



Hand Control Unit





(U1 .. U4)

wheel scale

Currently fixed to spread the

USB Socket for Software Updates (always update both MCU and hand unit)

Software updates are provided by Chrosziel, when available

Update Procedure:

- Copy the two provided software files into the root of an USB stick (FAT/FAT32 formatted)
- Power down the handset
- Plug USB stick into socket.
- Press and hold down "REC" button and power on the handset.
- Unit will perform the update indicating the progress by different LED flashing patterns on the front. After update the unit restarts automatically

Motor Control Unit



LED is flashing.

Select radio channel within the 2.4 GHz Band

(select 5 .. F). Red LED goes on if connection

error occurs. Channels 0..4 not valid! If chosen,

Motor Socket

Type: Lemo EGG. 1B. 307

Pin 1: Motor -

Pin 2: Motor +

Pin 4: +5V

Pin 5: earth/ground

Pin 6: Encoder channel B

Pin 7: Sense

Motor Status Red LEDs

Signaling Slow blinking = motor limits need to be calibrated Fast flashing = motor calibration in progress

motor limits are calibrated, ready to shoot

Start/Stop indicator

relav active/connected off relav inactive/disconnected

switches switches

Rf Error LED Radio Channel Selector + Rf Error LED

Rf Error LED goes on if no connection to at least one hand unit could be established.

Choose same channel in the Set Up menu of the hand unit

USB Socket for Software Updates and USB Status LED (always update both MCU and hand unit)

Update Procedure: Copy the two software files into the root of an USB stick (FAT/FAT32

- formatted) Plug USB stick into socket.
- Power down the unit
- Press and hold down "Motor Cal" button and repower the receiver.

Software updates are provided by Chrosziel, when available

Unit will perform the update indicating the progress by different LED blinking patterns on the front. After update the Unit restarts automatically

Automatic adjustment of lens-scale limits and motor-test of connected digital motor:

This adjustment has to be made whenever motor and/or lens are changed.

Do not block or stop the lens while end stops are checked, all parameters will then be stored incorrectly!

Procedure:

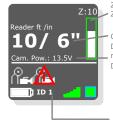
- engage motor onto lens (not at an end stop)
- Push "Motor Cal," button, red LEDs flash
- · Motor starts turning slowly

The lens-scale limit will be checked and stored automatically.

Menu Navigation



Main Screen



*Display can be disabled/enabled on menu entry "Display Options". Data available with MN-200R

Zoom control via keypad active, Zoom speed set to 10 out of 15

> Cine Tape Data* Display of power supply voltage on receiver side*

Data always visible:

- Motor Status of F & I(Z) motor. Both motors in "Cine Mode" Motor I is not calibrated or overload fuse has fired
- Battery indicator

intermittently

- Hand unit ID (can be 1 or 2)
- RF signal strength indicator Bidirectional link indicator: Green = connection OK - may go red

Setup Scales - Reverse Scale Direction*



If switched to "On", wheel or slider operate reversed. Operation direction depends on how motors are mounted and on the preferences of the user

*Setting is stored in the hand unit and is independent from setting in second hand unit.

Setup Screen (press Center Button from Main Screen) Select display language (English,

Chinese Simplified)



Motor Setup

Motor Booster

Load Defaults

Setup Hand Unit

- Select radio channel GHz Select camera record start/stop mode
- Reverse wheel operating direction
- Activate the Zoom control for the navigation cross and (re-)assign functions to the user keys U1-U4

German, French, Italian, Spanish,

- Start motor calibration remotely Motor setup (torque : direction: play correction ...)
- Motor Booster: adjusts the voltage level of the voltage up converter for the motor driving stages
- Load default settings on hand unit and motor controller
- Select hand Unit ID, calibrate the hand wheel, assign user keys

Start Motor Calibration remotely



Select a motor with up/down buttons and then press center button of the keypad, automatic or manual end stop calibration is initiated.

Set Up the Record Start/Stop Trigger*



Select whether hand unit with ID 1 or 2 can trigger the record signal

Select mode entry and modify trigger mode with -/+ buttons

*Setting is stored in the motor box in the non volatile memory and is editable on hand unit ID 2 as well

Set Up Motors & Servo Lens Control



Motor 1-4: Enter configuration menu of the two on-board motor channels (1-2) and the 2 optional extended motor channels (3-4) (MN-200R only)

Servo Lens Setup(MN-200R only)*: Select the configuration fields for F/I/Z with up/down buttons and adjust each entry to "on" or "off" with left/right" buttons. If "on" Magnum

takes over control of the desired internal servo motor.

"Z" is switched off by default but can be activated as well. If so, a connected zoom demand controller on the 12pin Hirose socket of the MagNum motor controller controls the zoom servo motor of the servo lens. If "I" is switched to "off" the camera can control the iris through the camera lens port if applicable

*Setting is stored in the motor box in the non-volatile memory and is editable on hand unit ID 2 as well

Set Up Motor Output*





Link to: Assigned function (Focus / or Direction: Reverse motor direction

Torque: Reduce torque of the motor to mid (50%) or low (25%).

Lens Type: Cine = End stops will be calibrated automatically; Photo = End stops are calibrated manually.

Mode: Switch to dimmer mode here. Dimmer cable can be controlled.

Play: Modify play (backlash) compensation for heavily used motors with a large amount of play in the

Safety: Modify the safety distance, the motor stays away from the mechanical Lens End Stops (S3D Rigs).

Range: Switch to 3D Rig mode if required

*Setting is stored in the motor box in the non-volatile memory and is editable on hand unit ID 2 as well

Calibrating motors in manual "Photo Lens" mode

Unlike commonly used lenses in the film industry the lenses for still cameras do not feature physical end stops on their gears in every case. Therefore it is not possible to calibrate so-called photo lenses by the motor controller automatically. The MagNum motor controller addresses this issue by allowing a desired motor socket to be configured as "Lens Type = photo". The manual procedure is as follows:

- switch hand unit on, check for proper connection between motor controller and hand unit, turn wheel/slider away from end stops
- mount motor as normal on the support rod and engage it to the lens in a middle position of the available range of movement
- press calibration button once; motor LEDs start flashing fast but motor will not start moving on its own as it would in "Cine" mode
- move motor(s) by carefully operating hand wheel/slider/zoom device to the first desired stop point
- press calibration button a second time
- move motor(s) by carefully operating hand wheel/slider/zoom device to the second desired stop point
- press calibration button a third time
- motor will now automatically start moving measuring lens parameters between the two chosen end points
- after this calibration is finished

Hints: As most motors show a certain amount of play/backlash, turn the motor(s) always from the inner part of the scale range towards the end stops for best results. Vice versa do not drive the motor(s) from the outside towards the inside direction.

Each motor can be calibrated separately from the hand unit menu also. If a motor which is setup to photo mode is chosen for calibration, a sub menu will appear. This sub menu indicates the 3 steps with "Start", Set A Point" & "Set B Point". Using the calibration button and the calibration menu within the same calibration process should be avoided. The photo mode is currently not supported on the extension module!

Setup Hand Unit



Ctrl. ID: Switch the hand unit ID to 2 if two controllers shall be used (split functions F & I to two controllers). ID1 controls F by default. If a second unit is set to ID 2, this unit will take over control of motor I by its hand wheel. The sliders of ID 1 & 2 are disabled. You must not have more than one hand unit set to the same ID!

Left-Handed: If "yes", the Display is rotated by 180° in order to make lefthanded operation more easy

Display Options: Select, whether several displays shall appear on the main screens info area (Cine Tape reader; Cam.-Power) Wheel/Slider Cal.: Basic calibration of hand wheel to their respective mechanical operating range

Set the Frequency Range and the Radio Channel



Adjust channel with -/+ buttons The green pointer indicates current location within the channel steps. Press center button of the menu navigation panel if ready. Select the same channel with the rotary switch on the motor controller box.

Spectrum:

Analysis of radio interferences on channels used by the MagNum in GHz

Please note: When this screen is visible the MagNum wireless connection is temporarily disconnected as the hand unit scans through all available RF channels at this time searching for possible frequencies. For GHz range (Channels 5 - F) internal antennas are used. Channels 0..4 unavailable.

Frequency Table:

Channel	Center Frequency
0	n.a.
1	n.a.
2	n.a.
3	n.a.
4	n.a.
5	2.400.75 GHz (30mW)
6	2.40375 GHz
7	2.40975 GHz
8	2.42275 GHz
9	2.44075 GHz
A	2.44375 GHz
В	2.44975 GHz
C	2.46275 GHz
D	2.47075 GHz
E	2.47375 GHz
F	2.48175 GHz

Voltage Levels for Motor Booster:

Setting	Voltage level on motor driving stages (Umot)
0	Booster is off, Umot = Upower in - 0.5V
1	Umot = 15V; (if Upower in > 15V -> Umot = Upower in)
2	Umot = 20V; (if Upower in > 20V -> Umot = Upower in)
3	Umot = 25V; (if Upower in > 25V -> Umot = Upower in)
4(default)	Umot = 30V; (Do not apply power sources higher than 30V)

Spreading of the Wheel

Spreading is done by pressing one of the user keys 1 .. 4. Spreading function needs to be assigned to the desired user keys*. Default mode is: U1-4 spread the wheel scale. So there are four different spreading setups available. To set a spreading:

- a) Move wheel to the desired first starting point, press a user key for more than 1 second and keep pressing during the procedure
- b) Respective yellow LED starts flashing
- c) Move wheel to the desired second point, release the user key
- d) Spreading is applied between the two points, respective vellow LED lights up continuously

To switch off a spreading: Press the user keys for which a spreading is activated less than 1 second, respective yellow LED goes off.

To recall a formerly programmed spreading: Press the same user key again for less than 1 second.