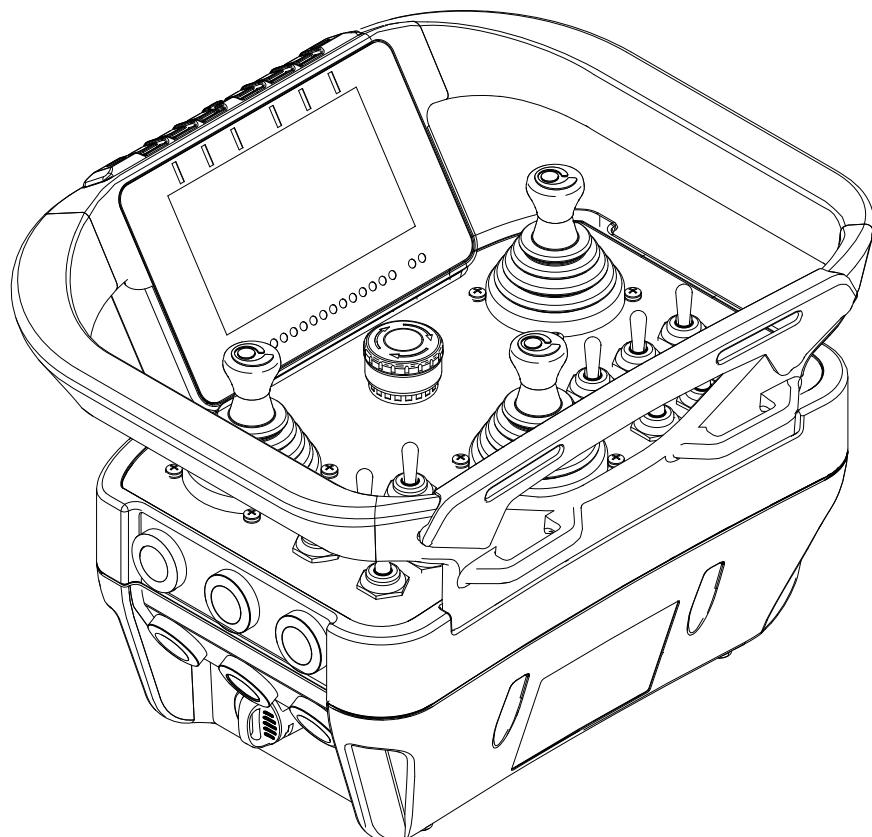


Instruction Manual for the use and the maintenance of the CCS

Original instructions



Part C: AJT Remote station with video option

AIR SERIES



WARNING

THIS PART OF THE MANUAL CONSISTS OF: Part C - Information, instructions and warnings for the AJT (Model J9A) Remote station. The Manual consists of Part A – General, Part B – Conformity and Frequencies, Part C – Remote station, Part D – Base station, Part E – Battery and Battery Charger, plus the Technical Data Sheet.

THIS MANUAL, INCLUDING ALL PARTS THEREOF, AND ALL INSTRUCTIONS CONTAINED HEREIN, MUST BE READ CAREFULLY AND UNDERSTOOD BEFORE INSTALLING, USING, MAINTAINING OR REPAIRING THE AUTEC CCS.

FAILURE TO READ AND COMPLY WITH ALL APPLICABLE WARNINGS AND INSTRUCTIONS OR ANY ONE OF THE LIMITATIONS NOTED IN THIS MANUAL CAN RESULT IN SERIOUS BODILY INJURY OR DEATH, AND/OR PROPERTY DAMAGE.

THE AUTEC CCS IS NOT A STANDALONE PRODUCT AND IS INTENDED ONLY AS A COMPONENT ON A MACHINE:

- ON WHICH AND WHERE THE USE OF A CCS IS APPROPRIATE,
- THAT CAN BE OPERATED SAFELY AND IN ACCORDANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND STANDARDS BY SUCH REMOTE CONTROL.

ACCORDINGLY, IT IS THE RESPONSIBILITY OF THE MACHINE MANUFACTURER ON WHICH THE AUTEC CCS IS INTENDED TO BE INSTALLED, to perform an in-depth and accurate risk assessment to determine if the Autec CCS is suitable for operating a Machine in conditions of safety and operational effectiveness, taking into account the conditions of use, the intended uses and the reasonably foreseeable incorrect ones, so that the installation, maintenance and use of the Autec CCS, and all its components, are performed only and entirely in compliance with this Manual and in accordance with all local regulations, safety standards and regulations (referred to herein as "Laws, Regulations and Standards").

With reference to the USA market the Laws, Regulations and Standards include all safety rules and regulations of the Occupational Safety & Health Administration (OSHA) (<http://www.osha.gov>), all federal, state and local laws, regulations and building and electrical codes, and all applicable standards, including but not limited to ANSI Standards.

It is also the responsibility of the Manufacturer and of the design professionals of the Machine on which the Autec CCS is to be installed and used to be certain that the structure, condition, organization and markings of the Machine as installed at the facility is appropriate for and will allow for the safe and reliable use and control of the Machine through the Autec CCS interface.

IT IS THE RESPONSIBILITY OF THE OWNER AND FACILITY OPERATOR, AND THEIR DESIGN PROFESSIONALS, that the installation, maintenance and operation of the Autec CCS and all of its components are done solely and completely in accordance with this Manual, and with all applicable Laws, Regulations and Standards, even local. It is also the responsibility of the Manufacturer of the Machine on which the Autec CCS is to be installed and used, and their design professionals, to be certain that the structure, condition, organization and markings of the Machine as installed at the facility is appropriate for and will allow for the safe and reliable use and control of the Machine through the Autec CCS interface.

ONLY QUALIFIED AND PROPERLY TRAINED PERSONNEL SHOULD BE PERMITTED TO OPERATE OR USE THE AUTEC CCS AND THE MACHINE OPERATED BY OR THROUGH THE AUTEC CCS. ONLY QUALIFIED AND PROPERLY TRAINED PERSONNEL SHOULD BE PERMITTED TO BE IN THE VICINITY OF MACHINE OPERATED BY OR THROUGH THE AUTEC CCS.

FAILURE TO PROPERLY INSTALL, OPERATE, MAINTAIN AND SERVICE THE AUTEC CCS CAN RESULT IN SERIOUS BODILY INJURY OR DEATH AND/OR PROPERTY DAMAGE. Refer to this Manual and each of its Parts for further assistance or contact Autec. Autec is not responsible for and shall not be held liable for any installation of the Autec CCS not performed by Autec or for any use of the Autec CCS not in complete compliance with, and/or not maintained in complete compliance with, all Autec instructions and warnings and all applicable Laws, Regulations and Standards, even local.

Autec is not responsible for and shall not be held liable for any alteration or modification of the Autec CCS, or the use of non-Autec components or products used with or incorporated into the Autec CCS.

IT IS THE RESPONSIBILITY OF THE OWNER AND FACILITY OPERATOR, AND THEIR DESIGN PROFESSIONALS, to be certain that the Autec CCS is properly maintained and serviced at all times in compliance with all Autec instructions and warnings, and with all applicable Laws, Regulations and Standards, even local.

IT IS THE RESPONSIBILITY OF THE OWNER AND FACILITY OPERATOR, AND THEIR OFFICERS, MANAGERS AND SUPERVISORS, to be certain that all Users of the Autec CCS and that all Persons who are or will be working with or near the Machine operated by or through the Autec CCS are fully and properly educated and trained by qualified Personnel in the proper and safe use of the Autec CCS and of the Machine, including without limitation complete familiarity with and understanding of Autec warnings and instructions, and all applicable Laws, Regulations and Standards, even local, and that such Users and other Persons do in fact at all times operate or work with the Autec CCS safely and ONLY in compliance with Autec instructions and warnings and with all applicable Laws, Regulations and Standards, even local. FAILURE TO DO SO CAN RESULT IN SERIOUS BODILY INJURY OR DEATH AND/OR PROPERTY DAMAGE.

IT IS THE RESPONSIBILITY OF THE OWNER AND FACILITY OPERATOR, AND THEIR OFFICERS, MANAGERS AND SUPERVISORS, to be certain that the areas in which the Machine operated by or through the Autec CCS is located and operates are clearly delineated and marked in accordance with all Autec warnings and instructions, and all applicable Laws, Regulations and Standards, even local, and otherwise sufficient to alert and warn ALL PERSONS that the Machine is operated by or through a CCS, and prohibiting any unauthorized access thereto. FAILURE TO DO SO CAN RESULT IN SERIOUS BODILY INJURY OR DEATH AND/OR PROPERTY DAMAGE.

FAILURE TO OPERATE THE AUTEC CCS SAFELY AND IN COMPLIANCE WITH AUTEC INSTRUCTIONS AND WARNINGS AND WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS, EVEN LOCAL, AND/OR PERMITTING USERS OR OTHER PERSONS NOT PROPERLY TRAINED IN THE SAFE AND PROPER USE OF THE SYSTEM, OR THE MACHINE ON WHICH IT IS INSTALLED, CAN RESULT IN SERIOUS BODILY INJURY OR DEATH AND/ OR PROPERTY DAMAGE.

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1 Information on the use of instructions

	Before reading this part of the Manual, you must read and understand the general part (Part A) of the Manual provided with the CCS.
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1.1 Structure of the Instruction Manual

The Manual for the use and maintenance of Autec CCSs consists of different parts, that altogether form the Manual; the Manual must be read carefully, understood and applied by the CCS's Owner, User and by all those Persons that, for any reasons, may operate with the CCS or with the Machine where it is installed.

The following table describes the structure of the Instruction Manual for the use and the maintenance of the CCS.

Part	Title	Contents
A	General part	<ul style="list-style-type: none"> - General information regarding the series, - directions for risk assessment of the "Machine+CCS" system, - warnings for installation of the CCS, - warnings for use and maintenance of the CCS, - instructions for correct transportation and storage of CCS.
B	Conformity and frequencies	<ul style="list-style-type: none"> - Operating frequency bands of the CCS, - conformity and law references of the CCS.
C	Remote station	<p>Description and instructions concerning the Remote station, including:</p> <ul style="list-style-type: none"> - description of operation, - commands, - light signals, - malfunctions, - additional instructions to the general part.
D	Base station	<p>Description and instructions concerning the Base station, including:</p> <ul style="list-style-type: none"> - description of operation, - light signals, - malfunctions, - additional instructions to the general part.
E	Battery and battery charger	<p>Description, warnings and instructions concerning batteries and battery chargers, including:</p> <ul style="list-style-type: none"> - description of operation, - light signals, - malfunctions, - instructions for the User.

Usage and maintenance instructions are supplemented by the CCS's Technical Data Sheet, that:

- Describes the Remote station's configuration
- Indicates the relation between commands sent by the Remote station and those available on the Base station.

Usage and maintenance instruction as a whole are to be considered as an integral part both of the Autec CCS and of the Machine, system, device or Machinery system where the CCS is installed.

The Manufacturer of the Machine on which the Autec CCS is installed, and the Owner and User of the Machine, must make sure that the Instruction Manual and all of its parts are included in the Instruction Manual of the Machine.

1.2 Caption and terminology

	Contact Autec if any of the instructions, symbols, warnings or images are not clear and understandable.
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In this part of the Manual, the terms listed below have the same meaning explained in the corresponding paragraph of the general part (Part A):

- **Station**
- **CCS**
- **Remote station**
- **Base station**
- **Radio link**
- **Active stop**
- **Automatic stop**
- **Manual stop**
- **Passive stop**
- **Machine**
- **Manufacturer**
- **Installer**
- **User**
- **Maintenance Technician**
- **Manual or Instruction Manual**
- **Installation manual**
- **Person**
- **Owner**

Functions indicated for the Manufacturer, the Installer, the User and the Maintenance Technician may be performed by a single Person, if he/she has the needed competence and undertakes the resulting responsibilities. Each Person must be aware of the instructions contained in the Manual, depending on the activity they carry out.

For example, if a Manufacturer is also the Installer, and/or Maintenance Technician, he/she must also know and follow the instructions specifically addressed to those Persons. The same applies, for example, if a User is also the Manufacturer and/or the Installer.

1.3 Symbols

	This symbol identifies the parts of text in the Manual that must be read with special attention.
 WARNING	This symbol identifies the parts of text in the Manual containing warnings, information and/or instructions that are particularly relevant with regards to safety; failure in understanding them or in complying with them may cause hazards for People and/or property.

1.4 To whom the instructions are addressed

Addressees of instructions are listed in the paragraph with the same title in the general part: please refer to that part.

1.5 Instruction storage

Regulation for the storage of instructions are described in the paragraph with the same title in the general part: please refer to that part.

1.6 Intellectual property

Restrictions connected to intellectual property are described in the paragraph with the same title in the general part: please refer to that part.

2 Brief product presentation

2.1 Series, CCS and Station

The object of this part of the Manual is the AJT (Model J9A) Remote station of an Autec Air series' CCS.

Autec Air series' CCSs are designed to be used on Machines and provide a command interface to their command and control system, to be used from an appropriate distance and position.

2.2 Conformity with standards

The conformity of CCSs with standards and with working requirements and conditions in the single Countries is provided in the related specific part "Conformity and frequencies" (Part B) of the Manual.

2.3 Contacts and useful addresses

The CCSs are produced by Autec Srl – Via Pomaroli, 65 - 36030 Caldognو (VI) - Italy.

You can find contacts for Autec, its distributors, dealers and authorized service centres on the website www.autecsafety.com.

2.4 Warranty

General warranty conditions are indicated both in the relevant sheet provided together with this documentation, and in the specific page on the website www.autecsafety.com.

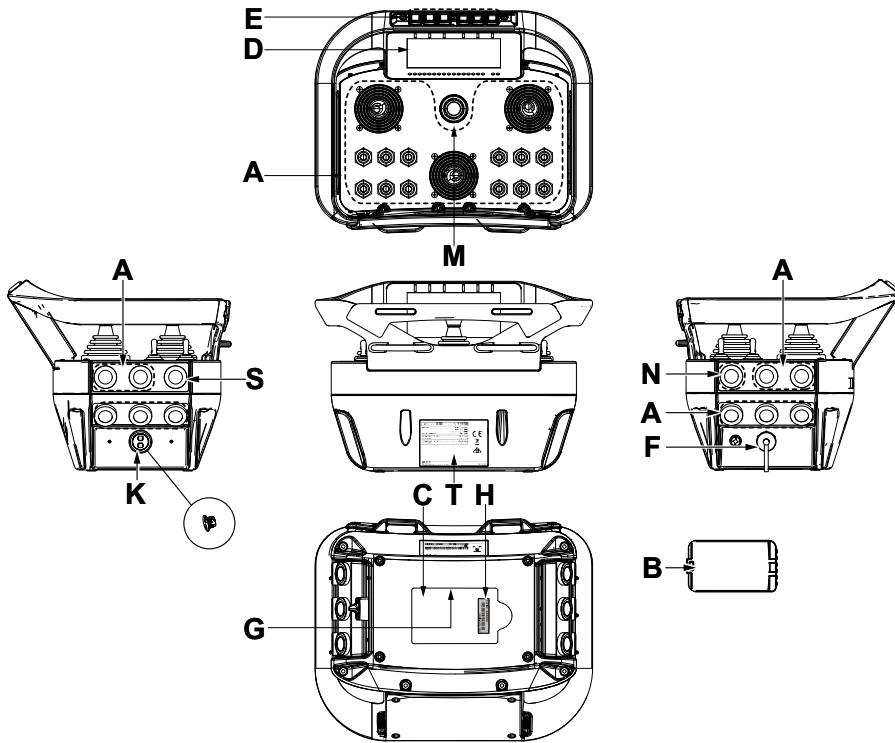
2.5 Technical assistance and spare parts

If you need technical services and/or spare parts, please refer to contacts provided in the website www.autecsafety.com.

When applying for technical service to Autec, its distributors, dealers and authorized service centres, the CCS's serial number is required; you can find it on the identification plate on the Remote station and/or on the Base station.

3 Description

3.1 Remote station



A	Actuators (joysticks, selectors, pushbuttons)
B	Battery
C	Battery housing
D	Display and/or LED (if any)
E	Pushbuttons for display/LEDs (if any)
F	Connector for cable control (if present)
G	CCS identification plate

H	Remote station identification plate
K	Power keyswitch
M	GSS or EMS pushbutton
N	FUNCTION pushbutton
S	START pushbutton
T	Technical data plate

3.2 Data Feedback Function

Thanks to the Data Feedback function, the following is available to the User:

- Images filmed by cameras, related to the working area or to specific Machine movements.
- Information and/or signals concerning some specific situations and the movements of the controlled Machine.

The Data Feedback function operates through the display and the LED array on the Remote station.

 WARNING	<p>During normal operation, pay particular attention to the images shown and to the indications given on the display and/or on the LEDs on the Remote station: they can be helpful to evaluate the Machine working status, but they do not replace nor exhaust the necessary visual inspections the User needs to carry out so that the Machine operation and movements are performed in safety conditions.</p> <p>Any image shown and any indication signalled on the display and/or through the LEDs can never be considered or used as a safety signal or for legal metrology.</p> <p>When operating the Machine, remember that the CCS does not cut in autonomously when potential hazardous situations are shown and signalled.</p> <p>The display does not signal the presence of people, animals or belongings, even if they appear in the cameras' frame, and does not signal the risk of hitting people, animals or belongings.</p>
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3.2.1 Operation with display

The display on the Remote station shows the images filmed by the camera/s.

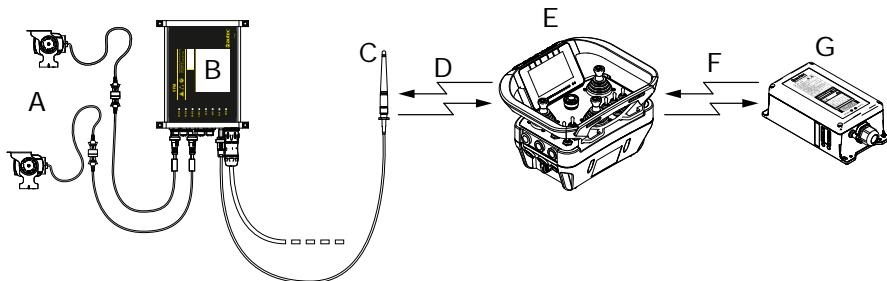
Signal icons, measurements collected from the Machine and their description may be shown too.

The Machine Manufacturer chooses which information is displayed and the way they are displayed (images and/or icons and/or measurements and/or descriptions).

In addition, the battery level and the quality of the radio link may also appear.

Images filmed by the cameras are transmitted to the VFM (Video Feedback Module), that in turn sends them to the Remote Station.

The instructions and warnings for the cameras and the VFM are to be found in the corresponding manuals that come with the single devices.



A	Cameras
B	VFM
C	Antenna
D	Wi-Fi connection

E	Remote station
F	Radio link
G	Base station



The images of the cameras provided above are for illustrative purposes only.

The Remote station communicates with the Base station through a radio link described in "Part A" of the Instruction Manual.

The Remote Station communicates with the VFM through Wi-Fi connection.

	WARNING The Wi-Fi connection between the VFM and the Remote Station, and the radio link between the Remote Station and the Base Station are two independent connections. Therefore, only one of the two connections may be present.
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	WARNING The visualization of images filmed by cameras on the display may interrupt in any moment without prior notice due to the interruption of the Wi-Fi connection between the VFM and the Remote Station. The Machine Manufacturer, the Installer, the Owner, the User and/or the Maintenance Technician, must make sure that the interruption of the Wi-Fi connection between the VFM and the Remote Station never leads to a hazardous situation in the specific working application.
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 WARNING	<p>A delay occurs between the camera filming and the visualization of the filmed images on the display on the Remote station. This delay cannot be removed or reduced.</p> <p>Depending on the display configuration set by the Machine Manufacturer or by the Installer, if the Wi-Fi connection between the VFM and the Remote Station is interrupted, the last image filmed before the interruption may remain displayed.</p> <p>The Machine Manufacturer, the Installer, the Owner, the User and/or the Maintenance Technician, must make sure that the delay between the camera image filming and the display of the image on the Remote station display cannot generate or contribute to generate a hazardous situation in the specific working application.</p>
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3.2.2 Operation with LED

If the Remote station has an LED array for the Data Feedback function, specific Machine conditions are signalled if they are illuminated (by way of example: load limits, limit switch). The signalled conditions depend on the settings chosen by the Machine Manufacturer.

4 Technical data

Power supply	batteryLPM05
	batteryLPM04
Antenna	integrated
Housing material	PA 6 (20%fg)
Protection degree	IP65 (NEMA 4)
Dimensions	289x233x198mm (11.4x9.2x7.8in)
Weight	3.2kg (7.1lb)
Run time at 20°C (68°F) with LPM05 battery	8h
Run time at 20°C (68°F) with LPM04 battery	4.5h
Maximum altitude (a.s.l.)	2000m
Continuous vibration	0.35mm, 5g (10-150Hz)
Shock	half sine, 11ms, 30g
Fall	2 falls from a height of 1m (39.3in) onto a concrete surface
Power frequency magnetic field immunity according to CEI EN 61000-4-8	up to 300A/m

Data about battery autonomy are based on tests performed with 100 % display brightness and visualisation of 2 streaming video cameras simultaneously.

5 Technical Data Sheet

The CCS's Technical Data Sheet:

- Describes the Remote station's configuration
- Indicates the relation between commands sent by the Remote station and those available on the Base station.

The Technical Data Sheet must be filled in, checked and signed by the Installer, who is responsible for correct wiring.

A Technical Data Sheet must always be kept together with this Manual: if you need to use the Technical Data Sheet for administrative purposes (tests, check, etc.), make a copy of it.

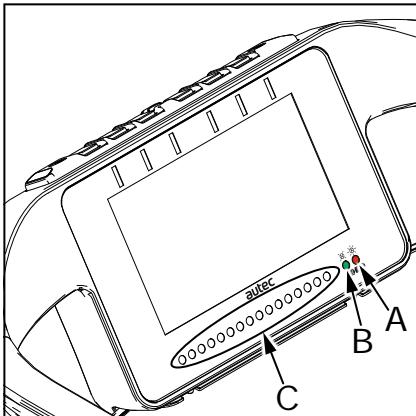
 WARNING	The wiring of the Base station's outputs must always reflect the wiring indicated in the Technical Data Sheet.
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6 Plates

Plate	Position	Content
CCS identification plate	Key ID 0-1 (if present)	CCS serial number (S/N)
	Battery housing (if the ID internal tx memory is present)	CCS serial number (S/N), QR code and manufacturing year.
Remote station identification plate	Battery housing	Manufacturing year, a QR code and the Remote station identification number (TU ID)
Technical data plate	Battery housing	Model, Type and main Remote station technical data, marking and possible CCS marks

7 Light and acoustic warning signals

7.1 Light signals



A	Red LED
B	Green LED
C	LEDs for Data Feedback function

The Remote station always has a green LED [B] and a red LED [A] that provide information regarding the CCS.



The meaning of signals provided by the LEDs identified with "C" are explained in the Data Feedback function part (see paragraph 3.2). The meaning of LEDs related to the Data Feedback function are decided and established by the Machine Manufacturer depending on the Machine's functions for which he wants to receive information.

The meaning of red LED [A] and green LED [B] signals is described in the following tables; possible measures to take are provided in chapter 12



The meaning of the red and green LED signals cannot be modified.

Signals	Meaning
The green LED is off.	The Remote station is off.
The green LED is steady on.	The CCS is not started and the Stations do not communicate with each other.
The green LED repeats the sequence: two blinks and a pause.	The working range of the remote control has been exceeded for more than 20 seconds.
The green LED repeats the sequence: three blinks and a pause.	The Remote station does not receive feedback data from the Base station (see paragraph 3.2).
The green LED blinks fast.	The Remote station and Base station communicate. The CCS is not started.
The green LED blinks slowly (one blink per second).	The CCS is started up.
The red LED is off.	The Remote station works correctly.
The red LED blinks twice per second at CCS's start up.	At least one of the commands that were checked at start-up is enabled (see Technical Data Sheet).
The red LED blinks three times per second at CCS's start up.	The battery is flat.
The red LED is steady on for two seconds at CCS's start up.	The Remote station does not work correctly.
The red LED blinks slowly (one blink per second).	The Remote station has about 1-hour run time after the onset of signal.
The red LED blinks quickly.	The Remote station has a 10-minute run time after the onset of signal.
The green LED and the red LED are steady on at CCS's start up.	Wrong Key ID 0-1 or ID internal tx memory has been inserted in the Remote station. You're using a BACK-UP UNIT with the Key ID 0-1 or ID internal tx memory of the Remote station that has been replaced.
The green LED and the red LED blink three times per second at CCS's start up.	The Key ID 0-1 or ID internal tx memory is damaged.
The green LED is steady on and the red LED blinks twice per second at CCS's start up.	START is active.
The green LED and the red LED blink alternating.	30s left before the Remote station automatically switches off.
The green LED repeats the sequence three blinks and a pause, and the red LED is steady at CCS's start up.	The UNPAIR procedure has been carried out.
The green LED and the red LED are off at CCS's start up	The GSS or the EMS pushbutton is pressed.
	The power keyswitch is not inserted.
	The battery is completely discharged or not inserted.

7.2 Acoustic signals

The Remote station has an acoustic signal device that activates when:

- The Remote station has a 10-minute run time.
- During start up, the CCS detects that a wrong Key ID 0-1 or ID internal tx memory has been inserted in the Remote station, or this is a BACK-UP UNIT.

	The meaning of the acoustic signals cannot be modified.
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8 General operating instructions

8.1 Power keyswitch

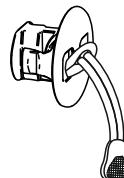
When the Remote station has a power keyswitch, this can be one of the following:

- M-Key (see paragraph 8.1.1).
- Key ID 0-1 (see paragraph 8.1.2).

The CCS cannot work if the power keyswitch is not inserted in the Remote station.

8.1.1 M-Key

The M-Key makes it possible to power the Remote station.



Inserting the M-Key

Push the M-Key to the bottom of its housing.

Removing the M-Key

Remove the M-Key from its housing by pulling the lanyard.

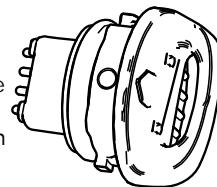
8.1.2 Key ID 0-1

The Key ID 0-1 makes it possible to power the Remote station.

It stores the CCS's address.

Therefore, the Key ID 0-1 can only be used in the Remote station of the CCS to which it belongs.

As the CCS's address is stored in the Key ID 0-1, this must be used with very strict care.



 WARNING	Only use the Key ID 0-1 for the Remote station with which it was provided.
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8.1.3 Inserting the Key ID 0-1

To insert the Key ID 0-1, do as follows:

1. Insert the Key ID 0-1 in its housing.
2. Turn the Key ID 0-1 clockwise.

8.1.4 Removing the Key ID 0-1

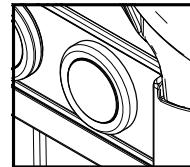
To remove the Key ID 0-1, do as follows:

1. Turn the Key ID 0-1 anti-clockwise.
2. Pull the Key ID 0-1 to remove it from its housing.

8.2 START pushbutton

The START pushbutton is used to:

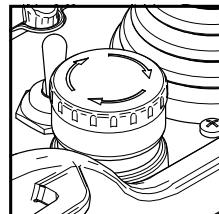
- start the CCS (see paragraph 8.9)
- activate the horn when the CCS is started.



8.3 GSS pushbutton

When the GSS pushbutton (if any) is activated, the Remote station switches off and the Machine stops. To start the CCS again and enable it to control the Machine after the GSS pushbutton has been pressed, you need to:

- Make sure that the working and usage conditions are safe.
- Turn the GSS pushbutton in the arrow direction (shown on the button) or pull to unlock it.
- Start the CCS following the procedure described in paragraph 8.9.

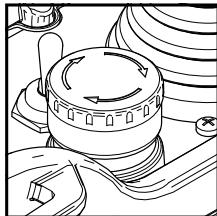


 WARNING	<p>The GSS pushbutton should be pressed when it is necessary to stop the Machine immediately whenever a dangerous condition occurs.</p> <p>The Machine Manufacturer and/or the Installer must provide the User with the instructions and warnings concerning possible risks that may originate from the Machine stop (by way of example: movement inertia, swinging load...).</p>
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8.4 EMS pushbutton

When the EMS pushbutton (if any) is activated, the Remote station switches off and the Machine stops. To start the CCS again and enable it to control the Machine after the EMS pushbutton has been pressed, you need to:

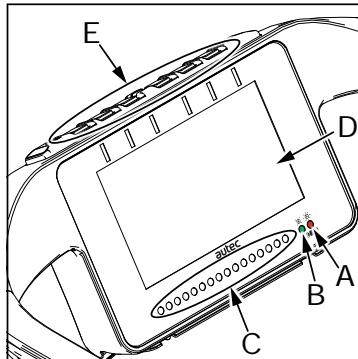
- Make sure that the working and usage conditions are safe.
- Turn the EMS pushbutton in the direction show by the arrow (see button) to unlock it.
- Start the CCS following the procedure described in paragraph 8.9.



 WARNING	<p>The EMS pushbutton should be pressed when it is necessary to stop the Machine immediately whenever a dangerous condition occurs.</p> <p>The Machine Manufacturer and/or the Installer must provide the User with the instructions and warnings concerning possible risks that may originate from the Machine stop (by way of example: movement inertia, swinging load...).</p>
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8.5 Display

8.5.1 4.3" display



A	Red LED
B	Green LED
C	LEDs for Data Feedback function
D	Display
E	Keys

The pushbuttons [E] on the Remote station are used to interact with the display [D].



Functions carried out by the pushbuttons [E] are configurable and chosen by the Machine Manufacturer: the User must be properly trained about them.

No Machine operation or movement shall be connected to the use of the buttons described above.

8.6 Battery



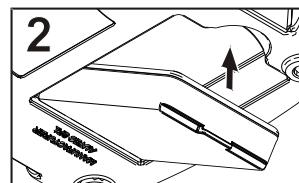
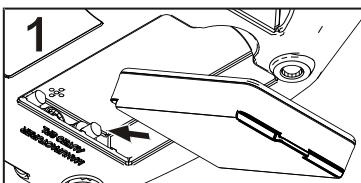
The Air series' Remote stations can only be powered by Autec rechargeable batteries.

For any warnings and instructions regarding the battery, see "Part E" in the Instruction Manual.

8.6.1 Battery insertion

To insert the battery, proceed as follows:

1. Push the battery towards the contacts of the Remote station.
2. Insert the battery in its housing.

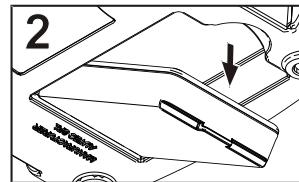
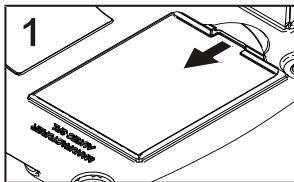


The battery slides easily into place and ensures that the positive (+) and negative (-) poles are correctly connected only if it is inserted with the plate facing its housing, so that the battery's contacts match the Remote station's contacts.

8.6.2 Battery removal

To remove the battery, proceed as follows:

1. Push the battery towards the contacts of the Remote station.
2. Remove the battery from its housing.



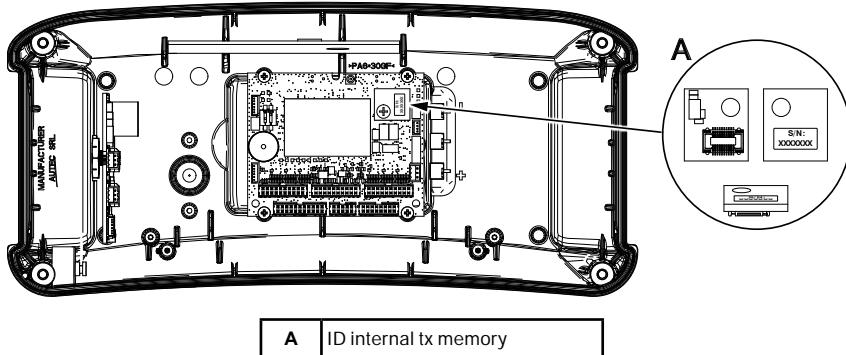
When the Remote station is not in use, remove the battery if possible.

8.7 ID internal tx memory

The ID internal tx memory is a key containing the address that is used to code messages exchanged between the Remote station and the Base station.

This key, if present, is inside the Remote station.

The ID internal tx memory is present in the Remote station when the latter does not have a Key ID 0-1 (see paragraph 8.1.2)



8.8 Zero-G sensor



The Remote station is equipped with a Zero-G only upon request of the Machine Manufacturer and/or of the Installer, who are responsible for the decision on the conditions for activation of the Zero-G sensor. The CCS User must be properly trained about this.

The Zero-G sensor can activate due to one or more of the following causes:

- **Impact:** The Zero-G sensor activates when the Remote station has an impact with at least a 30-centimetre movement and with an acceleration higher than 2g.
- **Fall:** the Zero-G sensor activates when the Remote station falls from higher than 1 metre.
- **Tilt:** the Zero-G sensor activates when the Remote station is tilted for more than one second by a defined angle with respect to the ground. The value of the tilting angle is set by Autec, but it is decided by the Machine Manufacturer and/or by the installer (possible options: 45°/60°/90°).

The Zero-G sensor also activates when the Remote station is thrown, or rolls, as soon as the sensor detects one of the above-mentioned causes (impact, fall, tilt).

Autec sets the system so that when the Zero-G sensor activates, one of the following behaviour occurs:

- Remote station is switched off.
- A command is sent to the Base station.

8.9 Starting up the CCS

Starting up the CCS means enabling it to send commands and operate the Machine.

 WARNING	<p>The CCS start up is protected through a power keyswitch and/or a PIN code to prevent unauthorised use of the Machine.</p> <p>To activate the CCS you need to insert the power keyswitch and/or enter the PIN code following the procedure indicated in paragraph 8.9.1, 8.9.2 or 8.9.3.</p>
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The PIN code is not a sequence of numbers, but it consists in the sequential activation of a series of commands.

	<p>Commands activated while entering the PIN code are not sent to the Machine, therefore they do not activate the corresponding Machine's movements and/or functions.</p>
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If the Remote station does not have a power keyswitch, the CCS start up is protected by PIN code. On the contrary, when the Remote station needs a power keyswitch, CCS start up is protected by the power keyswitch itself. If the risk assessment requires further protection of the CCS from unauthorized use, a PIN code can be enabled too.

8.9.1 Power keyswitch start up (no PIN code)

When the Base station is powered on correctly, perform the following procedure:

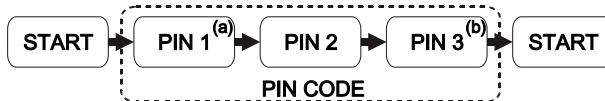
1. Insert a fully charged battery in the Remote station (see paragraph 8.6.1).
2. Insert the power keyswitch in the Remote station (see paragraph 8.1).
3. Make sure that the GSS or EMS pushbutton is not pressed.
4. Activate START and hold it active until the green LED blinks fast.
5. Release START.

When the green LED blinks slowly, the CCS is started.

8.9.2 PIN code start up (no power keyswitch)

When the Base station is correctly powered on, perform the following procedure; activate each command within 3 seconds after releasing the previous one:

1. Insert a fully charged battery in the Remote station (see paragraph 8.6.1).
2. Make sure that the GSS or EMS pushbutton is not pressed.
3. Activate START and hold it active until the green LED illuminates.
4. Activate the commands corresponding to PIN code in the correct sequence (PIN 1, PIN 2 and PIN 3 given in the Technical Data Sheet).
 - a. PIN 1 shall not be included in the start up procedure if it corresponds to START.
 - b. PIN 3 shall not be included in the start up procedure if it corresponds to START.
5. Activate START and hold it active until the green LED blinks fast.
6. Release START.



When the green LED blinks slowly, the CCS is started.

Note: the default PIN code set by Autec is the following:

- PIN 1 = START
- PIN 2 = FUNCTION
- PIN 3 = START

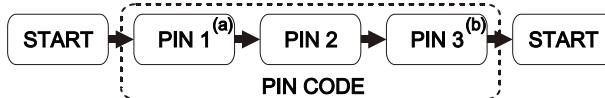
	<p>Autec will set a customized PIN code only upon request by the Machine Manufacturer or the Installer.</p>
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8.9.3 Power keyswitch + PIN code start up

 WARNING	WARNING: Make sure that a PIN code for start up is enabled in the Remote station. In fact, if a PIN code is not enabled for start up in the Remote station, the following procedure may start the Machine at first activation of the START.
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When the Base station is correctly powered on, perform the following procedure; activate each command within 3 seconds after releasing the previous one:

1. Insert a fully charged battery in the Remote station (see paragraph 8.6.1).
2. Insert the power keyswitch in the Remote station (see paragraph 8.1).
3. Make sure that the GSS or EMS pushbutton is not pressed.
4. Activate START and hold it active until the green LED illuminates.
5. Activate the commands corresponding to PIN code in the correct sequence (PIN 1, PIN 2 and PIN 3 given in the Technical Data Sheet).
 - a. PIN 1 shall not be included in the start up procedure if it corresponds to START.
 - b. PIN 3 shall not be included in the start up procedure if it corresponds to START.
6. Activate START and hold it active until the green LED blinks fast.
7. Release START.



When the green LED blinks slowly, the CCS is started.

Note: the default PIN code set by Autec is the following:

- PIN 1 = START
- PIN 2 = FUNCTION
- PIN 3 = START

	Autec will set a customized PIN code only upon request by the Machine Manufacturer or the Installer.
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8.9.4 Procedure to modify the PIN code

If a PIN code is needed for the Remote station, it can be modified to limit the use of the CCS. To modify the PIN code, perform the following procedure with the Remote station switched off and the GSS or EMS pushbutton released.

1. Enable command S0 and START and keep them enabled until the green LED blinks (1 blink per second).
2. Activate the commands of the PIN code sequence provided in the Technical Data Sheet.
3. Activate command S1 (see Technical Data Sheet) repeatedly until LED 2 illuminates.
4. Activate command S2 (see Technical Data Sheet) to confirm your selection (green LED blinks twice per second). You can choose the 3 commands you want to set as PIN code amongst all the commands on the Station.
 - If you want to start the CCS with a single-command PIN code, enable START as PIN 1 and PIN 3.
 - If you want to start the CCS with a two-command PIN code, enable START as PIN 1 or PIN 3.
5. Activate the command you want to allocate as PIN 1 (LED 1 and green LED are steady on).
6. Activate the command you want to allocate as PIN 2 (LED 2 and green LED are steady on).
7. Activate the command you want to allocate as PIN 3 (LED 3 and green LED are steady on). PIN code is saved automatically.

8.10 Command activation

When the CCS is started, it is possible to activate movements, functions and commands on the Machine by acting on the related joysticks, switches or pushbuttons, whose functions and symbols are decided by the Manufacturer and/or the Installer.

To identify the relation between the actuators and the corresponding Machine movements, the Machine Manufacturer and/or the Installer shall provide relevant instructions and the User shall be properly trained.

8.11 Interruption of the radio link

When the radio link is incorrect or interrupted, the automatic stop function activates (see paragraph "Control devices" in the Instruction Manual's general part).

The green LED on the Remote station signals this interruption by switching from slow blinking to one of the following statuses (see chapter 12):

- fast blink;
- on with steady light;
- two blinks and a pause;
- three blinks and a pause.

8.12 Remote station automatic switch off

Automatic switch off of the Remote station occurs in the following cases:

- When the battery is flat (see paragraph 8.12.1).
- When the CCS is not used for a certain set time (see paragraph 8.12.2).

To start the CCS, see paragraph 8.9).

8.12.1 Low battery

The Remote station indicates if the battery is not sufficiently charged.

- The red LED blinks fast: the Remote station has a 10-minute run time from the onset of signal, after which the Remote station will automatically switch off.

It is necessary to bring the Machine to a safe state and replace the battery with a charged one (see paragraph 8.6).

	<p>The battery run time signalled by the Remote station is reduced by the following factors:</p> <ul style="list-style-type: none"> - Battery ageing - Increasing number of battery charge-discharge cycles - Battery usage outside the range provided in paragraph "Operational usage" in "Part A" of the Manual. - Battery storage in disregard of the indications given in paragraph "Storage" in the instruction manual for the use and maintenance of the battery and battery charger.
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8.12.2 When the Remote station is not used

If the Remote station remains started with no enabled commands, it will automatically switch off after a predetermined time frame. This time frame is specified in the Technical Data Sheet (SWITCH-OFF).

Before the Remote station switches off automatically, the green and red LEDs blink alternating for 30 seconds.

Activating any actuator corresponding to a movement command reduces the predetermined automatic switch-off time (SWITCH-OFF) to zero.

	<p>Setting or removal of the automatic switch off time (SWITCH-OFF) is done by Autec and decided by the Machine Manufacturer or by the Installer, depending on the operation and functions they need on the Machine.</p>
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8.13 Switching off the Remote station

 WARNING	<p>Switch off the Remote station when the CCS is not being used to operate the Machine, or when work is otherwise interrupted, even for short periods. Do not leave the load hanging, and do not leave the Machine in dangerous conditions (even when recharging the Station or replacing the battery).</p> <p>FAILURE TO DO SO CAN RESULT IN SERIOUS BODILY INJURY OR DEATH AND/OR PROPERTY DAMAGE.</p>
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Voluntary switch off of the Remote station occurs in the following cases.

- When the power keyswitch (if present) is turned anticlockwise or removed.
- When the battery is removed (see paragraph 8.6.2).

8.14 Cable control

The cable control is used:

- in particular working conditions, established by the Machine Manufacturer
- when it is not possible to establish a radio link between the Stations of the CCS,
- when working in environments where it is not allowed to work via radio frequency,
- when a fully charged battery is not available.

 WARNING	<p>ATTENTION: The use of the cable control entails risk of electric shock when working near overhead or underground power line's cables.</p>
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8.14.1 Description

The cable control connects the Remote station to the Base station through a cable that replaces the radio link. The cable shall be plugged in the suitable connectors, one on the Remote station and the other on the Base station (or placed where established by the Machine Manufacturer). When using the cable control, the working features (e.g. the meaning of actuators and the Data Feedback function) do not change.

8.14.2 Operation

	<p>Before starting to work, make sure that the cable and the corresponding connectors are intact.</p> <p>Work organisation, Machines' position, passages, etc. shall be planned so as to avoid that the cable control's cable may be damaged by moving trolleys or by the ongoing operations.</p> <p>Do not use the cable control's cable to lift the Remote station.</p> <p> WARNING</p> <p>Lay the cable control's cable in such a way as to avoid that it is squashed or strained by People or objects. Avoid contact with sharp or cutting objects that can cut the cable's protective sheath.</p> <p>Using the cable control at the same time as the waist belt or the shoulder harness means that there is a physical connection between the User and the Machine: therefore, the User must constantly check that the Machine's movements, especially in case of loss of control (by way of example: risk of overturning, of cable dragging by other Machinery), do not cause hazards. In such situations, the User must pull out the belt or open it by unfastening its buckle(s).</p>
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	<p> The cable control must only be connected and disconnected when the Remote station is off.</p> <p>When you finish working with the cable control, disconnect the cable from the Remote station and from the Machine, and protect the connectors with their caps.</p>
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To control the Machine after the cable control has been connected or disconnected, start the CCS (see paragraph 8.9).

When working with the cable control:

- Radio link is cut off.
- Leave the battery inside the Remote station, even though the power supply comes from the Base station. The battery is not, in any case, recharged through the cable control: it can only be recharged through its appropriate battery charger provided together with the system.

8.15 BACK-UP UNIT

If the Remote station cannot be used, it can be replaced with a Remote station called BACK-UP UNIT; you need to ask for it from Autec.

It is identical to the Station that cannot be used any more; the only difference is the presence of the "BACK-UP UNIT" plate on its battery housing.

 WARNING	<p>Insert the Key ID 0-1 or the ID internal tx memory of the Remote station to be replaced into the BACK-UP UNIT, then perform the address storage procedure (see paragraph 8.15.1).</p> <p>As required by standard IEC 60204-32, each CCS is uniquely identified through a serial number (S/N). Therefore, upon replacement, the serial number of the Remote station to be replaced must be written on the BACK-UP UNIT, so that all the Stations belonging to the CCS show the same serial number.</p> <p>Autec cannot be held responsible if the serial number of the Remote station to be replaced has not been marked on BACK-UP UNIT.</p>
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8.15.1 Address storage

Perform the following procedure with fully charged battery and power keyswitch inserted in the BACK-UP UNIT:

1. Activate START and hold it active until the green and red LEDs illuminate and an acoustic signal sounds.
2. Wait until the green LED blinks slowly.
3. within 3 seconds, activate in sequence the pushbuttons related to PIN 1, PIN 2 and PIN 3 that compose the PIN code provided in the Technical Data Sheet.

If the PIN code is incorrect, the red LED illuminates and the Remote station switches off. In this case, the storage procedure shall be repeated.

If the PIN code is correct, the green LED turns steady on and the Remote station switches off: this indicates that the address has been stored in the BACK-UP UNIT. It is now possible to start the CCS and control the Machine with the BACK-UP UNIT Remote station.

9 Instructions for the User

The chapter "Instructions for the User" in "Part A" of the Instruction Manual contains the warnings for the use that add to those provided in this chapter. Therefore, please refer to that part of the Manual.

The following instructions are general: they refer to general usage situations of the Remote Station and indicate how people should or should not behave when using the Station; they do not cover any possible risk situations and/or drawbacks that may depend on specific applications of the CCS Autec.

However, instructions given in the following paragraphs do not replace nor complete the instructions that must be provided to the User by the Manufacturer of the Machine where an Autec CCS (to which the AJT Remote station belongs) is installed.

9.1 Usage restrictions

 WARNING	<p>If the CCS User wears electronic devices (by way of example: pacemaker, implantable cardiac defibrillator, hearing aids), the Remote station must be kept at least 15 cm away from those devices when in use.</p> <p>Do not expose the Remote station to strong magnetic fields as they may affect the correct operation of the Station (its immunity level is indicated in chapter 4).</p>
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9.2 User behaviour

Besides the instructions contained in the General Part (Part A) of the Instruction Manual, when using the Remote station, the User must:

- Observe and comply with all instructions and warnings provided by the Machine Manufacturer.
- Observe and comply with all instructions and warnings provided by the Installer.
- Observe and comply with all instructions and warnings provided by the Person responsible for the Machine commissioning or making the Machine available for work.
- Observe and comply with all instructions and warnings provided in the CCS Manual.
- Observe and comply with all instructions and warnings provided in the cameras Manual.
- Observe and comply with all instructions and warnings provided in the Manual of the VFM.
- Observe and comply with all applicable Laws, Regulations and Standards, even local.
- Follow and put into practice the working instructions he/she received, and/or those he/she must be aware of because of his/her work and his/her tasks.
- Avoid using the CCS if he has not been properly trained and prepared, and if he has not been qualified for its use by the Person responsible for the work.

- Make sure that the Remote Station, the Base Station and the VFM are whole and work perfectly.
- Make sure that the display shows the images filmed by the cameras correctly.
- Make sure that the Remote station and the Base station are whole and work perfectly.
- Make sure that the Machine reacts correctly to the commands activated by the Autec CCS.
- Not perform any operation if the tests mentioned in the previous two points did not give positive results.
- Make sure that the CCS operation and the consequent Machine movement occur in safety conditions, to prevent hazards to people and/or property.
- Adopt the necessary caution to avoid that the Machine operation causes dangerous situations of any type; to this end, the User's physical and health status shall be taken into account too.
- Avoid leaving the Remote station unattended or in such a condition that it may be damaged, tampered with, operated by people who are not qualified or by the movement of people and/or objects (by way of example due to: fall, movement, contact).
- Operate the Remote station by holding it correctly in his hands, so that he can activate the Machine movements correctly and in safe conditions and monitor its light signals.
- Keep at a safe distance from any risk situations originating from the use of the Machine where the Autec CCS is installed.
- Avoid doing anything else while using the CCS, such as, by way of example, operate other Machines and/or other devices, eat and/or drink, use communication devices (phone, radio phone, etc.), keyboards, computers, IT devices or AV equipment, or carry out any other action that may pose the User in the situation not to be able to correctly control the Remote station and/or the Machine.
- Activate immediately the stop devices available on the Remote station and/or on the Machine, in case dangerous situations occur, even if they do not depend on the use of the Machine.
- Use the Remote station in such a way as to avoid contact with objects and/or People, fall and loss of control.
- Use the Remote station with supports such as belts and the like, which are provided with the CCS.
- Not modify or tamper with the Remote station, its components and/or its commands; not modify the indications and/or meaning and/or abbreviations and/or symbols and/or original stickers on the Remote station's panel.

9.3 Belt or harness

The Unit always comes with a waist belt or a shoulder harness: the User must mount the belt or the harness on the Remote station and use it as described in paragraph 9.3.1 or 9.3.2.



Replace the belt or harness if it is damaged or worn.

9.3.1 Waist belt

Assembly



Use



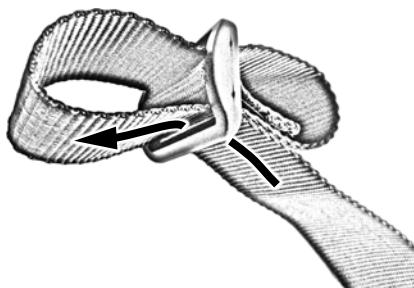
The User must wear the CCS with the belt as shown in the photo below, to avoid its fall, loss, loss of control, accidental contact and improper use.



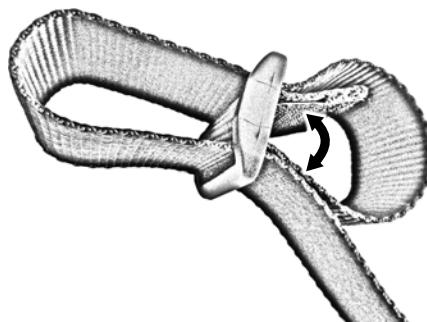
If the Remote station and the belt are used in a different way from the one described in the above mentioned figure, this constitutes improper use and may lead to damage to the Remote station, to the User, to people and/or property.

9.3.2 Shoulder harness

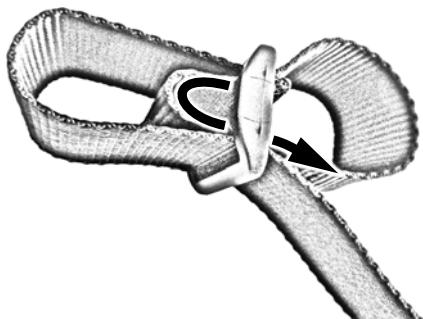
Assembly



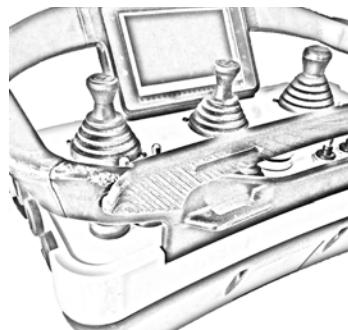
1



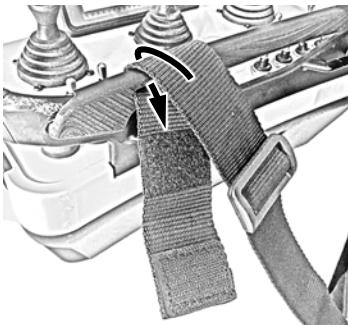
2



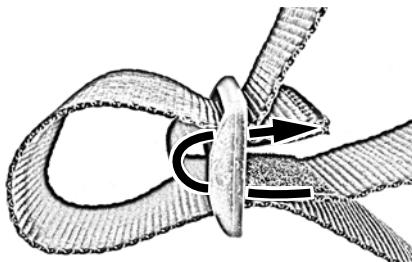
3



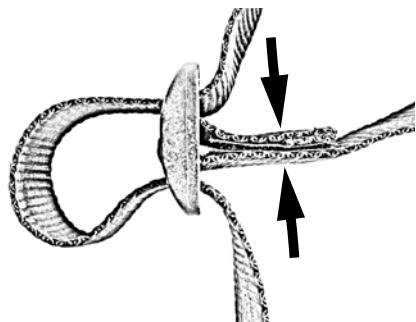
4



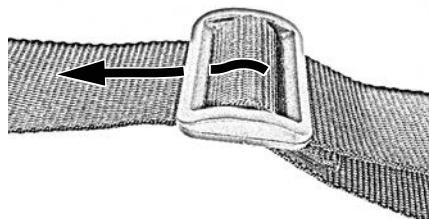
5



6



7



8

Use



The User must wear the CCS with the belt as shown in the photo below, to avoid its fall, loss, loss of control, accidental contact and improper use.

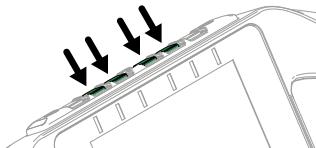


If the Remote station and the belt are used in a different way from the one described in the above mentioned figure, this constitutes improper use and may lead to damage to the Remote station, to the User, to people and/or property.

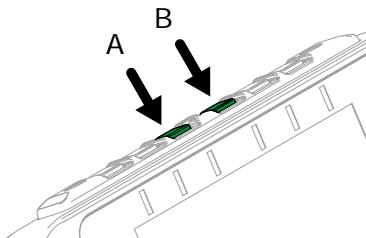
10 Connecting the Remote Station to the VFM

Chapter "Installation" in "Part A" and chapter "Installing the Base Station" in "Part D" of the Instruction Manual contain the warnings for the installation in addition to those included in this chapter. Therefore, please refer to that part of the Manual.

1. Make sure that the Remote Station is correctly powered. To enable the Remote Station pairing mode, press the 4 buttons shown in the figure simultaneously and hold them for at least three seconds.



2. Follow the procedures indicated on the display.
3. Press button A labelled as "ENT" to confirm your selection.
4. Press button B to change selection. This is how you browse through the available options.



5. Note down the PIN generated by the Remote Station.
6. Access the VFM's web interface. Enter the URL address in the browser <http://192.168.1.1>.



	<p>This address may vary if it has been previously modified.</p>
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7. Enter the log-in information to access the VFM configuration. The default user name and password are both "admin". Enter the correct log-in information and click "Sign in" or "Login".

Login

Username
 admin

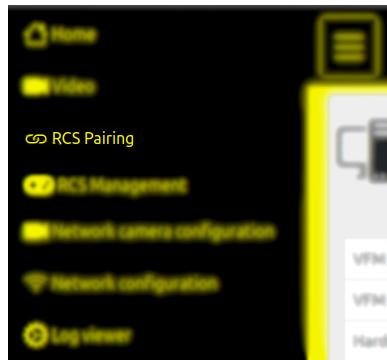
Please use one the valid usernames

Password

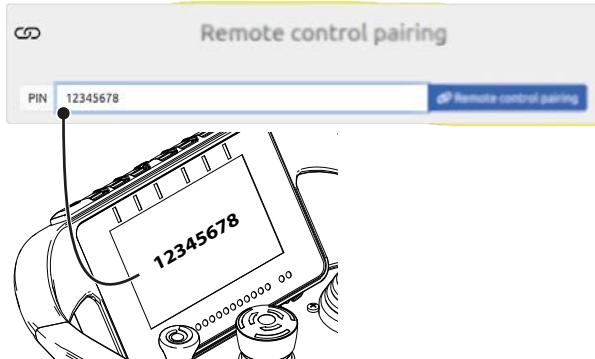
Login

	You have to change the password after you first login.
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8. Once you have logged in, browse the menu until you find section "RCS Pairing".



9. Enter the PIN generated by the Remote Station in the corresponding text box.



10. Confirm your selection on both devices to start their connection.

11. Wait until the progress bar for the connection procedure appears. During this time, make sure that the Wi-Fi LED blinks blue.

12. At the end of the connection procedure, the Remote Station will show the name that identifies the Wi-Fi network (SSID).

13. Wait until the connection procedure is successfully completed.

Once the connection has been successfully established, the Remote Station is connected with the VFM.

Contact the support service of the Machine Manufacturer if you come across any problems during this process.

11 Maintenance

Instructions for correct CCS maintenance are described in the chapter "Maintenance" included in "Part A" of the Instruction Manual. Therefore, please refer to that part of the Manual.

12 Malfunction signalled by the Remote station

The table below lists malfunctions that are signalled by LEDs on the Remote station and the solution to those malfunctions.

If the problem persists after attempting the suggested solution, contact the support service of the Machine Manufacturer.

Signals	Possible reasons	Solutions
The green LED is steady on.	The Remote station and Base station do not communicate.	Bring the Remote station close to the Base station until the green LED blinks quickly (if the signal doesn't change, check that the Base station is powered), then activate and release START. When START is released, the green LED starts blinking slowly.
The green LED repeats the sequence: two blinks and a pause.	The working range of the remote control has been exceeded for more than 20 seconds.	Bring the Remote station close to the Base station, then activate and release START. When START is released, the green LED starts blinking slowly.
The green LED repeats the sequence: three blinks and a pause.	The Remote station and Base station do not communicate.	Bring the Remote station close to the Base station until the green LED blinks quickly (if the signal doesn't change, check that the Base station is powered), then activate and release START. When START is released, the green LED starts blinking slowly.
The green LED blinks fast.	Temporary loss of radio link.	Bring the actuators related to movement commands to the rest position, then activate and release START. When START is released, the green LED starts blinking slowly.

Signals	Possible reasons	Solutions
The green LED blinks slowly (one blink per second).	The Base station may not work correctly.	See "Malfunctions signalled by the Base station" in Part D of the Manual.
The red LED blinks twice per second at CCS's start up.	At least one of the commands that were checked at start-up is enabled (see Technical Data Sheet).	Move the actuators related to the commands monitored during the start up to the rest position.
The red LED blinks three times per second at CCS's start up.	The battery is flat.	Replace the battery with a charged one.
The red LED is steady on for two seconds at CCS's start up.	The Remote station does not work correctly.	Contact the support service of the Machine Manufacturer.
The green LED and the red LED are steady on at CCS's start up.	Wrong Key ID 0-1 or ID internal tx memory has been inserted in the Remote station.	Use the correct Key ID 0-1 or ID internal tx memory.
	You're using a BACK-UP UNIT with the Key ID 0-1 or ID internal tx memory of the Remote station that has been replaced.	Store the address in the BACK-UP UNIT (see paragraph 8.15).
The green LED and the red LED blink three times per second at CCS's start up.	The Key ID 0-1 or ID internal tx memory is damaged.	Contact the support service of the Machine Manufacturer.
The green LED is steady on and the red LED blinks twice per second at CCS's start up.	START is active.	Release START.
The green LED repeats the sequence three blinks and a pause, and the red LED is steady at CCS's start up.	The UNPAIR procedure provided in the document "Menu of Remote station (MTU)" has been carried out.	Perform the ALIGNMENT procedure.
The green LED and the red LED are off at CCS's start up	The GSS or the EMS pushbutton is pressed.	Unlock the GSS or the EMS pushbutton.
	The power keyswitch is not inserted.	Insert the power keyswitch.
	The battery is completely discharged or not inserted.	Insert a charged battery.

13 Decommissioning and disposal

Instructions for correct decommissioning and disposal of CCSs are described in chapter "Decommissioning and disposal" in "Part A" of the Instruction Manual. Therefore, please refer to that part of the Manual.



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