

ROTARION

Hand Control



Instruction Manual



CAUTION!

ROTARION and accessories are optical instruments with moving parts to be used only by adults.



**MOVING
PARTS**

Keep away body and fingers from moving parts!

READ THIS MANUAL BEFORE USING ROTARION!

AstronSCIENTIFIC

ASTRONOMY MADE EASY

Congratulations on your purchase of ROTARION HAND CONTROL!

ROTARION HAND CONTROL is designed and manufactured to be used for daytime terrestrial observation and for nighttime astronomical observation to control your ROTARION locally near your telescope without a computer.

ROTARION is a unique device, patented in the European Union and the United States, to be used with any telescope with a 2" focuser and four of your favorite 1.25" eyepieces.

ROTARION makes the eyepiece change easy. Automatic, quick, and precise, without touching the telescope therefore avoiding disturbances in the positioning or misalignment of the optical axis between eyepieces. No more searching in the dark for your next eyepiece!

The automatic eyepiece change allows you to adjust the correct magnification on your telescope by increasing or decreasing the focal length of the eyepiece used, the "zoom effect".

Re-locate lost objects out of the field of view and due to improper alignment or poor tracking of the telescope. Quickly change to your largest eyepiece in mm to maximize visual field and re-locate. All with a simple Click!

For the first time you can change the power or magnification of your telescope with just a simple click, connecting your ROTARION locally to your ROTARION HAND CONTROL without a computer, ideal for use in the field.

Moreover, the ROTARION HAND CONTROL is fully compatible with the ROTARION AUTOFOCUS. You can focus automatically when the eyepiece change is commanded and fine focus with the ROTARION HAND CONTROL focus keys.

ROTARION HAND CONTROL is a device of the highest quality, designed and manufactured in BARCELONA with the latest state-of-the-art techniques and the best materials and components from The U.S.A., Japan, and Germany.

First, read this instruction manual thoroughly and then follow the instructions step-by-step. If you follow the instructions correctly, even if the reading is initially laborious, the use of ROTARION HAND CONTROL is very simple and easy.

All this to offer you many hours of enjoyment observation, and satisfaction with your telescope.

Maximum quality, universal, versatile, and easy to use, ROTARION continues our corporate mission:

AstronSCIENTIFIC
Astronomy Made Easy

In the Box

- ROTARION HAND CONTROL
- Serial Cable RJ12 (1.5m)
- User Manual

System Requirements

It is necessary to have a ROTARION EyepieceWheel to use the ROTARION HAND CONTROL.

The ROTARION HAND CONTROL is specifically designed to control the ROTARION EyepieceWheel.

You can also optionally control the ROTARION AUTOFOCUS connected to the ROTARION EyepieceWheel.

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A-INTRODUCTION

The AstronSCIENTIFIC's ROTARION HAND CONTROL is a hand-held terminal that allows you to control the ROTARION EyepieceWheel eyepiece exchanger and the ROTARION AUTOFOCUS without using a computer.

Now you can quick change of eyepieces and focus automatically. All with one click.

B-CHARACTERISTICS

- Connects directly to the ROTARION EyepieceWheel automatic eyepiece exchanger.
- Receives power from the ROTARION EyepieceWheel.
- 2-line, 8-character red LCD display.
- Controls the ROTARION EyepieceWheel.
- Controls the ROTARION AUTOFOCUS connected to the ROTARION EyepieceWheel

C-CONNECTING THE ROTARION HAND CONTROL TO YOUR ROTARION

Connect one end of the RJ12 cable to the ROTARION Eyepiece Wheel Serial Port (2) and the other end to the ROTARION HAND CONTROL (12). This is a data and power cable.



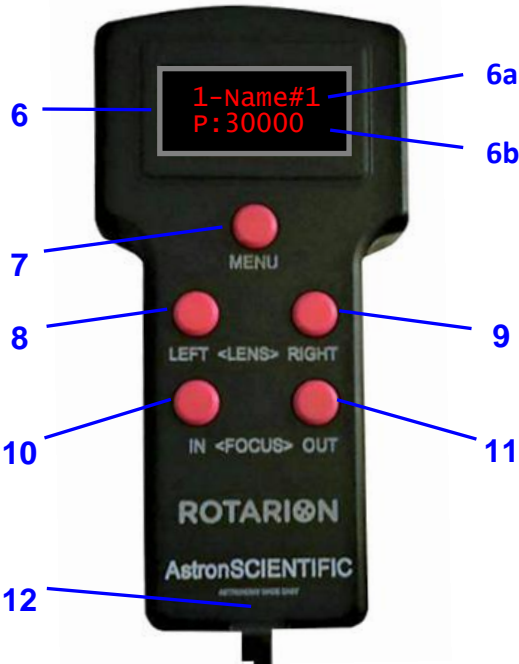
ROTARION EyepieceWheel connectors

- 1 Power input
- 2 Serial Port
- 3 USB Port
- 4 Status Led
- 5 AutoFOCUS Port

Warning: Although the Focuser port's power and data connector (5) has the form of a mini USB, **IT IS NOT A USB CONNECTOR.**

Never connect a miniUSB connector from another device, it could seriously damage your equipment.

ROTARION HAND CONTROL

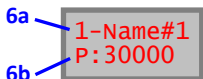


ROTARION Hand Control

- | | |
|---------------------------------|-------------------------------------|
| 6 LCD Display | 6a Eyepiece name & num |
| 7 MENU [M],
[OK] key | 6b FOCUS Current
Position |
| 8 Eyepiece key
[LEFT] | 9 Eyepiece key [RIGHT] |
| 10 FOCUS [IN] key | 11 FOCUS [OUT] key |
| 12 Serial Port | |

LCD Display (6)

During normal operation, the *position and name* of the selected eyepiece (6a) are displayed in the first line.



In the second line the *Current Position* of the focusing motor is displayed (6b).

MENU [M], [OK] key (7)

This button has dual functionality, depending on the type of pulsation:

- [normal press] turns the display on / off (if not in the setup menu). It also acts as a [OK] button when necessary.
- [long press] the Setup Menu is accessed.



LENS Keys [LEFT] and [RIGHT] (8) and (9)

Move the ROTARION EyepieceWheel to a forward / backward position sequentially. **CAUTION! MOVING PARTS!**

ROTARION EyepieceWheel Reset Key

Press the [LEFT] + [RIGHT] keys and a Reset to ROTARION EyepieceWheel is performed; rotates 2 turns during which it performs a calibration and determines the number of available positions. When the process is finished, it stops at position 1, ready for use. **CAUTION! MOVING PARTS!**

FOCUS Keys [IN] and [OUT] (10) and (11)

Move the motor of the focuser in the corresponding direction.

When you press [IN] or [OUT] with [normal pres], the motor moves a fixed number of steps, which can be programmed from: *MENU - 5.Focus Config - NumSteps*.

When you press [IN] or [OUT] with [Long press], the motor moves continuously accelerating from the minimum speed to the maximum speed, until the button is released. Both speeds can be programmed from *MENU - 5.Focus Config - MinSpeed/MaxSpeed*.

Usually with the [IN] button you should move the position of the focuser inwards and move it towards the outside with the [OUT] button. If the feedrate does not match the direction of rotation of the focuser, you can activate the **Reverse** function (41) with the REMOTE CONTROL software.

CAUTION: The ROTARION AUTOFOCUS does not have the ability to detect when the focuser has reached the IN or OUT mechanical ends. Damage can occur if you try to go beyond the mechanical limits of the focuser. Find out the focusing mechanism of your telescope and decide if this will be a problem.

FOCUS [STOP] Key

Press the [IN] + [OUT] buttons to **STOP** the focuser motor advance.

Use it only when you need to stop the focuser movement, or when you do not want to reach the final focus position. You must consider that if you press it, you must do a Resetting the Focuser (see section H.3 of the ROTARION AUTOFOCUS Instruction Manual).

D-MENU

Press [M] with [long press] to access MENU

MENU

Using the [LEFT] or [RIGHT] buttons, the following menus can be accessed in sequence:

MENU - 1.EdLine - 2.BackLi - 3.Contr. - 4.BTooth - 5.Focus - 6.Exit

To exit, select the 6-Exit or MENU option and press [M]. They are described in detail below.

1. EdLine

The **Line Editing** allows us to edit the name of the eyepieces installed in each position of the ROTARION EyepieceWheel.

1.EdLine

1.1 Line selection. When pressing [M], you enter the line selection, where you can choose to which position you want to change the name of the eyepiece. The position number is flashing.

Line selection (position) activated

1-Name#1

You can select any position using the [LEFT] or [RIGHT] keys.

pressing [RIGHT] select next

2-Name#2

1.2 Character selection. Once the position is chosen, press [M] to enter the character selection. The first editable character is displayed in blinking mode

pressing [M] you activate character selection

2-Name#2

Select the character position sequentially by pressing [M] and to change the character by pressing [LEFT] or [RIGHT].

2-Name#2

*pressing [M] selects next character
pressing [RIGHT] you change the character*



If you press [LEFT] or [RIGHT] with [long press], the feed is automatic.

1.3 Exit. To exit the character edition and return to the line selection, press [M] with [Long press].

*pressing [M] with [lp] you go to line
selection*



To exit the line edition, press [M] with [long press]. You return to Edition MENU

*pressing [M] with [lp] you go to EDITION
MENU*



To exit the MENU, use the [LEFT] or [RIGHT] buttons to select 6-Exit or MENU and press [M].

2. BackLit

Backlite, allows to adjust the brightness of the screen.

Pressing [M] shows the current brightness level.

Pressing [LEFT] or [RIGHT] changes the brightness in 15 levels.

To exit, press [M]. You return to the MENU.

To exit the MENU, use the [LEFT] or [RIGHT] buttons to select 6-Exit or MENU and press [M].




3. Contr.

Contrast, allows you to adjust the contrast of the screen.

Pressing [M] shows the current contrast level.

Pressing [LEFT] or [RIGHT] switches the contrast to 15 levels.



To exit, press [M]. You return to the MENU.

To exit the MENU, use the [LEFT] or [RIGHT] buttons to select 6-Exit or MENU and press [M]

4. BTooth

Bluetooth, allows you to access the Bluetooth MENU.

A screenshot of the BTooth menu, showing the text "4. BTooth" in red on a grey background.

Pressing [M] shows the power status of the Bluetooth module.

Pressing [LEFT] or [RIGHT] changes the power status between ON and OFF (on or off the Bluetooth module).

A screenshot of the B.Tooth Powr:OFF menu, showing the text "B.Tooth Powr:OFF" in red on a grey background.

To exit, press [M]. You return to the MENU.

To exit the MENU, use the [LEFT] or [RIGHT] buttons to select 6-Exit or MENU and press [M].

5. Focus Config

Focuser Settings. By means of this SubMenu you access the configuration of the parameters of the Focuser.

A screenshot of the 5.Focus Config menu, showing the text "5.Focus Config" in red on a grey background.

See SubMenu "Focus Config." below.

It is necessary that the ROTARION AUTOFOCUS is connected to the ROTARION EyepieceWheel.

6. Exit

Exit. Press [M] to exit MENU and return to the main screen.

A screenshot of the 6.Exit menu, showing the text "6.Exit" in red on a grey background.

E-FOCUS CONFIG (SubMenu).

It allows access to the configurable parameters of the AUTOFOCUS.

5.Focus
Config

Pressing [M] accesses the AutoFOCUS Submenu with the following options:

NumSteps - Backlash - MinSpeed - MaxSpeed - PowerMov - Pow.Stop - MaxPos - MotorTyp - Wiring - ResetPos - T.Offset - Training - Exit

Use the [LEFT] / [RIGHT] buttons to change the value.

To return, press [M].

To Exit, press [M] with [Long press].

NumSteps

Number of Steps. Specifies the number of steps that the focuser motor will advance each time you perform a [normal press] of the focus [IN] or [OUT] buttons of the focuser.

Range 1..100 steps

FocusCnf
NumSteps

Backlash

Backlash Is a slack in the focusing mechanism that appears during movement. That is, depending on the load of the focuser and after moving in one direction, reversing the direction of rotation may have to move a substantial distance before the focuser actually begins to move.

FocusCnf
Backlash

To compensate it, the AUTOFOCUS can add additional steps to the distance each time the direction of rotation is reversed. The default value is 0.

MinSpeed

Minimum Speed. Specifies the minimum speed at which the motor will move, in milliseconds / step.

Range 1..99 ms / step

FocusCnf
MinSpeed

MaxSpeed

Maximum Speed. Specifies the maximum speed at which the motor will move, in milliseconds / step.

Range 1..99 ms / step

FocusCnf
MaxSpeed

Note: As the speed is expressed in ms / step, the value for the minimum speed must be greater than the value for the maximum speed

In steppers motors, the motion starts at **Min.Speed** and is incremented to **Max.Speed**.

In DC motors, there is no speed increase by ramp. **Min** and **Max Speed** values are the same.

Power Moving

Is the % of the total power (PWM) that is applied to the motor when it is moving.

Range 0..100%

FocusCnf
PowerMov

Power Stopped

Is the % of the total power (PWM) that is applied to the motor when it is stationary.

FocusCnf
Pow.Stop

Range 0..100%

In a stepper motor, the stopping power allows the engine to maintain a certain torque when it is at rest. If the motor has a gearbox, you can leave it at 0%; In this way you avoid the heating of the motor.

In a DC motor, no power is applied while at rest because it would move. However, it is used to brake the engine and stop it in the shortest possible time (shorter distance).

Default is 0% for stepper motors and 100% for DC motors

Max Position

Maximum Position. Specifies the maximum limit for the Current Position value. If this value is reached, the motor stops.

FocusCnf
MaxPos

Use the [LEFT] / [RIGHT] buttons to change the value in jumps by one.

MaxPos
< 60000

Use the [IN] / [OUT] buttons to change the value in jumps by one thousand.

Range 1000..60000

The value of Max Position must be greater than the *Current Position*. If it is smaller, the warning message "MaxPos Too Low!" appears.

MaxPos
Too Low!

On the other hand, the minimum limit for the *current position* is "0", not being able to take negative values.

MotorType

You should find out what type and model of motor is in your focuser.

FocusCnf
MotorTyp

Use the [LEFT] / [RIGHT] buttons to select the motor type of your focuser.

MotorTyp
Stepper

Types of motor: DC (direct current), Stepper (step by step).

Wiring

Motor Model. Use the [LEFT] / [RIGHT] buttons to select the motor "model", depending on the **MotorType** selected in the previous section. If it does not match any on of the list, choose one that is compatible.

FocusCnf
Wiring

Wiring
FeatherT

When selecting the motor model, an automatic preset of the **Speed** and **Power** parameters is made. It is possible to change these values to suit the type of motor and / or telescope.

Note: Remember that if you have changed the **Speed** or **Power** parameters for one engine and you select another one, default parameters are loaded. If you then re-select the engine you had previously, the default values for that engine are loaded. The previously changed values are not recovered and you must re-enter them.

Type of motor DC: Orion-TeleVue, JMI
Type of motor Stepper: Moonlite, FeatherTouch

ResetPos (Position Reset)

A Reset of the Current Position of the Focus is made.

FocusCnf
ResetPos

The reference value used to make the reset is selected sequentially using the [LEFT] or [RIGHT] buttons.

ResetPos
EP1, NEAR

ResetPos: EP1, NEAR - EP1, FAR - EP1, VFAR - 30000

To the question "Are You Sure? Yes", Accept.

ResetPos Reference values:

- EP1 NEAR: position for near object in Eyepiece1
- EP1 FAR: position for far object in Eyepiece1
- EP1 VFAR: position for very far object in Eyepiece1
- 30000: Intermediate position of telescope travel
- 0: extreme IN position of the telescope

When a ResetPos is done at 30000, the Max Position value is automatically modified to 60000.

Note: You should normally have the Eyepiece1 selected and the object in focus before making a Position Reset.

T.Offset (Training Offset)

In this SubMenu are the position values of the focuser for each of the eyepieces EP1 to EP4, and for 3 focusing distances. Using the [LEFT] / [RIGHT] buttons, you can display the values in sequential mode and press [M] to change the value.

FocusCnf
T.Offset

T.Offset
N1 100

T.Offset: N1-N2-N3-N4-F1-F2-F3-F4-V1-V2-V3-V4

For each eyepiece 3 different focusing distances are stored:

N1,N2,N3,N4: NEAR, for nearby objects

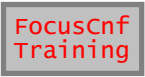
F1,F2,F3,F4: FAR, for distant objects

V1,V2,V3,V4: VERY FAR, for very distant objects

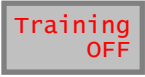
By means of the **Training Procedure**, all the positioning values of the focuser are configured.

Training

In this SubMenu you can activate the TRAINING. The **Training Procedure** consists of adjusting the focus for 3 objects, with focus distances: NEAR, FAR and VERY FAR, and for each of the eyepieces.

A rectangular button with a grey background and a thin black border. The text "FocusCnf" is on the top line and "Training" is on the bottom line, both in red font.

Using the [LEFT / RIGHT] buttons select ON to start the Training. If you want to abort the Training procedure at any time, select OFF.

A rectangular button with a grey background and a thin black border. The text "Training" is on the top line and "OFF" is on the bottom line, both in red font.

To the question "Are You Sure? Yes", Accept.

See the **Training Procedure** in the ROTARION AUTOFOCUS Instruction Manual. There it is explained together with the software ROTARION REMOTE CONTROL software included in the ROTARION.

Exit

Press [M] to exit MENU and return to the main screen.

A rectangular button with a grey background and a thin black border. The text "FocusCnf" is on the top line and "Exit" is on the bottom line, both in red font.

F-SETUP

1. Motor Type

Choosing the appropriate motor type of the focuser using the menu

MENU - 5. Focus Config - MotorTyp

2. Motor Model

Choose the appropriate engine model from the menu

MENU - 5. Focus Config - Wiring

It is now necessary to set the focus coordinates for each eyepiece. To do this, follow the procedure below:

3. TRAINING Procedure

See the Training Procedure in the ROTARION AUTOFOCUS Instruction Manual.

There it is comprehensively explained, both for the ROTARION HAND CONTROL and the ROTARION REMOTE CONTROL software for Windows PC/computer.

G-READY FOR OBSERVATION

Once the TRAINING is completed you have the equipment ready for observation.

Refer to the ROTARION and ROTARION AUTOFOCUS Instruction Manuals to learn more about sky observations and with the ROTARION PHOTO learn more about camera astro-imaging.

H-ADDITIONAL PRODUCT INFORMATION

Please read the following instructions and information.

Product Compliance Information

The AstronSCIENTIFIC S.L. corporation with address at Marti i Julia 6-8, Barcelona 08834 Spain E.U. has certified this product with the IEC 61010-1 Norm for *Safety requirements for electrical equipment for measurement, control, and laboratory use* in compliance with the Bureau Veritas Consumer Products Services Germany GmbH corporation based at Türkheim, Germany.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

- The CE Certificate Product Marking:



- Instruction Manual Version:
Rotarion Hand Control V:1.0 CE

Service, Maintenance, Cleaning, Disposal, Serial Number, and Dealer:

Car adapter fuse:

- 4 Amp 12V 6.3x32mm, fast acting.
- To replace it, unscrew the tip and replace.

Operating environmental conditions:

- Max. 2000m. / 0-40 °C / 32-104 Fahrenheit and 80% humidity.

Degree of Protection IEC 60529:

- Not applicable.

The Power Supply:

- Input: 100-240Vac; 50/60Hz; 0,55A
Output: 12Vdc; 2A; Limited Power Source
- **Disconnect the Power Supply unit from the ROTARION. The Power Supply unit must be freely accessible and must not be covered nor obstructed for disconnecting the ROTARION when needed.**
- Only use the supplied Power Supply unit.
- Please compare the rating plate of the Power supply unit with the local mains voltage and frequency.

Maintenance technical data:

- Maintenance free.

Cleaning:

- Use a soft cloth without liquids.

Disposal:

- 


- Equipment with this symbol shall not be disposed of together with household or commercial waste.
- Please find out about separate disposal at your regional offices.
- The directive 2012/19/EU on waste electrical and electronic equipment (WEEE) is applicable in the European Union member states.

Serial Number: _____

Dealer: _____

Date: _____

I-WARRANTY

The warranty is extended to all countries where this product is distributed by AstronSCIENTIFIC S.L. or by a distributor assigned by it. This warranty is subject to the legal provisions of each country.

Warranty period

The Warranty period is 2 years from the date of the sales invoice issued by AstronSCIENTIFIC S.L. Or by the distributor authorized by AstronSCIENTIFIC S.L.

Warranty Coverage

The conformity of the product is warranted according to the use for which it is intended.

Within the warranty period, we will remedy any defect in the operation of the product due to its manufacture, whether repairing, replacing parts or providing a new product, provided that the option chosen is feasible and not economically disproportionate according to the criteria of AstronSCIENTIFIC S.L.

For any of the three options, repair, replacement of parts or exchange for a new product, the consumer must go to the authorized distributor of AstronSCIENTIFIC S.L. where the product was purchased.

Warranty Nullity

This warranty will not be valid in the following cases:

Misuse, improper use, neglect, accident or deterioration of the product due to failure to comply with the warnings and restrictions contained in this Instruction Manual or in the operating instructions provided by AstronSCIENTIFIC S.L.

External agents such as water or other harmful chemicals, obstructive or corrosive.

Likewise, faults or malfunctions caused by incorrect voltages and electrical installations will not be covered by this guarantee.

This warranty does not cover any product that has been altered or repaired by any person other than AstronSCIENTIFIC S.L. repair personnel, or any product whose serial number, model number or identification has been removed, defective or altered.

AstronSCIENTIFIC S.L. Shall not be liable for any indirect, special, incidental or consequential damages related to the sale or use of the product.