Operating Manual

Chrosziel Motor Controller for Broadcast Applications

Product number: CMC-BRO

Version 1.0

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Dear Customer,

Thank you for purchasing a quality product from Chrosziel. We appreciate the trust you placed in us.

This manual provides valuable information and instructions to ensure that you will get the most out of your Chrosziel Motor driver. Before using the device for the first time please read this manual carefully. We kindly ask you to keep the manual handy for quick reference, and keep all documents supplied with the device in a safe place.

We hope you will enjoy your new Motor driver!

Sincerely yours,
Chrosziel GmbH

1. Content

2. Key to symbols

Important!

This symbol highlights important instructions that must be followed for smooth, trouble-free operation of the device. Please observe these instructions to avoid malfunctions.

Notice!

This Symbol highlights information which should be noted for perfect usage.

3. Product Description

3.1 General

The Chrosziel CMC-BRO motor drive unit (hereafter called "**motor driver**" only) was developed for easy and compact motorization of camera lenses without internal motor drives as cine PL-mount zoom lenses etc... The motor driver combines a 3 – channel motor controller with several typical broadcast remote-control interfaces and a typical camera mounting plate with rods, fixing holes etc. in one device. This combination is then installed on camera tripods, remote heads or even Steadicam rigs.

This compact and ergonomic design allows you to integrate the all-manual "cine-style" lenses into your broadcast, multi-camera, or remote head workflows in a straightforward way. Several common interfaces as on typical TV style broadcast lenses for remote control the lens motors provide a seamless integration of existing equipment.

The motor driver supports multi-cam, remote head and robotics applications via the remote Hirose 20pin interface connection including encoder outputs for Focus, Iris and Zoom motor and furthermore allows to take over control by the Chrosziel Magnum wireless FIZ hand unit via radio and all other compatible FIZ- systems via a wired connection. Additionally, for future extensions the motor driver is ready for Bluetooth connection.

The internal power (booster) supply for the motor driver allows independence from the input voltage. An external voltage booster is NOT necessary to get the full power out of your motors. The motor controller is compatible to common digital encoder motors of manufacturers like Chrosziel, Preston, Arri, Hedén, Scorpio and others.

Key features mechanics:

- All-in-one universal camera bridge plate with 15mm rod support and integrated electronics for motor control
- Height adjustment of the camera base (two main settings) and fine adjustment of the front side support rods
- Clamps for support rods on front and rear side
- Sachtler compatible camera plate with quick release feature
- 1/4" and 3/8" bottom threads for tripod plate

Key features electronics:

- Three motor channels for generic encoder motors (Chrosziel/ Heden/ Preston and similar)
- Automatic motor calibration of the lens end stops
- Electronic engaging/ disengaging of the motors for free manual operation on lens without losing calibrated positions
- 5-pin Lemo power socket, compatible input voltage ranges from 10 – 30 V, reverse polarity protection, combined CAM run/ stop contacts
- Two 20-pin sockets for Focus and Zoom tripod demands (analog and digital)
- One 20-pin remote socket providing PC- control interface and as a second a digital camera lens port interface (12 pin protocol), fully compatible to TV cameras and the Chrosziel MA-EPL / MA-BURPL mount adapters
- Raw encoder outputs from F/I/Z motor channel as well on remote socket
- 9 pin Lemo socket for power and control to external devices
- 4-pin Lemo socket – power / CAN (ready for external BUS – motors)
- USB-C PD socket for software updates in the field via USB-C thumb drive and power delivery up to 20V depending on input voltage @ 2.4 A (PD controller for 5/9/12/15/20V)
- LANC compatible 2.5 mm control input for LANC based Zoom- Controller (ready for Focus/ Iris via LANC)
- Ready for Cooke /i data (4-pin Lemo 00 socket)
- Wireless control with Chrosziels Magnum hand controller
- Bluetooth ready with integrated module

3.2 Nameplate

The nameplate located on the bottom side of the housing includes all compliance relevant details as well as the serial number.

3.3 Applications / Intended Use

The Chrosziel CMC-BRO motor drive unit is designed to reflect the state of the art and comply with recognized technical safety rules. However, improper use of the device or use of the device for other than the intended purpose may cause damage to the device itself and/or other objects or persons.

The motor driver can be used with unmotorized cine style camera lenses. Other use, or use beyond this scope, is deemed to be used for other than the intended purpose and is entirely at the user's risk. Intended use also comprises observation of the instructions for use and installation and compliance with maintenance conditions.

3.4 Product Safety, Operating Voltage and Temperature

Short circuit protection is performed by a protective fuse which insulates the device from power supply in case of over-current events caused by unexpected internal failures. In addition, power input is reverse polarity protected. The nominal input voltage of the motor driver is 12 - 24V but will operate normally at an input voltage range from 10 – 30V as well. At temperatures below -10° Celsius or above 50° Celsius, optimal functioning of the product can no longer be guaranteed. The device can be used in moderate outdoor conditions but needs to be protected against moisture and heavy sun light exposure.

Please ensure you read the following instructions carefully and familiarize yourself with the device before operating it. By doing so, you will ensure safe and smooth operation of your CMC-BRO motor drive unit.

Avoid sun exposure to the motor drive unit.

Avoid exposure to moisture.

Avoid driving the motors forward/backward continuously for a longer time. This may result in damage to lens and/or the drives motors.

Observe general safety and accident prevention regulations. In addition to the instructions given in this operating manual, ensure that general safety and accident prevention regulations are observed.

Provide this operating manual to third parties. Please ensure that any third parties using the Motor driver only do so after reading and understanding the instructions.

Keep away from children and protect against unauthorized use. Keep away from children. Children must not be permitted to operate the Motor driver. Protect it from unauthorized access or use. The Motor driver is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless a person supervises them responsible for their safety or have received

instruction concerning use of the motor driver from that person.

Never leave in operation unattended. Never leave the Motor driver unattended in operational condition or in operation.

Take care and always concentrate when using the device. Do not work with the Motor driver while having difficulties in concentrating or under the influence of drugs, alcohol, or medication. A single moment of inattention while using the Motor driver may result in accident and injury.

Ensure the unit is firmly affixed to the mounting point (remote head or tripod). When affixing the Motor driver, ensure the unit is mounted securely and properly.

Watch out for damage. Check your Motor driver for damage before operating, and do not use the unit if there are any signs of damage.

Use for the intended purpose. Ensure you use the Motor driver for the intended purpose described in this operating manual, only.

Inspect regularly. Use of the Motor driver may result in wear and tear to parts of the housing or gears. Inspect the device regularly for damage or faults.

Only use original parts. For your own safety, only use accessories and add-ons that are specified in this operating manual or recommended by the manufacturer.

4. Set-Up of the Motor Driver

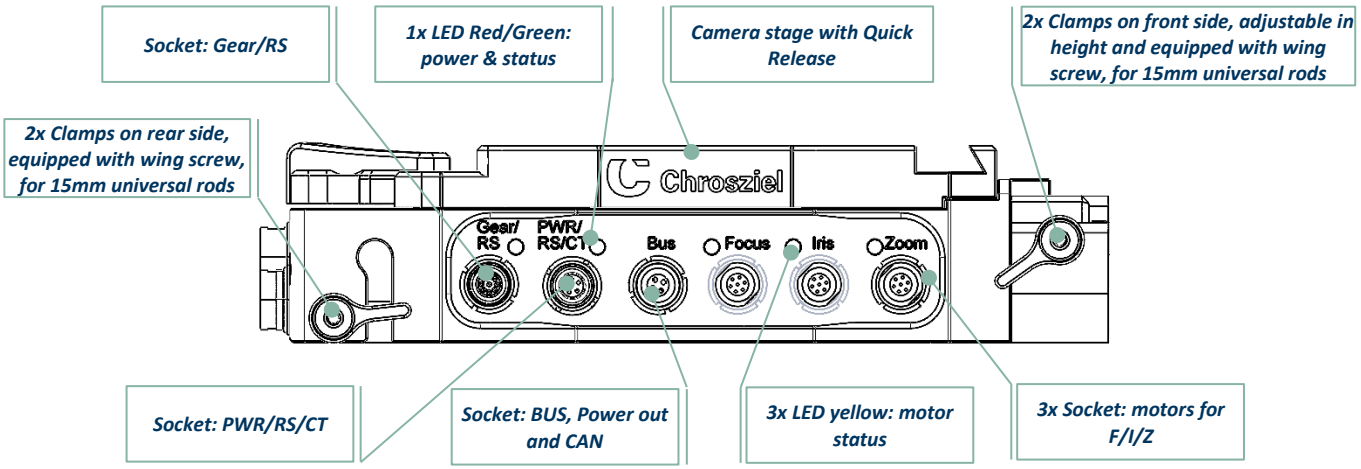
4.1 In the Box

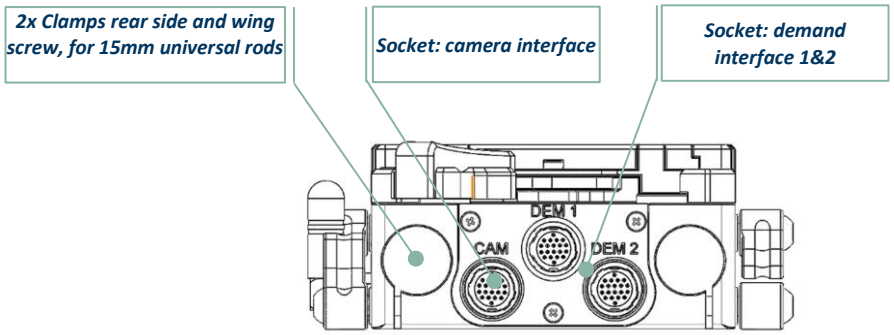
After opening the package, immediately check if all accessories and parts listed in section 4.3 "Accessories" below are complete and in a good condition. If anything is missing, faulty, or damaged, contact your retailer.
Do not operate the device if it is or appears to be faulty.

4.2 Preparation

4.2.1 Outline and Connectors

For pinouts refer to section 10.1 "Connector Pin Assignment" below.





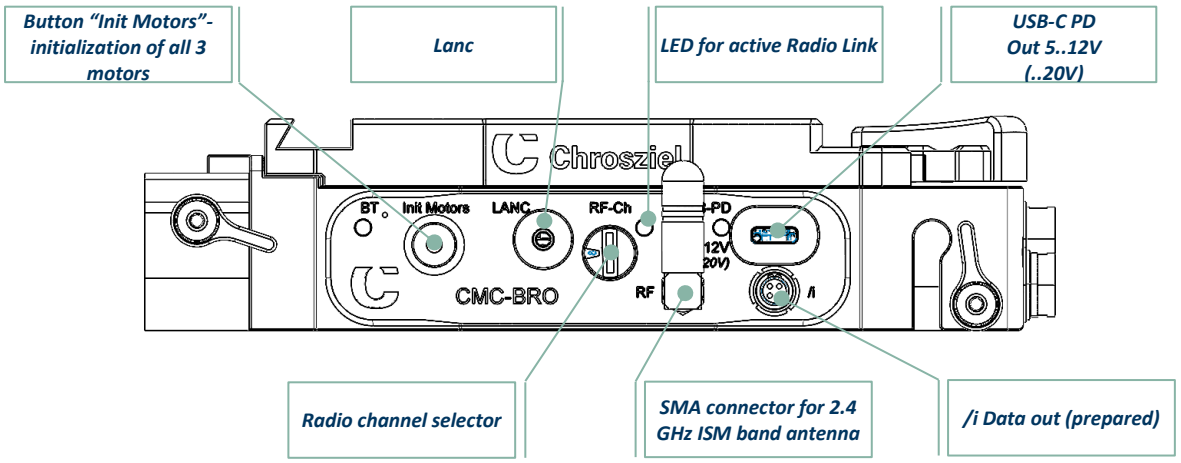

Button “Init Motors”- initialization of all 3 motors
Lanc
LED for active Radio Link
USB-C PD Out 5..12V (..20V)
Chrosziel
BT
Init Motors
LANC
RF-Ch
CMC-BRO
RF
Radio channel selector
SMA connector for 2.4 GHz ISM band antenna
/i Data out (prepared)

Figure 1

Socket "Camera", 20pin Hirose
Remote control socket. Holds a typical digital TTL-Lensport interface, a multiprotocol RS232/RS422 interface, analog Iris-Control-IN and encoder pulse trains (A/B) of F/I/Z motors.

Sockets "Demand 1/2", 20pin Hirose
Typical demand interface both for analog & digital Focus & Zoom demands. Holds a typical digital RS422/485 Canon Demand interface. Sense pins switches between high/low baud rates (Demand/PC- Control @Canon-Mode).

BUS, 4pin Lemo 0B size:
Power out and Bus communication lines for external equipment with CAN BUS communication like ARRI / c-motion lens motors.

Power/RS/CT, 5pin Lemo 0B size:
Power supply 10- 30V, reverse polarity protection. RS control pins, ready for CineTape input. Due to the stiffness off gears on a Cine Zoom lenses the needed power is higher than on other typical TV- Lenses. Make sure to use a strong power supply like 13.5V / 4A (~50 Watts).

Gear/RS/CT, 9pin Lemo 0B(B) size:
Socket for additional external devices (t.b.d.). Supplies power

USB C-type socket:
Used for software updates via USB thumb drive.
Used as power supply socket it provides different voltage levels after USB-C PD standard. Those are 5/9/12/15/20V @ 3/2.4A. Depending on input voltage some higher levels might not work i.e. with 14.5V input supply the 20V level is not available.

LANC, 2.5mm jack
LANC- Host compatible control input. Connect a common LANC Zoom rocker (Libec/ Manfrotto or similar), prepared to accept FOCUS and IRIS commands from suitable controller like SONY LANC remote panels

Button "Init Motors"
Illuminated button for automatic end stop calibration and status display for ALL 3 motors. Also, switches motors between manual and controlled mode.
After connecting external servo motors according to the users' needs and tight mounting to the lens gears, press this button for 3 seconds. After that calibration starts immediately. LED of this button collects the status of ALL three motors:

LED State	***Meaning***
Constantly Off	All motors calibrated & are controlled by the Servo Drive *OR* No power.
Slow Blinking	At least one of the connected motors is not calibrated against the lens end stops
Faster Blinking	At least one of the connected motors is calibrating the lens end stops
Flashing (short on / long Off)	At least one of the connected motors is in fault condition
Constantly On	All motors in manual mode, lens gears can be operated by hand, positions are tracked and maintained

Status LEDs for F/I/Z Motor Out:

LED State	***Meaning***
Constantly Off	The related motor is controlled by the Servo Drive or no power
Constantly On	Motor is in manual mode, lens gears can be operated by hand, positions are tracked and maintained
Slow Blinking	The related motor is not calibrated against the lens end stops
Faster Blinking	The related motor is calibrating the lens end stops
Flashing (short on / long Off)	The related motor is in fault condition

Status LED on Power Socket:

LED State	***Meaning***
Constantly Off	No power
Constantly Green	Power supply present, normal conditions
Constantly Orange	Power supply present, voltage drop through weak supply was monitored
Flashing Orange	Power supply present, but too low input voltage (<10V DC)

Status LED for USB-C socket

LED State	***Meaning***
Constantly Off	No power output
Constantly blue	Power-line active, voltage level depends on handshaking between socket and device
Flashing blue unregularly or intermittent	Tries to establish power supply, but fails either due to requested voltage higher than input voltage or over current event as happened

Status LED for Radio Link:

LED State	***Meaning***
Constantly Off	No Connection
Constantly Green	Radio Link established
Flashing unregularly or intermittent	Radio Link established, but weak

Code wheel for radio channel:

Select the radio channel for communicating with an external Magnum hand unit. Only the channels "5"-F can be used. Channel numbers lower than "5" will switch off the radio module. When the green **Channel LED** is on, the connection between the Hand unit and the Motor driver is established.

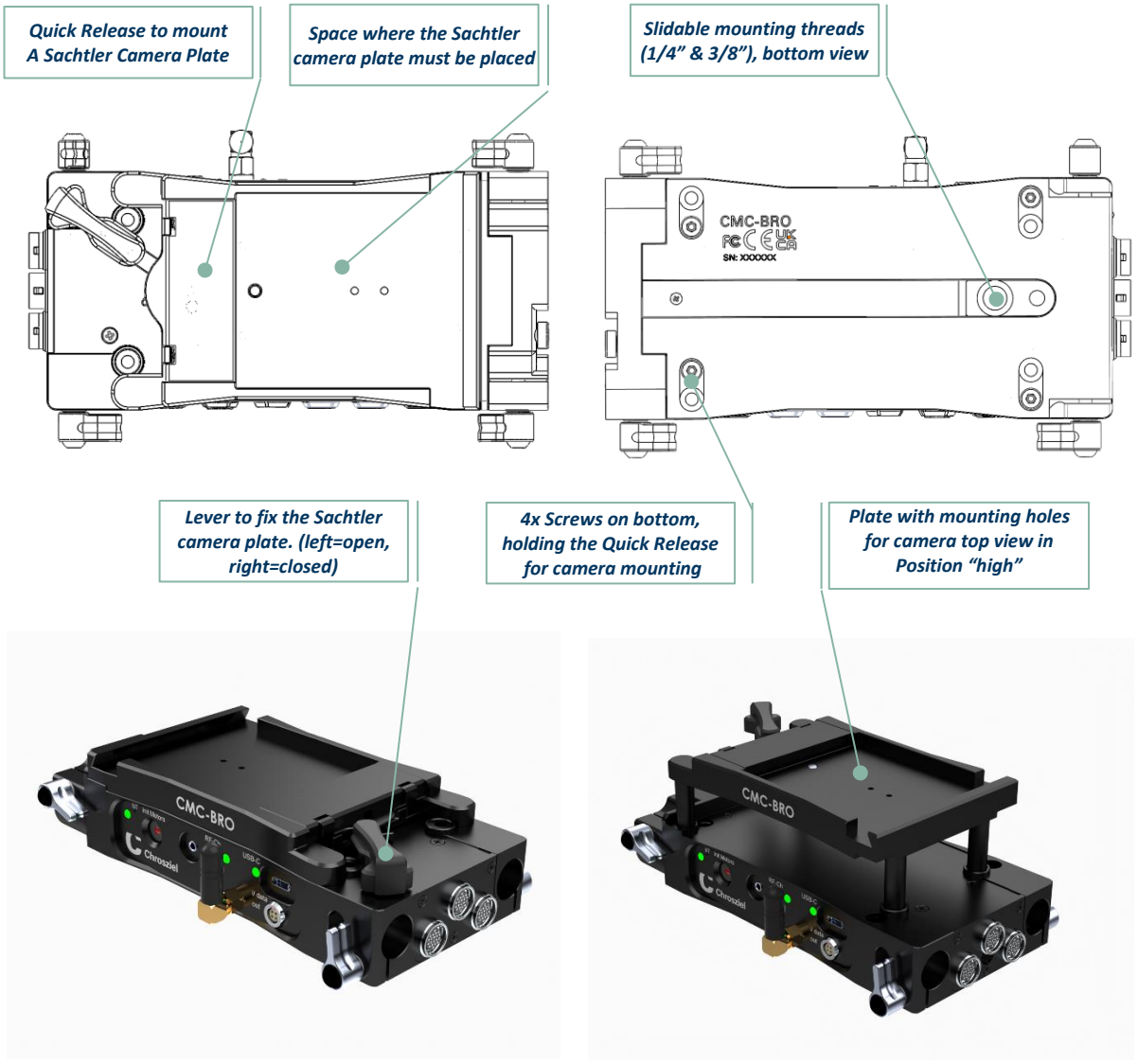


Figure 2

The 15mm clamp stage for the front side is adjustable in the height. The distance between the maximum and minimum position is 22mm:

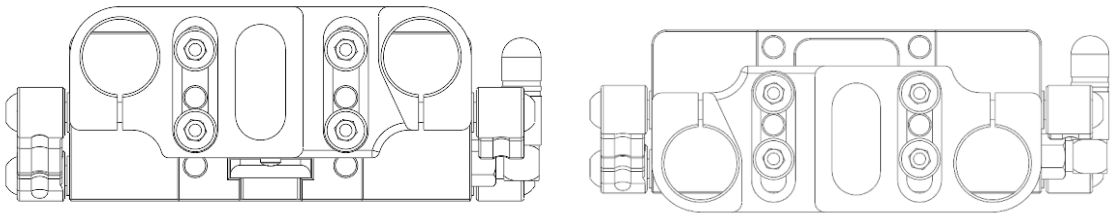


Figure 3

4.2.2 Mounting the Motor Driver

Follow these steps to mount the Motor driver to a remote head or tripod:

1. Make sure, that no cable is connected to the Motor driver.
2. Depending on the height of the optical center of the camara choose high or low mounting style for the camera stage: open 4 screws on bottom side holding the camera stage and pull it out, turn stage 180° and place it back to the base compartment, refit and tighten the 4 screws (see figure 3)
3. Screw on the Sachtler camera plate residing in the camera stage to the camera.
4. The lever of the quick release must be open, i.e. on the left side. Now the Sachtler plate attached to the camera can be inserted into the quick release. The lever jumps over, and the travel rail clamps the Sachtler camera plate. But be careful, the Sachtler camera plate is not yet attached.
5. The lever must be turned to the right until it clicks into place. If this is not the case, the Sachtler camera plate and therefore the camera is not securely attached. (to open the system, the lever must be pulled and turned to the left side again)
6. Adjust the height of the 15mm front clamps according to your needs (centering for Matte boxes etc.)
7. Mount the entire device with mounted camera to your tripod or remote head using the slidable mounting threads.
8. Mount and connect motors for Focus, Iris & Zoom according to your needs and the used lens.
9. Power the motor driver and press the button for >3sec. to start the automatic initialization process for all connected motors at once.
10. If applicable connect Lensport interface cable from camera or head the related sockets. Always use Chrosziels original cables or those confirmed compatible by Chrosziel only!
    a. Control cable from head connects to socket “Demand”.
    b. Control cable from camera (lens port cable) connects to socket “Camera”.
11. Mount the antenna to the Motor driver if the Magnum hand unit shall be used for wireless operation and select a radio channel from “5” to F, otherwise set the code wheel to “4” or less.

Note: lens motors stay calibrated after each power cycle. Positions are stored in none-volatile memory. Do not move the lens gears & motors, while Motor driver is not under power (i.e., when changing battery).

4.2.3 Auto Calibration in Detail

The calibration of the motors (after pressing the button "Init Motors" for >3sec.) is an essential part of the setup to guarantee precise, reliable operation of the device. Calibration is a procedure where the precise torque resistance and the mechanical hard end stops of the lens is recorded for every axis. The procedure ensures optimal reliability in use. Please ensure there are no obstructions between the gears of the lens and motors. Do not touch the ring of the lenses during calibration as this will cause false torque resistance readings. While the related yellow status LED´s near the Zoom/Focus/Iris sockets are blinking, auto calibration is in progress and the device identifies end stops of the lens gears. Do not touch any moving parts during auto calibration. Calibration is complete when both end stops on every axis have been identified and the LED´s are OFF. The motor driver is now ready to shoot.

4.3 Accessories

Item	***Chrosziel Part Number***
Chrosziel Digital Motor incl. bracket and connection cable	CDM-100
Connection cable for third party digital Motors 0B 7pin Lemo to 1B 7pin Lemo (right angle) – length 60 / 100 cm	MOTD60-S-A (60cm) MOTD100-S-A (100 cm)
Power Cable D-Tap to 0B-size 5 pin Lemo plug	MN-AB
Power Cable XLR4 to 1B-size 2 pin Lemo plug	MN-XLR4
Magnum Wireless Hand Unit 3 Axis (Focus/Iris/Zoom) Zoom Rocker Battery Charger	MN-200T MN-ZR MN-BAT MN-CH
Magnum Wireless Hand Unit 2 Axis (Focus/Iris) Battery Charger	MN-200T MN-BAT MN-CH
Magnum Wireless Hand Unit 1 Axis (Focus) Battery Charger	MN-150T or MN-100T MN-BAT MN-CH
3pin Fischer RS Port cable (Power/Start-Stop) to 5pin Lemo	RS-A2-P/CAM

5. Maintenance

The motor driver is usually maintenance-free. In the case of wear and tear to specific parts, please send the device to an authorized service department. There are no special maintenance tasks to be done by the user/owner with one exception regarding the cleaning of the housing if needed.

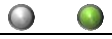
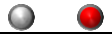
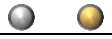
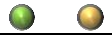
- Only, clean the device when it is disconnected from power.
- Use a soft, dry cloth or compressed air to clean the device.
- Never use harsh or abrasive cleaning agents.
- Be careful at the sockets not to blow or wipe in dust and detergents into the electric contacts.

Only, Chrosziel Customer Service operatives may perform any further maintenance or repair tasks. All warranty claims are voided if maintenance tasks are performed during the warranty period by persons or companies without Chrosziel Customer Service authorization. Wear parts are not included in the warranty.

5.1 Checking for Current Software Version

On start-up after powering, the software version is displayed for about 3 seconds by a combination of the existing LEDs of the device. LEDs form a binary encoded number for main and minor version information. The main version is formed by the green power LED (2^0), the red status LED (2^1) and the radio link LED (2^2). The minor version is formed by the Zoom motor LED (2^0), the Iris motor LED (2^1) and the Focus motor LED (2^2). So, the total range for firmware version display is 0.0 .. 7.7 (with each part having 3 bits).

Examples only:

Led pattern		Binary Expression	Version Number
		001.001	1.1
		010.010	2.2
		011.111	3.7
		111.110	7.6

5.2 Software Update via USB

Chrosziel is continuously improving the software of the system based on the demands of the industry including customer-requested improvements. The user can easily install an update to the latest software. The only requested items are the software files supplied by Chrosziel and a standard USB-C Stick (an adapter from USBC to USBA for A-type sticks might work as well) Contact your dealer or Chrosziel directly to obtain new files or get registered for the respective newsletter. To register for update notifications, please draft an e-mail to sales@chrosziel.com . Include product serial number, name, company, and email address. We comply with all statutory data protection laws.

Update procedure:

- Copy the provided software files “bmimg_m.hex” & “bmimg_s.hex” into the root of an USB stick (FAT/FAT32 formatted). Resizing partitions on large USB sticks might be needed, if formatting with FAT/FAT32!
- Power controller down.
- Remove dust cover from USB socket and plug USB stick with software files into it.
- Press and hold down button “Motor Init” & repower the device. Unit will perform the update indicating the progress by different LED flashing patterns. After update, the unit restarts automatically displaying the current software version with the onboard LEDs as described on topic 5.1”Checking for Current Software Version” above.

6. Warranty

6.1 Scope

Chrosziel GmbH grants the owner of the product a standard warranty of **12 months** from the date of invoice. During this period, material or production defects identified on the Motor driver will be remedied free of charge by the Chrosziel customer service.

The terms of the warranty exclude faults or defects from causes other than material or production defects, like

- Transport damage of any kind
- Faults caused by improper installation
- Faults caused by use for other than the intended purpose
- Faults caused by improper treatment
- Faults caused by unprofessionally performed repairs or attempts at repair by persons or companies without authorization from Chrosziel GmbH
- Normal wear and tear
- Cleaning of components
- Alignment to nationally diverging technical or safety-relevant requirements if the device is not used in the country for which it was designed and manufactured.

We do not accept liability for devices with serial numbers that are falsified, changed, or removed. All warranty claims are voided if the device is opened.

Warranty claims beyond free repair of faults, e.g., compensation claims, do not fall within the scope of the warranty.

6.2 Customer Service

In case there are operating issues with the Motor driver occurring, proceed as follows:

a) Contact Customer Service

Mail: info@chrosziel.com / phone: +49 (0) 89 / 901 091 0 (Mon. – Fri.: 9 am – 5 pm CET)

Please give a detailed description of the issue, include a picture or video, and the invoice.

b) Pack the device carefully

Pack up your device, making sure the packaging is well padded and protected from impact. N.B.: Warranty does not cover transport damage!

c) Ship the device

After response from the Chrosziel Customer Service Center, proceed as instructed.

7. Troubleshooting

One of the Iris/Zoom/Focus LED´s is flashing

Probable reason	Suggested solution
Electronic motor fuse has fired	Press & release the button "Motor Init" to re-calibrate all motors, check for mechanical issues between the gears of lens and the motor
internal trouble	Restart the Motor driver

Power LED is blinking orange

Probable reason	Suggested solution
internal trouble	Restart the Motor driver

The Motor driver does not power up

Probable reason	Suggested solution
No or incorrect power voltage	Replace spent batteries with fully charged batteries, the Motor driver operates from 10 to 30 V
Incorrect polarity	Check the polarity and correct if necessary
No power	Check for cable faults, damage, or short circuits
Camera is not powered (if powered from RS- port)	Power camera Check cables and connectors

The Motor driver does not calibrate

Probable reason	Suggested solution
Stiff lens	Check the lens
Obstruction between the lens gearing and the motor gear	Check the gearing and the Motor driver gear and remove any obstructions
No or incorrect power voltage and /or wattage	Ensure the power supply is 10 to 30 V (min 50 Watt)

The firmware update does not install

Probable reason	Suggested solution
Incorrectly formatted USB flash drive	format USB flash drive to FAT16 or FAT32
Hex-file is not saved in the root of the USB flash drive	Ensure the file is saved in the root of USB flash drive, not in a sub-folder
USB flash drive is not supported	Try a different USB flash drive
Too many files in the root	Use a clean USB stick without any additional files & folders

8. Disposal

The packaging and all packaging materials used are from environmentally friendly recyclable materials. At the end of its useful life, the Motor driver must be taken to a recycling center for appropriate environmentally friendly disposal. Do not discard the Motor driver with household waste. Find your nearest recycling center by searching the Internet or contacting your city hall.

9. Additional Information

Product landing page:
https://www.chrosziel.com/

Subscribe to the newsletter:
https://go.chrosziel.com/newsletter-registration

Enjoy the Chrosziel blog with user stories:
https://www.chrosziel.com/userstores

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Instagram: https://www.instagram.com/chrosziel

LinkedIn: https://www.linkedin.com/company/chrosziel-gmbh

Facebook: https://www.facebook.com/chrosziel

Twitter: https://twitter.com/Chrosziel

Share your excitement:

@chrosziel | #chrosziel | #hackthelens

10. Technical Data

10.1 Connector Pin Assignment

10.1.1 Gear/RS

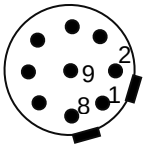


Figure 4

Type: Lemo compatible 0B 309(B) (female on Servo Drive)

Pin 1: GND
Pin 2: Uin 10V - 15V
Pin 3: RS 232 TX/ 422 TX-
Pin 4: RS422 RX+
Pin 5: RS232 RX/ RS422 RX-
Pin 6: RS422 TX+
Pin 7: +12V /3A/fused resettable
Pin 8: CAM Relay 1
Pin 9: CAM Relay 2

10.1.2 Power In

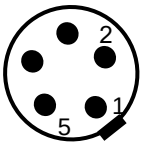


Figure 5

Type: Lemo compatible 0B 305 (female on Servo Drive)

Pin 1: + Power in
Pin 2: CAM Relay 1
Pin 3: CAM Relay 2
Pin 4: Aux serial in
Pin 5: - Power /GND

10.1.3 Camera

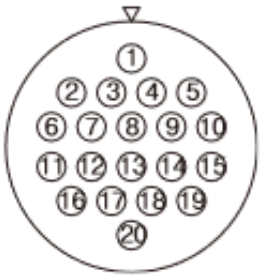


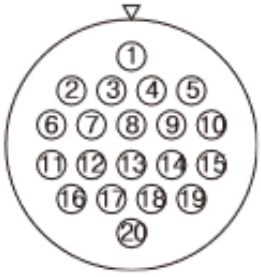
Figure 6

Type: Hirose HR25A-9R-20-S

Pin 1 n.c.
Pin 2 GND
Pin 3 TxD- (to Host)
Pin 4 +5V (1kOhm)
Pin 5 TxD+/RTS
Pin 6 RxD+/ CTS
Pin 7 RxD- (from Host)
Pin 8 IRIS control 2-7 V+
Pin 9 VTR (out to GND)
Pin 10 RET (out to GND)
Pin 11 Iris Encoder A
Pin 12 Iris Encoder B
Pin 13 n.c.
Pin 14 n.c.
Pin 15 Serial Data Lens → Camera
Pin 16 Zoom Encoder A
Pin 17 Zoom Encoder B
Pin 18 Focus Encoder A
Pin 19 Focus Encoder B
Pin 20 Serial Data Camera → Lens

10.1.4 Demand 1 & 2

Type: Hirose HR25A-9R-20-S

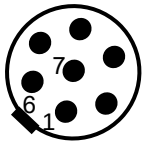


Pin 1 +12V (fused)
Pin 2 ana. Z ctrl.
Pin 3 ana. F ctrl.
Pin 4 RET
Pin 5 n.c.
Pin 6 VTR
Pin 7 GND
Pin 8 GND
Pin 9 n.c.
Pin 10 Z follow
Pin 11 + Uref 7.5V
Pin 12 + Uref 2.5V
Pin 13 F follow
Pin 14 + Uref 5V
Pin 15 DEMAND RX422+
Pin 16 DEMAND RX422-
Pin 17 DEMAND TX422+
Pin 18 DEMAND TX422-
Pin 19 PC Detect
Pin 20 GND

Figure 7

10.1.5 Motor 3x

Type: Lemo compatible 0B 307 (female on Servo Drive)



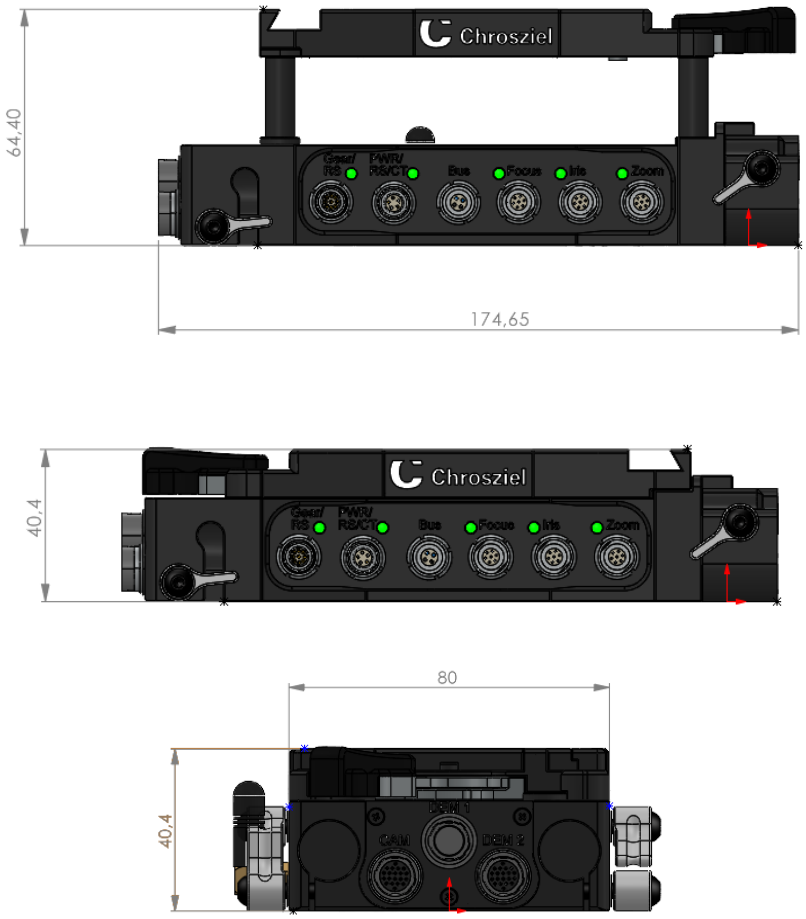
Pin 1 Motor –
Pin 2 Motor +
Pin 3 Encoder Channel A
Pin 4 +5V
Pin 5 Ground
Pin 6 Encoder Channel B
Pin 7 ID

Figure 8

10.2 Specifications

Specification	**Value**
Chrosziel Part Number	CMC-BRO
Weight (Motor driver)	approx. 0,7 kg (1.5 lbs.)
Size (refer to Figure 9)	L = 169mm W = 106mm H = 39mm or 62mm
Operating Temperature	-10 °C to 40 °C (20 °C is recommended)
Power supply	10-30V (Lemo compatible 0B 5-pin)
Power consumption max. approx.	300mAh @ 12V, no motor moving, up to 4A @ 12V, all motors moving @ full torque
Housing	CNC-milled, fully aluminum
Interfaces	- DC- Motor out with encoder interface - Lensport (12pin protocol) - Fuji L10 protocol - /i data ready - Power / CAN Bus interface - USB-C/PD up to 30 W - Wireless 2.4 GHz - Bluetooth compatible - LANC - Separate Zoom & Focus demand inputs Analog (Canon Pinout) - Separate Zoom & Focus demand inputs digital (Fuji protocol with adaptor to 12pin)

10.3 Dimensions (without rods)



(Pictures show motor driver mounted in high and low mode as an example)

Figure 9

Declaration of Conformity

CE

Manufacturer:

Chrosziel GmbH
Otto-Hahn Str. 12-14
85521 Ottobrunn
Germany

Product:
Servo drive for Cine Lenses CMC-BROoperating in frequency band:
GHz: 2400,75 - 2481,75
Standard Frequencies: RADIO LICENCE FOR EUROPE CE Radio modules

Herewith we certify that our product mentioned above comply with CE conformity regulations. And is in conformity with the essential requirements and other relevant provisions of the following EC directive including all applicable amendments:

99/5/EC of 9 March 1999
2011/65/EU of 1 July 2011
EN 300 220-2 V2.4.1 (2012-05)
EN 300 328 V1.7.1 (2006-10)
EN 300 440-2 V1.4.1 (2010-08)
EN 301 489-1 V1.9.2 (2011-09)
EN 301 489-3 V1.4.1 (2002-08)
EN 60950 (2006)
EN 62368-1 (2016)
IEC/UL 62368

CMC-BRO has been assessed to the RoHS2 & RoHS3 Directive using the following harmonized standard:

RoHS 2 – (2011/65/EU) + Extension RoHS 3 (EN 50581).

CMC-BRO has been assessed to safety compliance regulations as follows:

IEC 62368-1:2018
EN IEC 62368-1:2020/A11:2020
UL 62368-1:2019
CSA C22.2 No. 62368-1:2019

Ottobrunn, September 2024

Chrosziel GmbH
Marcel Grötzinger
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85221 Ottobrunn b. München

Notes