



cPRO camin User Guide

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Software Release Package v1.1

Imprint

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This USER GUIDE applies to the following product:

K2.0015992 cPRO camin with Software Release Package v1.1

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Disclaimer

Before using the products described in this manual, be sure to read and understand all the respective instructions.

The cmotion Software Release Package v1.1 cPRO camin is only available to commercial customers. By utilization, the customer agrees that the cPRO camin or other components of the system are deployed for commercial use only. Otherwise the customer must contact cmotion before utilization.

While cmotion endeavors to enhance the quality, reliability and safety of their products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely.

To minimize the risk of damage to property or injury (including death) to persons arising from defects in the products, customers must incorporate sufficient safety measures in their work with the system and heed the stated canonic use.

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For product specification changes after this manual was published, refer to the latest published cmotion data sheets or release notes, etc., for the most up-to-date specifications. Not all products and/or types are available in every country. Please check with a cmotion sales representative for availability and additional information.

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Table of Contents

1.	For your safety	5
2.	Audience and intended use	7
3.	Scope of delivery and warranty	7
4.	Introduction	8
4.1.	LBUS connector	8
4.2.	CAM interface	9
5.	cPRO camin layout	9
5.1.	Control panel	9
5.2.	Setup	10
6.	cPRO camin preparation	12
6.1.	cPRO camin bracket	12
6.2.	Alternative mounting options	13
6.2.1.	Mounting to 19 mm and 15 mm rods	13
6.2.2.	Mounting to Panavision rods	14
6.3.	Setting up the cPRO camin	15
6.4.	Connecting to the cPRO hand unit	15
7.	Compatibility	16
8.	Software update	16
9.	Power disconnection	16
10.	Appendix	17
10.1.	Antenna connector	17
10.2.	Specifications	17
10.3.	Dimensions and weight	18
10.4.	Pinouts	19
10.5.	Part numbers	20
10.6.	Service contacts	23
10.7.	International declarations	24

1. For your safety

Before use, please ensure that all users comprehensively read, understand, and follow the instructions in this document.

Risk levels and alert symbols

Safety warnings, safety alert symbols, and signal words in these instructions indicate different risk levels:

Danger!

DANGER indicates an imminent hazardous situation which, if not avoided, will result in death or serious injury.

Warning!

WARNING indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.

CAUTION!

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

NOTICE explains practices not related to physical injury. No safety alert symbol appears with this signal word.

Note: Provides additional information to clarify or simplify a procedure.

Vital precautions

Danger!

Risk of electric shock and fire!

Short-circuits may entail lethal damage!

Before use, read and follow all valid instructions.

Use solely and exclusively as described in the instructions.

Never open. Never insert objects.

For operation, always use a power source as indicated in the instructions.

Always unplug the cable by gripping the plug, not the cable.

Never try to repair. All repair work should be done by a qualified cmotion Service Center.

Never remove or deactivate any safety equipment (incl. warning stickers or paintmarked screws).

Always protect from moisture, cold, heat, dirt, vibration, shock, or aggressive substances.

Danger!

Risk of fire!

Short-circuits and back currents to power supplies/batteries may entail lethal damage!

Always use original ARRI/cmotion LBUS cables to external power sources (D-Tap, XLR)!

ARRI/cmotion LBUS cables to external power sources provide a protection circuit to prevent back currents to power supplies/batteries.

2. Audience and intended use

NOTICE

The product is solely and exclusively available for commercial costumers and shall be used by skilled personnel only. Every user should be trained according to cmotion guidelines. Use the product only for the purpose described in this document. Always follow the valid instructions and system requirements for all equipment involved.

Note: The cPRO camin is solely and exclusively for use on professional camera setups.

3. Scope of delivery and warranty

NOTICE

Product and packaging contain recyclable materials. Always store, ship, and dispose of according to local regulations.

cmotion is not liable for consequences from inadequate storage, shipment or disposal.

Delivery

On delivery, please check that the package and content are intact. Never accept a damaged or incomplete delivery. A complete delivery includes:

- cPRO camin unit with antenna
- cPRO camin bracket
- User manual download card
- Original packaging

Warranty

For scope of warranty, please ask your local cmotion Service Partner. cmotion is not liable for consequences from inadequate shipment, improper use, or third-party products.

4. Introduction



The cPRO camin is cmotion's smallest and lightest motorbox with an integrated red-coded cmotion radio module.

The cPRO camin can pair with up to three cPRO hand units for split focus, iris and zoom operation (available with Software Release Package v2.0. / licence required for each hand unit) and provides full lens data when used with the cPRO hand unit.

The simple user interface includes two soft buttons and a display for selecting one of the 14 radio channels.

Using the LBUS interface, the system can be expanded with up to three additional cforce motors while the new CAM connector provides a versatile interface for power supply and run/stop control for cameras, including ARRI, Red, Sony, Canon, Blackmagic and Panavision.

Main features:

- Integrated cmotion red radio module
- Supports lens data with cPRO hand unit
- Daisy-chainable via LBUS
- Small and lightweight (~77g / < 3oz incl. antenna)

4.1. LBUS connector

LBUS is a bus standard designed to allow multiple lens motors and control devices to communicate with each other. Up to three cforce-type motors can be chain-linked in a row. Each cforce motor has two identical, bi-directional LBUS interfaces providing power and control signals to the motor.

4.2. CAM interface

The CAM interface is a fully functional LBUS connector. As such it allows multiple lens motors and control devices to communicate with each other through K2.0015760 Cable CAM (7p) - LBUS.

In addition the CAM interface offers a versatile interface for camera control. There are camera interface cables, which depending on the camera offer start-stop control and record feedback, camera status, tally and control of camera settings (control of camera settings available with Software Release Package v2.0. / licence required).

5. cPRO camin layout



5.1. Control panel

The cPRO camin features a user interface to configure the system. The display shows menu and status information.



Soft buttons

Two soft buttons are located below the display. They change their function depending on the screen content.

Menu navigation

Use the soft buttons to enter the setup menus as follows:

Buttons	Press button...	Menu
Upper button	Short	Change RF channels 0-13, counting up
Lower button	Short	Change RF channels 13-0, counting down
Lower button	Long (3 sec)	System info
Lower button	Long (6 sec)	Region settings

Note: The main screen turns off after 3 seconds.

5.2. Setup

Radio channels

The RF menu lets you select the radio channel.

Press the lower or upper button momentarily to enter the radio menu.

The upper button allows you to change the RF channels from 0 - 13, the lower button allows you to change the RF channels from 13 - 0.

Toggle through the channels until you reach the desired radio channel. The channel will be set automatically after three seconds.

Region settings

The cPRO camin offers radio settings for different areas (with red-radio module EMIP400). Make sure that you select the proper area you are operating the device in.

All available region settings comply with Part 15 of the FCC rules.

Push the lower button for 6 seconds to enter the region settings menu. Push momentarily to toggle through the regions. Select WORLD if your specific region is not listed.

Region Setting	Country code
Australia	AU
Canada	CA
China	CN
Egypt	EG
Europe	EU
Hong Kong	HK
India	IN
Japan	JP
New Zealand	NZ
Philippines	PH
Singapore	SG
South Africa	ZA
South Korea	SG
Taiwan	TW
Thailand	TH
UAE (United Arab Emirates)	AE
USA	US
World	WORLD

System info

Hold the lower button for three seconds to view the system info.

The system info shows the current firmware version.

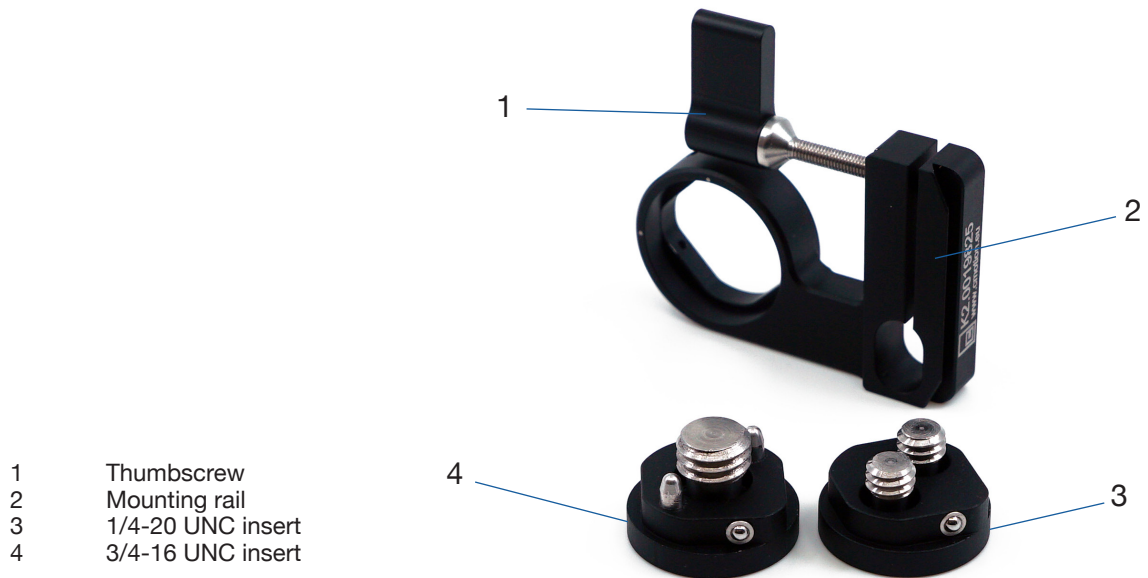
Status LEDs

The status LED of the lower button indicates the current radio status.

LED (Lower button)	Status
Solid green	Ready, client logged on
Yellow/red flashing	Selected channel used by another device
Green/red flashing	No device connected, wireless or hardwired
Solid red	Camion initializing / hardware fault
Red flashing	Update

6. cPRO camin preparation

6.1. cPRO camin bracket



- 1 Thumbscrew
- 2 Mounting rail
- 3 1/4-20 UNC insert
- 4 3/4-16 UNC insert

Mounting the cPRO camin using the cPRO camin bracket

1. Choose the 1/4-20 UNC or 3/4-16 UNC mounting insert, depending on the mounting options on your camera.
2. Match the registration marks of the insert and the cPRO camin bracket and snap in the insert accordingly. The insert can be fixed in two different orientations, depending on the best suitable mounting option on your camera.
3. Attach the cPRO camin bracket to a 1/4-20 UNC or 3/4-16 UNC thread on your camera.
4. Slide the cPRO camin onto the cPRO camin bracket.
5. Lock the cPRO camin bracket by turning the thumbscrew clockwise.

6.2. Alternative mounting options

6.2.1. Mounting to 19 mm and 15 mm rods

Mounting to 19 mm rods

1. Slide the clamp console onto the rail of the cPRO camin.
2. Open the clamp console by turning the thumbscrew counter-clockwise.
3. Remove the 19/15mm clamp insert.
4. Attach the clamp console on the rod.
5. Close the clamp console by turning the thumbscrew clockwise.

NOTICE

Mounting options to 19 mm and 15 mm rods are not included in the cPRO camin basic set. For this K2.0006176 cforce mini clamp console 19/15mm (including: K2.0006175 cforce mini clamp insert 19/15mm) is required and needs to be ordered seperately.

Mounting to 15 mm rods

1. Slide the clamp console onto the rail of the cPRO camin.
2. Open the clamp console by turning the thumbscrew counter-clockwise.
3. Attach the 19/15mm clamp insert (K2.0006175) on the 15 mm rod.
4. Attach the clamp console around the clamp insert on the rod.
5. Close the clamp console by turning the thumbscrew clockwise.

NOTICE

Mounting options to 19 mm and 15 mm rods are not included in the cPRO camin basic set. For this K2.0006176 cforce mini clamp console 19/15mm (including: K2.0006175 cforce mini clamp insert 19/15mm) is required and needs to be ordered seperately.

6.2.2. Mounting to Panavision rods

1. Slide the clamp console onto the rail of the cPRO camin.
2. Open the clamp console by turning the thumbscrew counter-clockwise.
3. Remove the 19/15mm clamp insert.
4. Attach the CLM-4 Clamp Insert 5/8" (K2.72115.0) to the 5/8" rod.
5. Attach the clamp console around the clamp insert on the rod.
6. Close the clamp console by turning the thumbscrew clockwise.

NOTICE

A mounting option to Panavision rods is not included in the cPRO camin basic set. For this K2.0006176 cforce mini clamp console 19/15mm and K2.72115.0 CLM-4 Clamp Insert 5/8" is required and needs to be ordered seperately.

6.3. Setting up the cPRO camin

1. Press the lower button for six seconds to select the region you are in. Repeat this step each time you change a region.
2. Press the lower or upper button to select the radio channel.
4. Press the FIZ button on each cforce motor attached for 3 seconds to start the automatic calibration of the respective motor. Alternatively, activate the calibration process through the cPRO hand unit (please refer to the user manual of the cPRO hand unit).

6.4. Connecting to the cPRO hand unit

1. Set the cPRO hand unit to the same radio channel as the cPRO camin (please refer to the user manual of the cPRO hand unit). Once both units are set to the same radio channel, the two devices will connect automatically.

2 If multiple hand units are used, please set all cPRO hand units you want to connect to the network to the same radio channel as the cPRO camin (please refer to the user manual of the cPRO hand unit). Once a hand unit is set to the same radio channel like the cPRO camin, the device will connect automatically. Upto 3 cPRO hand units can be connected to the cPRO camin at a time (available with Software Release Package v2.0. / licence required for each hand unit).

You are now ready to shoot.

CAUTION!



Risk of injury! Do not touch the cforce motors connected to the camin while the camin is powered up!

This device is not intended for use by children. Keep body parts out of the motion path.

Disconnect the plug if the device is not used for a long period of time.

IEC 60417-6056 (2011-05) for other moving parts

NOTICE

To prevent the cPRO camin from falling down when detaching the camin from the cPRO camin bracket, hold the cPRO camin with one hand while opening the cPRO camin bracket.

7. Compatibility

The cPRO camin is directly compatible with the following cmotion / ARRI products:

- cPRO hand unit
- cforce mini lens motor
- cforce plus lens motor
- cdistance
- cfinder III
- steady zoom / pan-bar zoom
- UDM-1 (Ultrasonic Distance Measure) via LCUBE CUB-1
- Master Grips

Note: Run/Stop control is supported for all standard digital cameras (ARRI, BLACKMAGIC, CANON, RED, SONY, PANAVISION) using additional CAM interface cables.

8. Software update

The cPRO camin can be updated from the cPRO hand unit via USB through its LBUS interface.

To keep your cPRO camin up-to-date, you may need to update its firmware. Please check cmotion's website for the latest firmware packages.

Please refer to the user manual of the cPRO hand unit for further information.

Warning!

Do not switch power off during the update, as this may damage the cPRO camin!

9. Power disconnection

CAUTION!

To disconnect the device safely from the power source, remove both cable connectors from the cPRO camin's LBUS and CAM ports.

Mount and operate the device in an orientation to ensure easy access to the connectors.

10. Appendix

10.1. Antenna connector

The radio connection is established via the antenna, connected to the antenna connector. We recommend using the originally supplied antenna only.

Warning!

Please ensure the antenna connector is covered by the antenna or the safety cap at any time. The radio module inside the cPRO camin could be damaged by electrostatic discharge, if the connector is left open.

10.2. Specifications

Electrical data

Temperature range: -20 to +50° C (-4 to +122° F)

Supply voltage: 10.5 - 34 V

Radio system

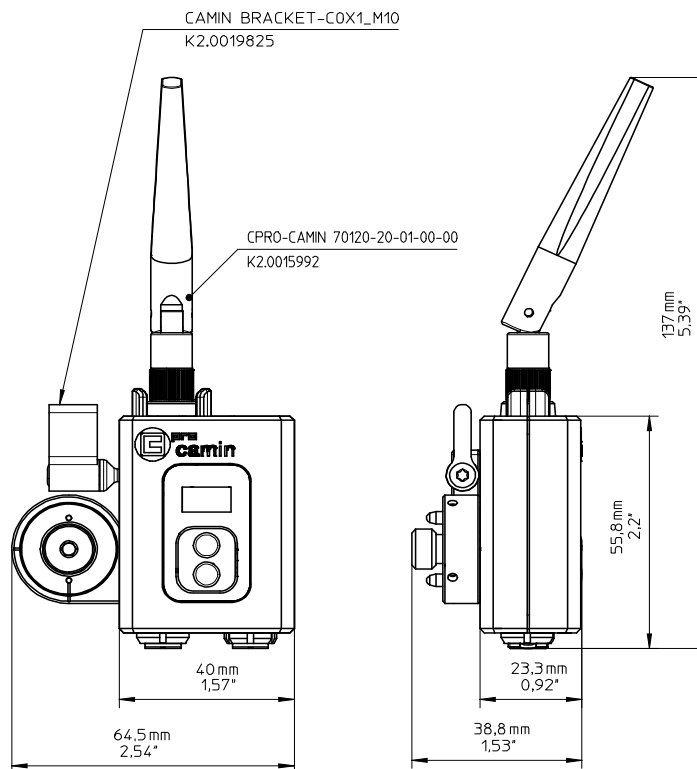
The cPRO camin contains a radio unit that enables wireless lens control with a red coded radio module. A red ring at the base of the antenna mount identifies it. It offers 14 channels to choose from:

Channel	Frequency
0	2.410 GHz
1	2.415 GHz
2	2.430 GHz
3	2.435 GHz
4	2.450 GHz
5	2.455 GHz
6	2.470 GHz
7	2.475 GHz
8	2.420 GHz
9	2.425 GHz
10	2.440 GHz
11	2.445 GHz
12	2.460 GHz
13	2.465 GHz

NOTE: cmotion red radio and ARRI white radio cannot be mixed in the same radio network of camera and hand units. It is possible to use both systems in parallel within different radio networks.

10.3. Dimensions and weight

Dimensions



Weight

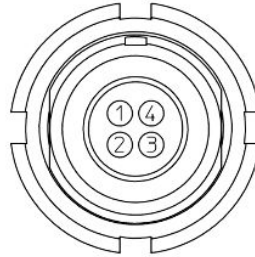
Weight of cPRO camin: 77 g (< 3oz) including antenna

10.4. Pinouts

The cPRO motor contains one LBUS connector (Lemo 4 pin) and one CAM connector (Lemo 7 pin).

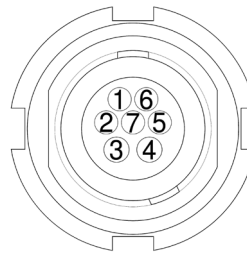
LBUS connector

- 1 GND
- 2 CAN-L
- 3 V-BAT
- 4 CAN-H



CAM connector

- 1 CAM If1 (CAN RS232 RX)
- 2 CAM If2 (CAN1-L)
- 3 GND
- 4 +V-Bat
- 5 CAM If3 (CAN RS232 TX)
- 6 CAM If4 (CAN1-H)
- 7 Cable ID



10.5. Part numbers

KK.XXXX cPRO camin basic set

The cPRO camin basic set includes:

K2.0015992 cPRO camin unit

K2.0001996 swivel antenna for SMC-1, EMC-1, AMC-1, cPRO hand unit / motor / camin

K2.0019825 cPRO camin bracket

NOTICE

The cPRO camin basic set does not include LBUS or CAM cables. LBUS cables are available in various lengths and need to be ordered separately.

Part numbers - antennas

Radiall/Larsen K2.0002007 Dipole / Reverse SMA

Wanshih 50.0013627 Dipole / Reverse SMA

Proant K2.0001996 Dipole / Reverse SMA

Nearson O5.20112.0 Dipole / Reverse SMA

The following accessories are compatible with the cPRO motor:

K2.0001996 swivel antenna for SMC-1, EMC-1, AMC-1, cPRO hand unit / motor / camin

Camera interface cables:

K2.0015754 Cable CAM (7p) - RS

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to RS connector.

Provides power, camera RUN/STOP and tally function on ARRI WCU-4 / cmotion cPRO hand unit. Works with ALEXA and AMIRA cameras.

K2.0015755 Cable CAM (7p) - EXT (16p)

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to the EXT connector of an ALEXA EV camera.

Provides camera RUN/STOP function, tally and camera status information on ARRI WCU-4 / cmotion cPRO hand unit.

K2.0015756 Cable CAM (7p) - EXT (6p)

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to AMIRA EXT connector.
Provides camera RUN/STOP function, tally, camera status information and remote camera set up with ALEXA Remote Licence on ARRI WCU-4 / cmotion cPRO hand unit.

K2.0015757 Cable CAM (7p) - LANC/D-Tap

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to LANC connectors (e.g. Canon C300 / C500) and D-Tap power source.

Provides camera RUN/STOP function and tally on ARRI WCU-4 / cmotion cPRO hand unit.

K2.0015758 Cable CAM (7p) - RED CTRL/D-Tap

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to RED CTRL connector on RED Epic DSMC-2 and RED Weapon cameras and D-Tap power source.

Provides camera RUN/STOP function, tally, camera status information and control of EF lenses on ARRI WCU-4 / cmotion cPRO hand unit.

K2.0015759 Cable CAM (7p) - ENG (12p)

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to the AMIRA/ALEXA Mini or 3rd-party cameras Lens connector.

Provides camera RUN/STOP function, tally and camera status information on ARRI WCU-4 / cmotion cPRO hand unit.

K2.0018814 Cable CAM (7p) - Sony F5/55 CTRL/D-Tap

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to Sony F5/F55/Venice cameras and D-Tap power source.

Provides camera RUN/STOP function and tally.

K2.0015760 Cable CAM (7p) - LBUS

Connects ARRI cforce RF motor / cmotion cPRO motor and camin to LBUS devices or LBUS power source.

Provides power to LBUS daisy chain or LBUS device features on ARRI WCU-4 / cmotion cPRO hand unit.

Note: REQUIRED for cPRO motor / camin firmware update.

Power cables:

K2.0018813 Cable CAM (7p) - D-Tap

Connects ARRI cforce RF motor / cmotion cPRO motor and camin CAM connector to D-Tap power source.

K2.0006758 Cable LPS-7

Connects ARRI cforce RF motor / cmotion cPRO motor and camin LBUS connector to D-Tap power source.

10.6. Service contacts

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10.7. International declarations

EU-Declaration of Conformity

The designated product conforms with the specifications of the following European directives:

Directive 2014/53/EU of the European Parliament and the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive - OJ L 153, 22.5.2014, S. 62–106.

Directive 2011/65/EU of the European Parliament and the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment - OJ L 174, 1.7.2011, S. 88–110.

The compliance with the requirements of the European Directives was proved by the application of the following standards:

EN 62368-1:2014 + AC:2015-05 + AC:2015-11

EN 301 489-1 V2.1.1; EN 301 489-17 V3.1.1

EN 300 328 V2.1.1

EN 50581:2012

To evaluate the respective information we used:

http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/index_en.htm



FCC Class A Statement

Note: 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.

Industry Canada Compliance Statement

Complies with the Canadian ICES-003 Class A specifications.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada. This device complies with RSS 210 of Industry Canada. Cet appareil est conforme à CNR-210 d'Industrie Canada. This Class A device meets all the requirements of the Canadian interference-causing equipment regulations. Cet appareil numérique de la Classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japan MIC Statement

Complies with Ministry of Internal Affairs and Communications notification Article 88, Annex 43.



Radio Module

The cPRO camin contains the following radio module:

FCC ID: Y7N-EMIP400

IC ID: 9482A-EMIP400

CMIT ID: 2017DJ7863C(M)

MIC ID: 020-180030

NCC: CCAH18LP0660T0

KC: R-CRM-ARg-EMIP400

EMIP400s: ETA:1385/2018/ERLO