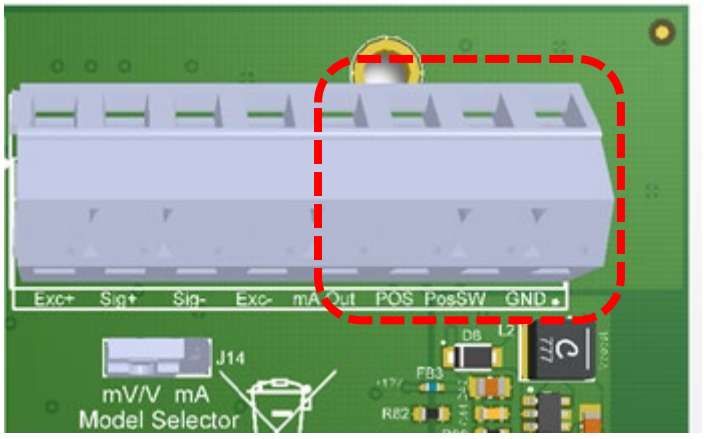
WARNING: Gently lift the cover to prevent damage to the 3 LED light tubes attached to the cover.

Advertisement: soulevez doucement le couvercle pour éviter d'endommager les 3 tubes lumineux à LED attachés au couvercle

4.8 Position Sensing Algorithm

Second Analogue Channel Functionality

The output is available from pins 6 (or 7) and GND 8 of J4.

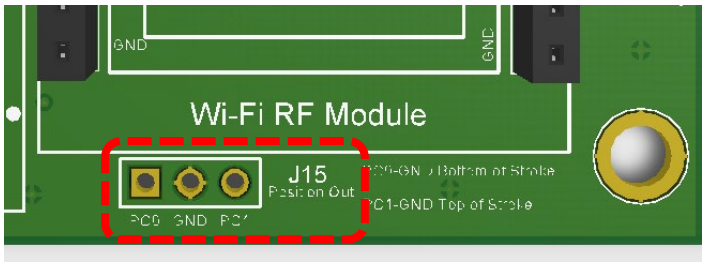


The 2nd Analogue Output channel (*Base*) conveys the vertical acceleration of the load-cell (*Remote*) for normal operation. Alternatively, it can convey an output to indicate top or bottom of the stroke for the position sensing algorithm.

Settings for Position Sensing Algorithm

During normal CC PRO-A operation, the requirement for a jumper is not necessary as the CC Connect application controls the top/bottom of stroke selection. The jumper is intended as a backup. The jumper allocation of J15 determines the functionality of the system. Normal operation (no jumper fitted) has raw acceleration output data represented as a 0-5V analogue voltage. Position Sensing Output function is provided when a jumper is inserted (or is selected in the CC Connect application).

Jumper Position:



No Jumper – No Position Sensing – Raw Vertical Acceleration Output.
PC0 & GND – Position Output (Bottom of Stroke).
PC1 & GND – Position Output (Top of Stroke).

For a controller to draw a successful surface/downhole card, a load and position input is required. Load is acquired from the load cell and position is typically derived from hall effect sensors on the crank and motor. Operators in the oilfield have dealt with loadcell cable failures for many years. Similarly, hall effect sensor cables are also prone to failure and the sensors themselves require constant adjustment due to vibrations. To add to the difficulty, hall effect sensors are in hard-to-reach areas near the motor shaft and the top of the crank.

The position capability addresses many of the challenges associated with load and position sensing on one device. The CC PRO-A contains an on-board accelerometer to replace the need for external hall effect sensors. This sensor can measure the smallest mechanical event throughout the pump stroke. To measure position, the accelerometer provides a distinct signature when the pump stroke changes direction. Algorithmic manipulation allows the generation of a signal emulating the hall effect sensor. The position output from Flintec wireless products can be a plug and play installation with compatible controllers.

The algorithm requires well speeds in the range of 5-12spm (strokes-per-minute) to be most effective. The system generates a full-scaled pulse output on second Analogue Output (Base) of 192ms in duration with a leading edge occurring at either top or bottom of stroke, depending on settings.

It takes approximately 3-4 consecutive strokes for the algorithm to converge, particularly after the unit has been re-powered (typically converges faster on well stop/start events). The algorithm can work with POC and VFD wells running at a fixed total stroke duration; if well strokes-per-minute changes rapidly (i.e. 5spm to 10spm over a few strokes), the algorithm may have a slight pulse offset during the change in speed event and will quickly restabilize as the change in well speed stabilizes.

Position Output Specification:

Note: The raw accelerometer data also has the same characteristics as the position sensing outputs. The output is selected via the CC Connect application.

The position sensing feature is available from the following dates for *Base* & *Remote* versions.

***Remote* firmware revision:** 230428 (28th April 2023) or above.

***Base* firmware revision:** 220616 (16th June 2022) or above.

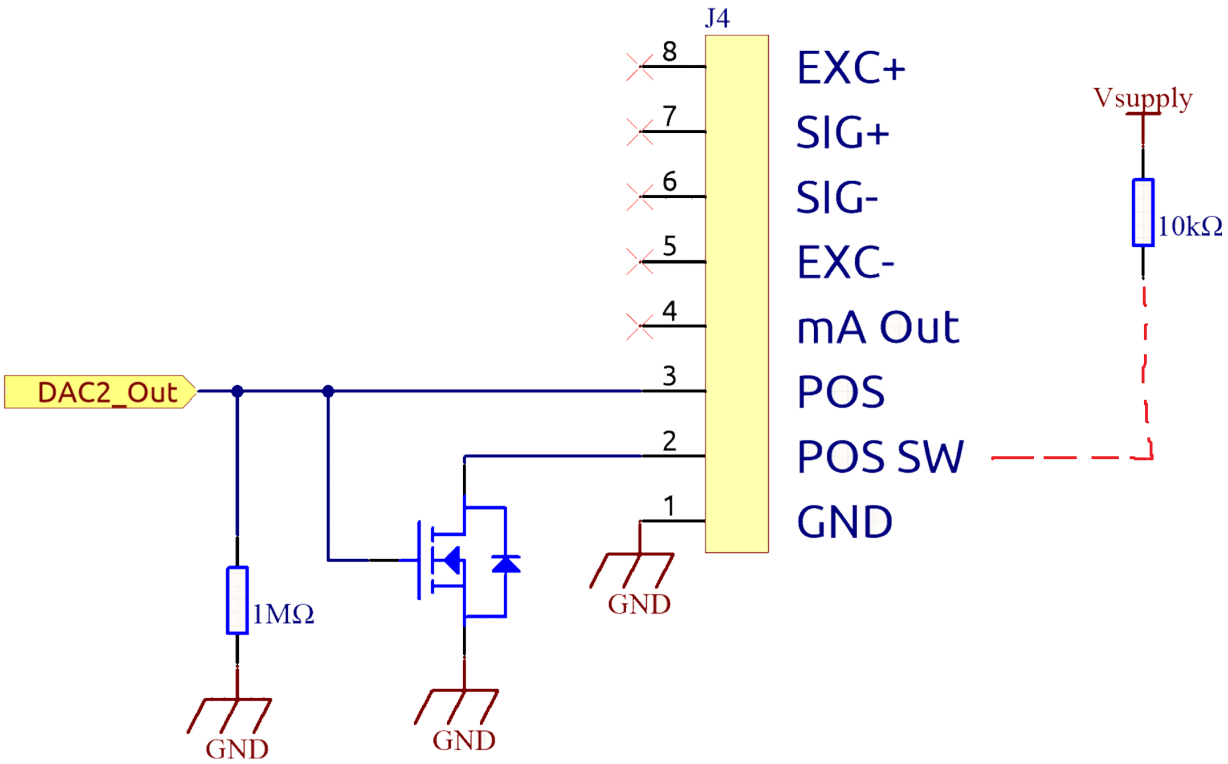
POS Output (Non-Inverted).

- Output Current (max) 10mA.
- Output Voltage Range 0VDC to +5VDC.

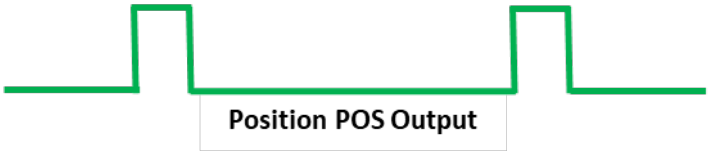
POS SW Output (Inverted)

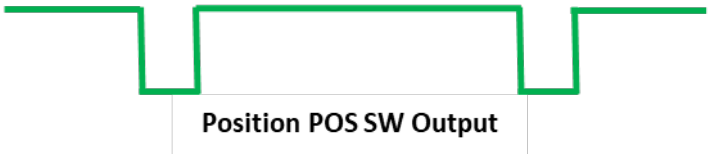
- Open-Drain Output.
- Sink Current (max) 100mA.
- Requires External Pull-Up Resistor. Suggested values could be in range of 4.7kΩ to 100kΩ.
- Supply Voltage for Pull-Up resistor (+4.5VDC to +24VDC).

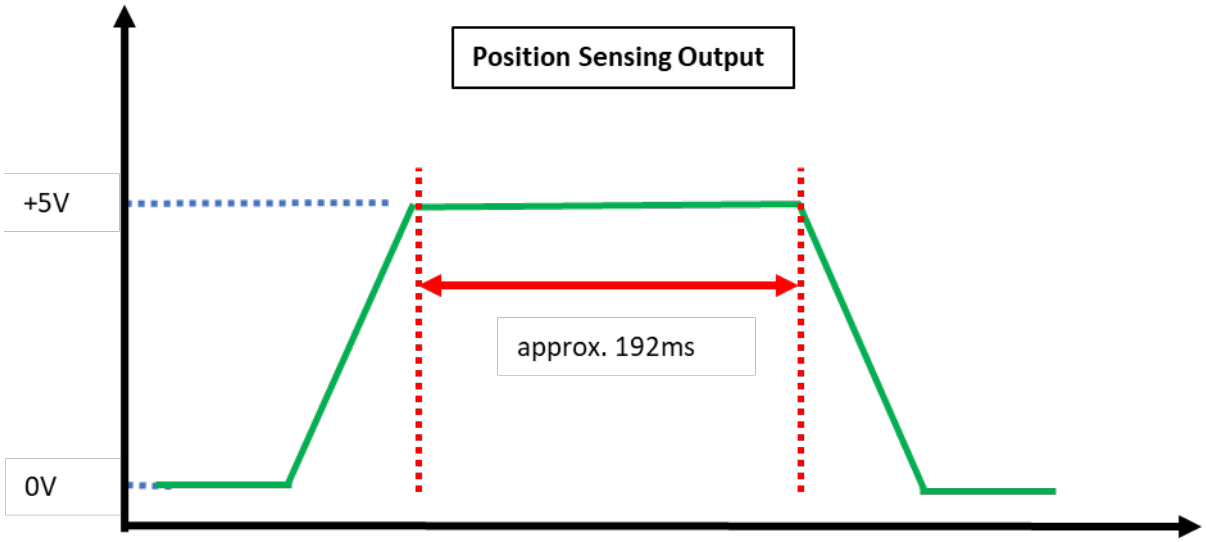
Schematic:



An example of position pulse output is shown below.







Note: When the *Base* completes the ~192ms pulse, the output goes to 1.5% of full scale, then drops to 0% full scale when the remote reports the actual end of the position pulse.

5 Technical Specification

CC PRO-A Wireless System:		
Typical Spec with CC1 or CC3 LC.	lbf	30k; 50k
Excitation Voltage.	V_{DC}	+5 to +10
Rated Output.	mV/V	2.00 ±0.5%
	mA	4-20
Non-linearity.	% FS	±0.25
Hysteresis.	% FS	±0.25
Non-Repeatability.	% RO	±0.1
Static Error Band.	% FS Max	±0.5
Temperature:		
Compensated Temperature Range.	°F (°C)	-13 to +149 (-25 to +65).
Safe Operating Temperature Range.	°F (°C)	-70 to +175 (-55 to +80).
Temperature Effect on Zero.	% RO/°F Max	±0.0075
Temperature Effect on Output.	% RO/°F Max	±0.005
Zero Balance.	% RO Max	±3
Safe, Axial Load.	% Capacity Max	200
Deflection at Capacity.	Inch Nom.	0.005
Weight, Remote Unit.	lb. Nom.	4.5
Fatigue Rating (Compression).	Min Cycle @ Cap	50,000,000
Shock Rating.	g	Up to 500
Vibration Rating.	MIL-STD-810G	514.6; 516.6
Sensor Element.		17-4 PH Stainless Steel.
Protection According to EN60529.		IP67
Electronics:		
Remote & Base Transceivers Paired.	MAC ID	Unique 32-bit Paired Address.
Data-Rate.	Readings/Sec	100
Radio Frequency (Load Cell RF).	GHz	2.405 to 2.470
Radio Frequency (Wi-Fi).	GHz	2.412 to 2.484
Radio Channels (Load Cell RF).	Selectable (*)	14
Telemetry Range (Line-of-Sight).	Feet (Metres) (*)	100 to 1000 (30 to 300).
RF Power Output - Remote Unit.	dBm (*)	+15.5dBm (max).
RF Power Output - Base Unit.	dBm (*)	+17dBm (max).
Battery Life (at 100 sps).	-	12 - 18 months.
Battery Type.	Remote Battery	+3.6 VDC Lithium D-Cell, TL-5930/F, 19Ah.
Housing Material (Remote).	-	Grivory GV-5H (Glass reinforced plastic).

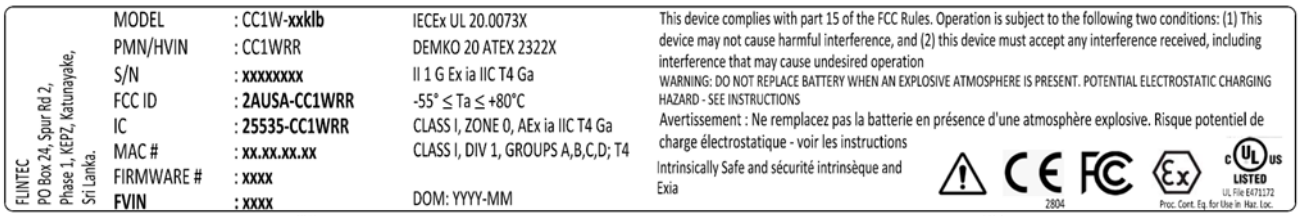
(*) 2-3dBm; Telemetry range will change according to site RF Channel Settings.

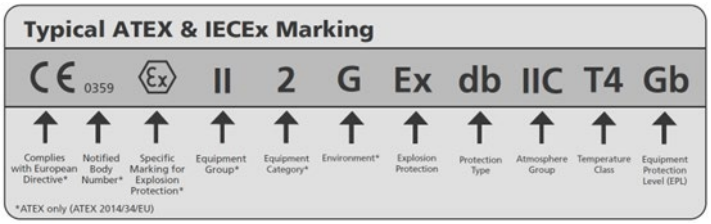
(**) Battery Life changes with RF output; latency; Temperature; antenna distances etc. Refer to Manufacturer for details.

Base Unit:		
Power Supply	V_{DC}; mA	+9V to +30V; 250mA Nominal.
Virtual Excitation (External Ref)	V_{DC}	4.8-10.1 (Ref 5 ± 0.05).
Virtual Bridge Resistance	Ω	700
Housing Material	-	Die-cast Aluminium.
POS Output:	-	Raw Accelerometer or Position Pulse.
Voltage Range	V_{DC}	0 to +5
Current (max. out)	mA	10
POS SW Open-Drain Output:	-	Inverted.
Pull-Up Resistance	Ω	10k typically.
PU Supply Voltage Range	V_{DC}	+4.5 to +24
Sink Current	mA (max)	100

6 Markings/Labels

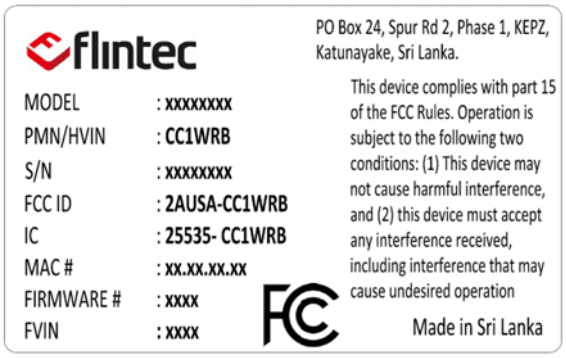
6.1 Remote Unit (Transmitter)





Equipment Group		II	- All areas except mines.
Equipment category & enviro		1 G	- Gas, vapor, mist.
Explosion protection		Ex	- Conformity with some IECs protection Modes.
Protection type	ia		- Intrinsic safety 'ia' protection mode.
Temperature class		T4	- Max surface temp 135°C (275°F).
Equipment Protection Level (EPL)		Ga	- Gas atmospheres. Very high level of protection.

6.2 Base Unit (Receiver)

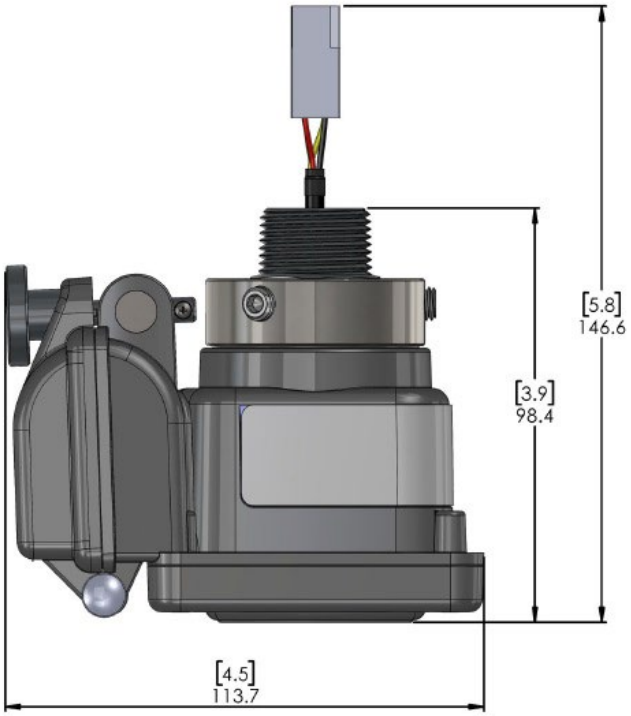


Ordinary Location Markings

- Maximum Operating Temperature: +175°F (+80°C) accordingly.
- Maximum Humidity: 95% without moisture condensation.
- Maximum Altitude: 2000m.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

7 Dimensions

7.1 Remote Unit (Transmitter)



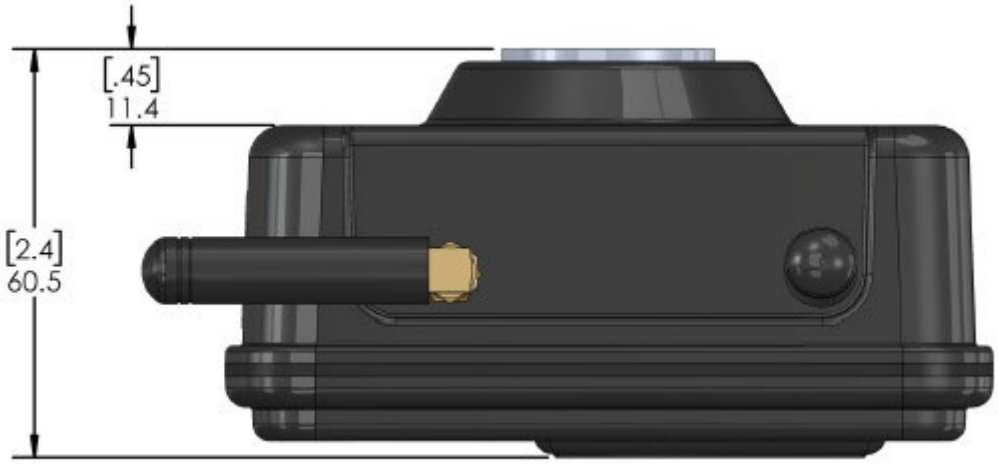
[inches]

mm

7.2 Base Unit (Receiver)

[inches]

mm



8 Safety Information

8.1 Intended Usage

Operating temperatures cannot exceed -70°F to 175°F (+80°C or -55°C). Operation outside of the defined temperatures will result in non-compliance of awarded safety certification. Avoid placement of the CC PRO-A radio device in areas of heating or cooling sources.

The CC PRO-A system works as a wireless network. Component positioning is essential to ensure correct operation. The load cell and Base unit should be positioned as closely together as possible. The line of sight should be free of obstacles and positioned away from electrical noise sources to limit interference.

8.2 Lithium Batteries

The CC PRO-A is powered by a single D-Cell Lithium battery. Special care must be taken to prevent damage to the battery. The battery chemistry is Lithium-Thionyl Chloride (Li-$SOCl_2$) cell connected with an extension cable.

- Do not apply pressure that may deform the battery.
- Do not use the battery if there are signs of swelling – remove immediately.
- Do not apply direct heat to the battery or solder.
- Work areas should be free of sharp objects as this may compromise the insulation material.
- Use only genuine TADIRAN TL-5930/F Batteries.

WARNING: Do not replace battery when an explosive atmosphere is present

Advertisement: Ne remplacez pas la batterie en présence d'une atmosphère explosive.

8.3 Maintenance Safety

Product maintenance must be performed by a suitably trained, competent person. Standard safety protocols must be adhered to when working with the CC PRO-A system.

8.4 X Mark Conditions

X Mark Conditions

The capacitance of exposed isolated metal parts was found to be 53.9pF.

Static discharge - It is recommended fitment and maintenance be carried out in electrostatic clothing, whilst wearing gloves and using insulating objects/tools.

Cleaning should be carried out with a damp cloth. Contamination on non-metallic parts can cause electrostatic charges, especially at low humidity or dry conditions. Special care must be taken to avoid places or areas where airflows occur.

8.5 FCC Certification 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. 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.

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

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This device has been designed to operate with the antenna(s) listed below. Antennas not included in this list are strictly prohibited for use with this device.

Base Permitted Antennas - Load Cell RF

Base Unit: FCC ID: 2AUSA-CC1WRB

- Data Alliance – A2D2SRA, maximum gain of +2dBi
- Data Alliance – A2D2SMARA, maximum gain of +2dBi

Base Permitted Antennas – Wi-Fi

Base Unit: FCC ID: 2AUSA-CC1WRB

- Data Alliance – A2D2S, maximum gain of +2dBi
- Data Alliance – A2O5SMA, maximum gain of +5dBi

Permitted Antennas - Remote

Remote Unit: FCC ID: 2AUSA-CC1WRR

- Yageo ANTX150P112B24553, maximum gain of +2.2dBi
- Molex 1461870150, maximum gain of +3.0dBi

8.6 IC License Exemption Statement

ISED RSS-Gen Notice

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

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

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.
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED RSS-Gen Notice

CAN ICES-3/NMB-1

8.7 IC Certification Statement

This radio transmitter (identify the device by certification number, or model number if (Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

8.7.1 Base Permitted Antennas - Load Cell RF

Base Unit: FCC ID: 2AUSA-CC1WRB

- Data Alliance – A2D2SRA, maximum gain of +2dBi
- Data Alliance – A2D2SMARA, maximum gain of +2dBi

8.7.2 Base Permitted Antennas – Wi-Fi

Base Unit: FCC ID: 2AUSA-CC1WRB

- Data Alliance – A2D2S, maximum gain of +2dBi
- Data Alliance – A2O5SMA, maximum gain of +5dBi

8.7.3 Permitted Antennas - Remote

Remote Unit: FCC ID: 2AUSA-CC1WRR

- Yageo ANTX150P112B24553, maximum gain of +2.2dBi
- Molex 1461870150, maximum gain of +3.0dBi

8.8 RF Exposure Notice

FCC & ISED Canada RF Exposure Notice

This device is intended to be mounted at a fixed location.

This device is not intended to be operational while carried on a person.

When used in an Outdoor Location:

To comply with FCC/IC RF exposure limits for general population/uncontrolled exposure, the antenna(s) used for this transmitter must be installed on outdoor permanent structures to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

When used in an Indoor Location:

To comply with FCC/IC RF exposure limits for general population/uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Avis d'exposition FCC et ISDE Canada RF

Cet appareil est destiné à être monté à un emplacement fixe.

Cet appareil n'est pas destiné à être opérationnel lorsqu'il est transporté par une personne.

Lorsqu'il est utilisé à l'extérieur:

Pour se conformer aux limites d'exposition RF FCC/IC pour la population générale/exposition non contrôlée, les antennes utilisées pour cet émetteur doivent être installées sur des structures permanentes extérieures pour fournir une distance de séparation d'au moins 20cm de toutes les personnes et ne doivent pas être co-situé ou fonctionnant en conjonction avec toute autre antenne ou émetteur.

Lorsqu'il est utilisé à l'intérieur:

Pour se conformer aux limites d'exposition RF FCC / IC pour la population générale/exposition non contrôlée, les antennes utilisées pour cet émetteur doivent être installées pour fournir une distance de séparation d'au moins 20cm de toutes les personnes et ne doivent pas être colocalisées ni fonctionner en conjonction avec toute autre antenne ou émetteur.