



Installation and Operating Instructions (EN)




FOLD! 173 FullHD

FOLD! 173 4K





Explanation of symbols

	Important Information
	Caution
	Ban

Dear Customer,

thank you very much for purchasing our product.

Please read this installation and operating instructions carefully and keep them in a safe place.

In this manual we have endeavored to provide you with all the necessary information to enable you to have most success with the products.



Ralf Küchel
Technical Manager / CTO

Table of Contents

Table of Contents.....	2
Commissioning Date	3
Notes	3
Description.....	5
Features	5
Dimensions.....	6
Safety Instructions	7
Installation	8
Commissioning.....	10
General Information	10
FOLD! 173 FullHD FOLD! 173 4K.....	11
Operation	12
General Information	12
Raising.....	12
Display Tilt.....	13
Retracting.....	13
Service function DIRECT AXLE ACCESS (DAA).....	14
Care Instructions	15
Display Setting with OSD Buttons	16
TCP/IP - Control and Status request	17
Control via a Media Control System with 9-pin d-sub Remote Interface.....	18
Firmware Update (Authorized Personnel only)	18
Technical Specification.....	19
Safety Standards	20
Declaration of Conformity	20
Warranty.....	21

Scope of Supply

- FOLD! 173 FullHD | FOLD! 173 4K
- HDMI cable
- Table power supply - Input: 100-240V AC, 50 / 60Hz. 1.5A; Output: 12V 60W
- MAX 5.A (Cable length DC ~ 140cm)
- Power cable 1.5m
- Lock pins / transport lock
- Installation and Operating Instructions / Manual

Description

The system FOLD! 173 consists of a TFT display with a frame for installation in a horizontal furniture surface.

In the starting position (retracted), the system is flush with the furniture surface and covered. The power supply of the display is interrupted.

By pressing the button, the FOLD! display moves to the operating position (extended).

Power will be supplied to the display.

Pressing the button again initiates the retraction.

The power supply of the display will be interrupted.

Both movements can be interrupted by a short push of a button.

The solid frame and high-quality mechanical elements ensure smooth, jerk- and vibration-free operation.

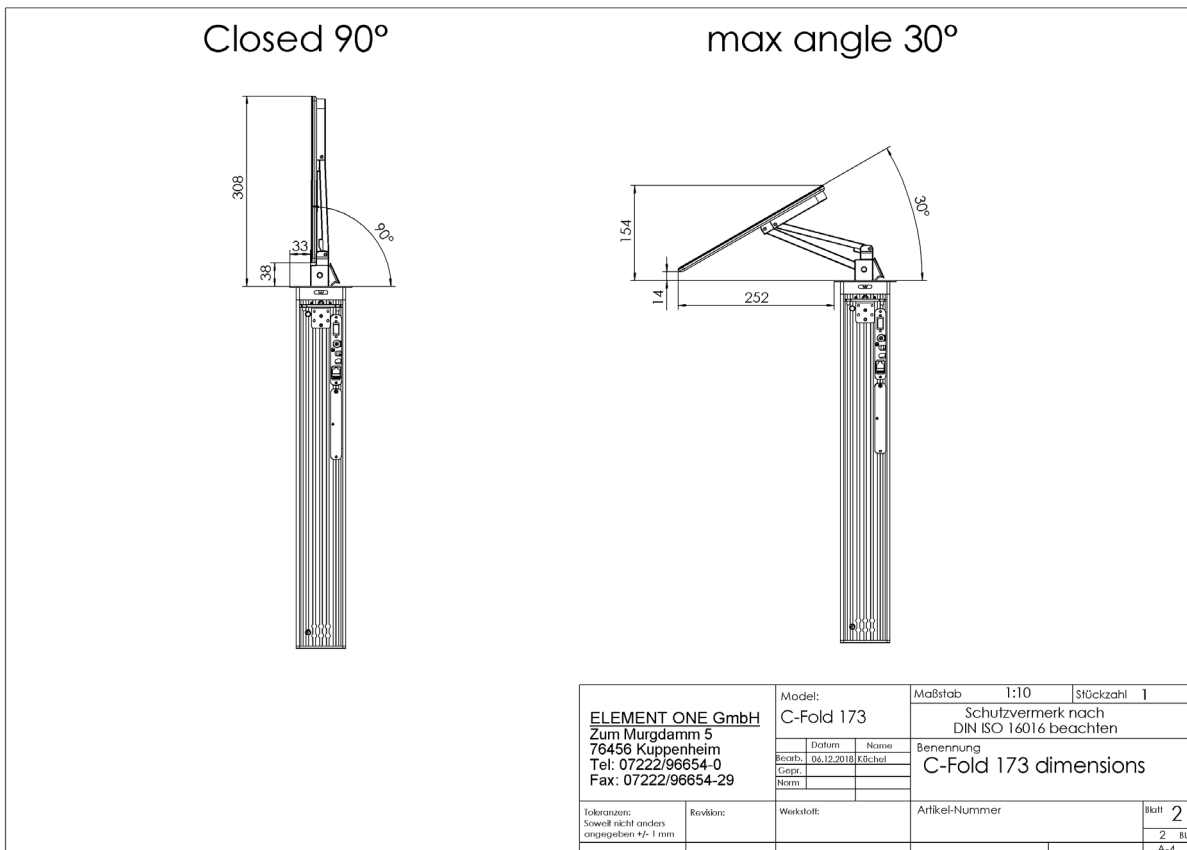
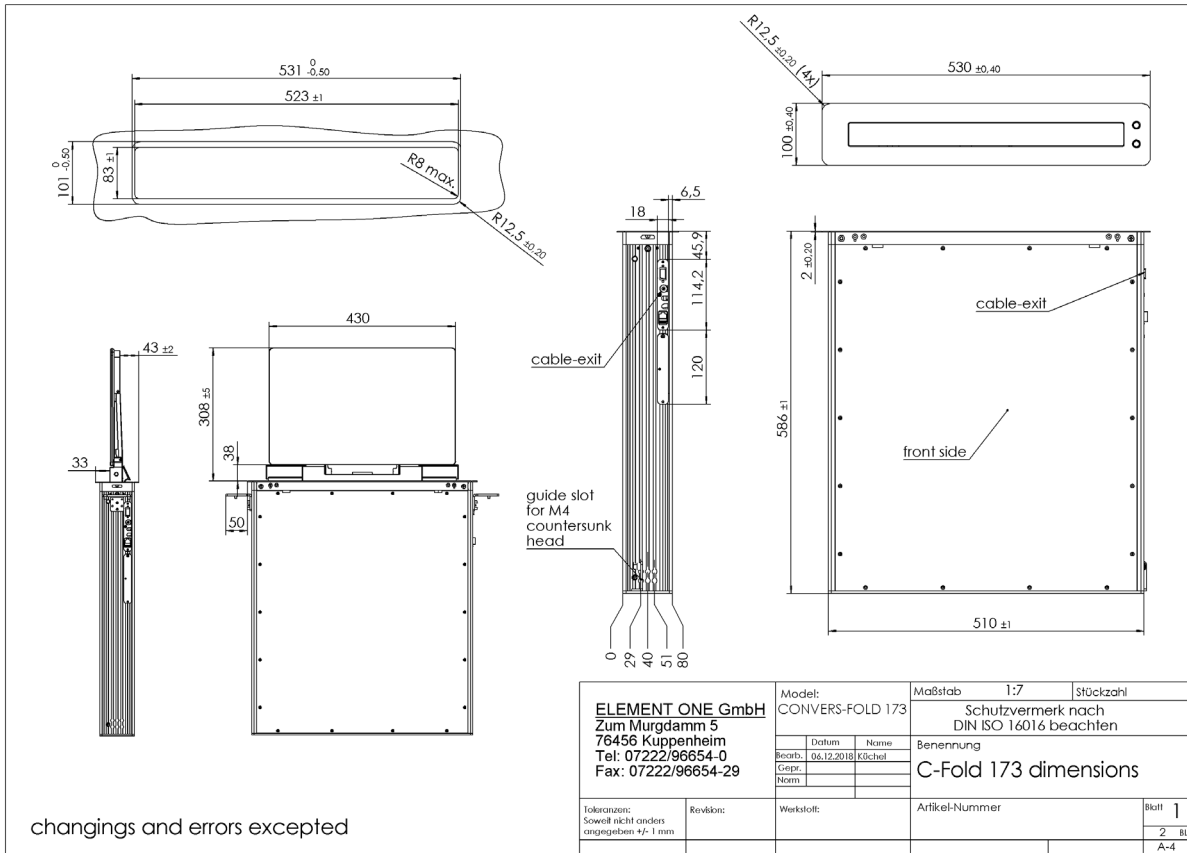
FOLD! has an electromotive, programmable tilt adjustment. At the factory, the monitor moves forward after extension, up to the maximum possible tilt angle. The angle can be adjusted and preset as required by operating the control buttons (see Operation).

To prevent personal injury and damage, FOLD! has been equipped with a safety control. If counterforces of 20 N or more occur during extension or retraction, an acoustic signal sounds and the process is interrupted and a countermovement is initiated for approx. 1 sec.

Features

- 8mm slim monitor housing made of powder coated aluminum
- 2mm hardened and anti-reflective protective screen
- Compact housing dimensions
- LightWeight, LowNoise, LowEnergy design
- HDMI HDCP compatible
- FullHD or 4K/UHD resolution
- 2x stepper motors 12V and precise mechanics
- Connector for remote control 9-pin d-sub and RJ45
- Electronic clamping protection plus mechanical protection in case of maloperation
- Manual extension function "DirectAxleAccess" for service, maintenance, installation

Dimensions



Safety Instructions



= Important Information



= Caution



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The device may only be opened in a disconnected state by authorized qualified personnel!



Let damage and defects be repaired immediately by authorized specialists.



Do not operate this device with any accessories other than the supplied ones.



Never open or close the monitor by force!



In the event of damage caused by third-party accessories, e.g. power supply unit, or unauthorized attachments or modifications, any warranty and liability claims are excluded.



Remove the two locking pins of the transport lock and the display protectors before commissioning. We recommend that you keep them.



To achieve the best image quality and to avoid image distortions, shadowing, image shifts, synchronization errors, etc., use only high-quality cables: at least double-shielded and with control cable according to VESA DDC 1/2 B standard.



Do not slide sharp or hard objects over the surface, it may be damaged.



Immediately remove any liquids spilled on the surface with a cloth.



Do not load the device with more than 1.0 kg when closed.



Do not cover the switched-on display for a longer period of time. Excessive temperatures due to blocked heat emission can lead to defects or a reduced lifetime..

Installation



= Important Information



= Caution



= Ban



Please make sure that your furniture has sufficient load-bearing capacity and strength against deflection and warping even after it has been weakened by the cut-out!



Stresses on the mechanics due to tension, pressure, impact can lead to damage or malfunctions.

ELEMENT ONE units should not be transported in the installed condition!



If transport in the installed state is necessary, the following conditions must be considered:

- Retract / close display
- Transport and store devices vertically, i.e. according to the installation position
- Do not tilt furniture with installed devices
- Secure devices against slipping and falling out
- Observe the permissible load of the displays, do not stack them.
- Never transport or store FOLD! while lying on its side.
- Attach the display protectors



ELEMENT ONE devices are fixed in the furniture by means of the decorative/holding frame. The integrated grub screws are intended for horizontal alignment in the furniture. Please note that these may only be applied lightly (risk of damage to the furniture or distortion of the device mechanics and thus possible malfunction of the movement mechanics)

For customer-side mounting, ELEMENT ONE will provide an installation drawing upon request.



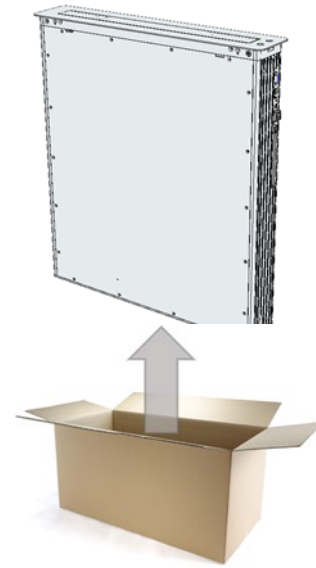
The table cut-out must be milled or sawn out before mounting the unit and according to the installation drawings (see Dimensions)



It is recommended to install the device with two persons.

- 1** FOLD! is transported upright. Please open the carton at the marked top and CAREFULLY place it horizontally on the floor or a clean, flat surface.

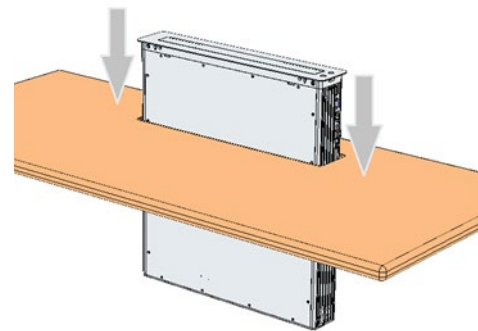
Please remove the device from the packaging by first removing the two foam pads, then the plastic protective cover and finally the transport lock, i.e. the two locking pins (on the housing) and the display protection (cardboard box, below the closing flap).



- !** Please carry the device by holding it on the right and left side of the housing.

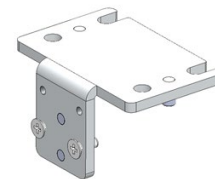
- 2** Insert the unit vertically into the previously milled table cutout.

- !** When inserting the device into the table cut-out provided for this purpose, make sure that the outgoing cables (connectors) on the side are not damaged.



- 3** Attach the two supplied undermount clamps to achieve sufficient stability and to secure the monitor against tilting when extended.

Alternatively, suitable own solutions can be attached to the table for secure mounting.



Commissioning



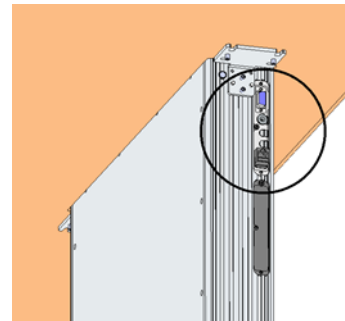
= Important Information



= Caution



= Ban



General Information



Note the following settings:

Graphic resolution native:

FullHD: 1,920 x 1,080 Pixel

4K/UHD: 3,840 x 2,160 Pixel

Frame rate = 60 Hz

Higher settings are outside the specification range.



No PoE

The network used for IP-based control of the monitors must not support the PoE (Power-over-Ethernet) function!



Switch-on delay

A LAN-capable monitor system is only ready for operation after a 60-second delay after power-on if a temporary or static IP address to be assigned by the network cannot be allocated, or in the case of a device with a permanently programmed IP address, this special identifier is not set up or available in the customer network, or if the device in question is not connected to the network via LAN cable when it is switched on.

If an IP address is not assigned or is assigned incorrectly, the device does not start until a timeout of approx. 60 seconds has elapsed. Please wait until you hear a beep signal.



Stresses on the cables caused by pulling and rubbing against components shorten the lifetime and can lead to damage and malfunctions. The cables should be fastened and laid after commissioning.

The following conditions must be observed:

- Do not fall below minimum radii
- Maintain distances to mounting points and structural elements
- Cables must not touch any components during opening and closing



All edges are chamfered or rounded in the area of the cables.



Strong light can affect the image quality.



Ensure that the cables are not pinched during insertion.



Ensure that all screw connections are secure.



Electrical connections should only be carried out when the device is disconnected from the power supply.

FOLD! 173 FullHD | FOLD! 173 4K

Insert the device into the cut-out.



Connect the HDMI cable. Please note the correct recommended specification: Maximum length 1.80 m, 4K @ 60 Hz, minimum HDMI 2.0, data rate 18 Gbit/s



Connect the DC-adaptor cable to the socket on the housing.



Connect AC plug of the power supply unit to the mains supply.



Connection for remote operation (9pol dSub, optional The use of the original ELEMENT ONE cable remote control or connection cable is recommended)



Connection touchscreen (USB, optional Maximum length of the cable used 1.80m, included in the scope of supply)

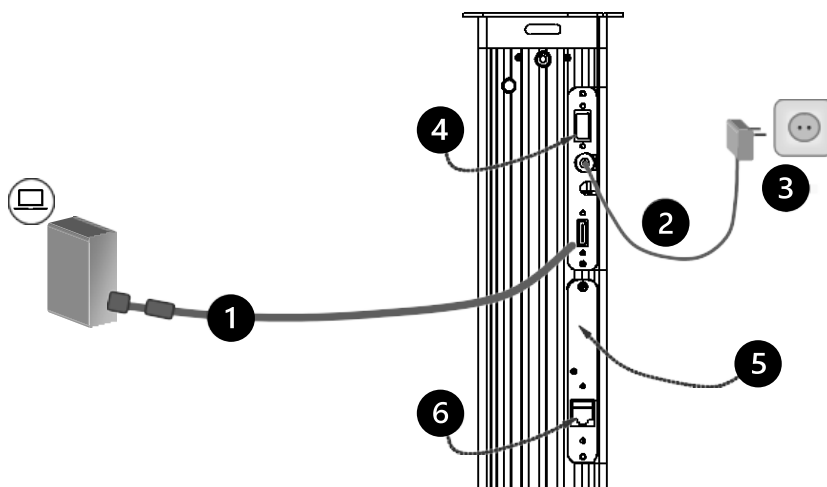


Connection for remote operation via RJ45 / LAN

Carry out a functional test and then attach the cables. It is recommended to use an external signal source for this purpose without any intermediate devices, such as splitters or extenders.



Check that the cables have adequate freedom of movement.



Operation

General Information



Ensure that no parts of the body and/or objects are located between the frame, display and folding mechanism.



Do not reach into the device if you notice objects located between the frame, keyboard and operating buttons whilst the device is closing! Interrupt the closing procedure by briefly pressing the button **A**!



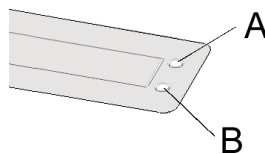
Do not use manual force to close!



Ensure there are no objects on the surface, which could obstruct the procedure.



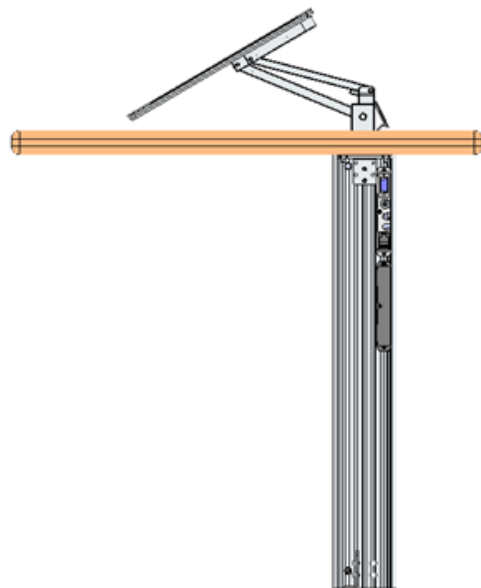
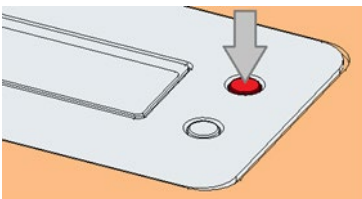
Do not place any objects in the area around the lowering mechanism.



Raising

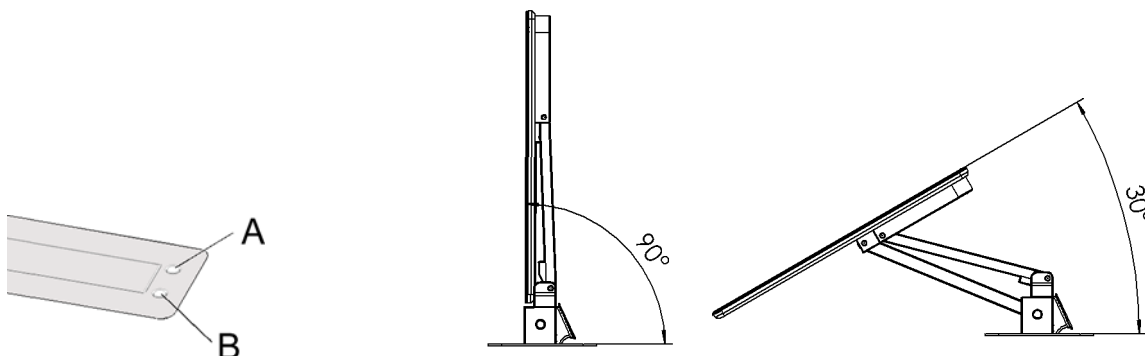
Press the button **A** on the right-hand side of the frame – the display will then rise out.

Whilst the monitor is being electrically raised, the procedure can be interrupted in any position by briefly pressing the button **B**.



Display Tilt

The tilt may be adjusted to any preferred angle in the raised position by pressing the control buttons.



The angle of inclination can be programmed; FOLD! display will then always move to the saved position:

- (1) Retract display to lower end position.
- (2) Hold down the buttons **A** and **B** simultaneously until the fifth beep (approx. 1 second). The display now extends to the currently stored angle with the monitor switched off.
- (3) Set the required angle by pressing the button **A** or **B**.
- (4) Hold down the buttons **A** and **B** simultaneously until the first beep

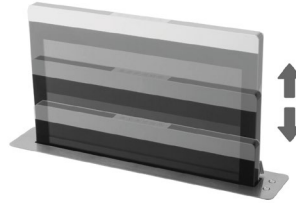
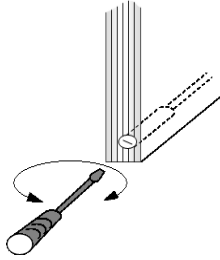
Steps (3) and (4) must be carried out within 30 seconds or, otherwise, programming mode will be cancelled.

Retracting

Press the button **B** and the display will automatically retract.

Whilst the monitor is being electrically retracted, the procedure can be interrupted in any position by briefly pressing the button **A**.

Service function DIRECT AXLE ACCESS (DAA)



Each FOLD! series monitor is equipped with DIRECT AXLE ACCESS (DAA), a useful feature for installation and maintenance. This allows you to manually extend and retract the monitor, i.e. without power. Access is located on the lower right and left sides of the housing. You need a slotted screwdriver or a cordless screwdriver to operate it.



When using the DIRECT AXLE ACCESS (DAA), follow the same safety instructions as for regular extension and retraction (see Operating, General)

Care Instructions



= Important Information



= Caution



= Ban



Disconnect the power supply plug before cleaning work!



To clean the device, use only cloths moistened with water or detergent.










Do not use abrasive cleaners, alcohol, thinners or similar chemicals.

Display Setting with OSD Buttons

The OSD buttons are located on the back of the display.
Operation requires the display to be extended.



	Control Buttons
	Open main menu
	Select Sub-Menu Increase the current value
	Display submenu Decrease the current value
	Navigation
	Navigation
	Display on / off
	LED dark = display is switched off green = normal function flashing green = standby mode or signal out of range orange = no signal oder fail safe Mode flashing orange = no signal red = input format is not supported

TCP/IP - Control and Status request



Important notes for the setup in the LAN

All devices of the FOLD! Series are equipped with a Cat-5 LAN cable socket as a network interface. Via this interface, the monitor systems can be operated IP-based with control commands (e.g. via a media control system or via a smartphone app).

The devices are supplied with DHCP support.

Depending on your requirements, the monitors can be controlled via the network accordingly

- either via automatic / dynamic IP address allocation in their LAN network
- or via static IP address allocation, assigned in their network manually to the MAC address of each device.

For control, a TCP-based, text protocol is used. To send a command, a TCP connection must be established to the unit on port 8282.

Parameters are separated from one another by a space. Each command and each response ends with a Carriage Return (<CR>) plus a Line Feed (<LF>).

IP command list (based on Ethernet Protocol Vers. 1.00)		
Command	Function	Response/message
move up	Unit opens	OK: if monitor retracted or movement stopped ERROR: if monitor moving in or out
move down	Unit closes	OK: if monitor extended or movement stopped ERROR: if monitor moving in or out
display on	Switches display on	With CONVERS and MODIS, this command is followed by the response, ERROR, if the monitors are retracted!
display off	Switches display off	always OK, even if display is already switched off
stop	Stops monitor movement	always OK
status	Requests information on current position of monitor	OK open: if monitor extended or stopped OK closed: if monitor retracted
devicedetails	Requests information on type of unit	OK monitor system
protocol	Requests information on Ethernet protocol version	OK 1.00: in the case of Ethernet protocol vers. 1.00
check	To check whether connection to unit is working	OK: if monitor fully retracted or extended ERROR: if monitor in intermediate position Unit response is always OK if the unit can be contacted over the network, no response if it cannot be contacted
lock on	Blocks control of the unit with the push button <i>temporarily</i>	Temporarily = until unit is restarted Unit response always OK, even if already temporarily blocked
lock off	Cancels <i>temporary</i> blocking of push button control	Unit response always OK, even if not blocked
lock perm on	Blocks control of the unit with the push button <i>permanently</i>	Permanently = until block is cancelled by "lock perm off" command; cancellation by turning off the supply is <i>not</i> possible Unit response always OK, even if already permanently blocked
lock perm off	Cancels <i>permanent</i> blocking of push button control	Unit response always OK, even if not blocked

Control via a Media Control System with 9-pin d-sub Remote Interface



Do not apply external voltage!



Pins may not be bridged!



Current pulse for switching = approx. 15 mA at 12 V DC



To **extend** connect Pin 1 to Pin 2

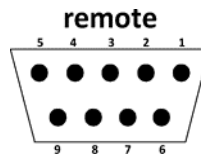


To **retract** connect Pin 3 to Pin 4

1-2 = up

3-4 = down

5 = out 12V/0,1 A max. 9 = GND



Firmware Update (Authorized Personnel only)

It is possible to update the firmware of the E1 monitor systems. To execute the firmware update, the monitor system must be connected to a specially configured PC / laptop by means of an adapter cable.

The firmware update requires:

- a special Configurator Software (E1 product),
- a special USB adapter cable (E1 product),
- an appropriately configured PC / notebook

Detailed information is available on request on the firmware update procedure, the system requirements for the PC/laptop used and how to obtain the special hardware and software required.

Technical Specification

FOLD! 173 FullHD	FOLD! 173 4K
Function: Vertically extendable monitor; furniture-integratable 17.3" FullHD monitor system with electromechanical drive / lifting system of the integrated 8mm slim aluminum display; automatic display tilt 15°-90°; inverse, vertical movement; control by push button on the unit or via remote control interfaces (TCP/IP or dry contact); manual extension function DirectAxleAccess for service, maintenance, installation purposes. Low noise <40dB; two 12V stepper motors with precise synchronization - for simultaneous extension when using multiple monitors; independent electromotive adjustment of the tilt angle - both central presetting via remote interface and individual adjustment by user.	Function: Vertically extendable monitor; furniture-integratable 17.3" UHD monitor system with electromechanical drive / lifting system of the integrated 8mm slim aluminum display; automatic display tilt 15°-90°; inverse, vertical movement; control by push button on the unit or via remote control interfaces (TCP/IP or dry contact); manual extension function DirectAxleAccess for service, maintenance, installation purposes. Low noise <40dB; two 12V stepper motors with precise synchronization - for simultaneous extension when using multiple monitors; independent electromotive adjustment of the tilt angle - both central presetting via remote interface and individual adjustment by user.
Material Monitor: Milled aluminum, powder-coated, 2 mm anti-reflective protective glass Mechanics: Anodized aluminum, stainless steel; mounting frame and locking flap stainless steel, brushed	Material Monitor: Milled aluminum, powder-coated, 2 mm anti-reflective protective glass Mechanics: Anodized aluminum, stainless steel; mounting frame and locking flap stainless steel, brushed
Screen size: 17,3" (16:9)	Screen size: 17,3" (16:9)
Resolution: 1920 x 1080 - FullHD, 262,144 colors	Resolution: 3840 x 2160 - UHD, 16.7M colors
Brightness: 300 cd/m ²	Brightness: 300 cd/m ²
Contrast ratio: (typ.) 700:1	Contrast ratio: (typ.) 800:1
Viewing angle: Horizontal 160° / vertical 160°	Viewing angle: Horizontal 178° / vertical 178°
Pixel pitch: 0.1989 x 0.1989 mm	Pixel pitch: 0.09945 x 0.09945 mm
Display area: 381,888 (v) x 214,812 mm	Display area: 381,888 (v) x 214,812 mm
LED life span: up to 15,000 hrs	LED life span: up to 15,000 hrs
Mass: ~15 kg	Mass: ~15 kg
Dimensions: 530 x 100 x 586 mm (LxWxD)	Dimensions: 530 x 100 x 586 mm (LxWxD)
Power consumption: typ. 15 Watt	Power consumption: typ. 15 Watt
P. consumption display: OFF: 0.12 Watt, Sleep: 0.60 Watts, ON: 19 Watts	P. consumption display: OFF: 0.12 Watt, Sleep: 0.60 Watts, ON: 19 Watts
Extension angle monitor: 15°-90°	Extension angle monitor: 15°-90°
Monitor extension height: 305mm at 90° / 112mm at 15°	Monitor extension height: 305mm at 90° / 112mm at 15°
2x stepper motors: display motion & tilt function	2x stepper motors: display motion & tilt function
Video interface: HDMI, HDCP compliant	Video interface: HDMI, HDCP compliant
Remote control: 9-pin d-sub serial + RJ45 TCP/IP for device control - and setting of extension parameters as well as firmware update (E1 cable and software required)	Remote control: 9-pin d-sub serial + RJ45 TCP/IP for device control - and setting of extension parameters as well as firmware update (E1 cable and software required)
Operating temperature: 0°C to +50°C, without direct sunlight or other heat sources	Operating temperature: 0°C to +50°C, without direct sunlight or other heat sources
Storage temperature: -20°C to +60°C, without direct sunlight or other heat sources.	Storage temperature: -20°C to +60°C, without direct sunlight or other heat sources.
Operating humidity: 10% to 95% RH, non-condensing	Operating humidity: 10% to 95% RH, non-condensing
Storage humidity: 10% to 95% RH, non-condensing	Storage humidity: 10% to 95% RH, non-condensing
Scope of supply: Power adapter - Input: 100-240V AC, 50 / 60Hz. 1.5A; Output: 12V 60W max 5.A (cable length DC ~ 140cm) power cable 1.5m	Scope of supply: Power adapter - Input: 100-240V AC, 50 / 60Hz. 1.5A; Output: 12V 60W max 5.A (cable length DC ~ 140cm) power cable 1.5m

Safety Standards

VESA: DPMS
DDC2B-Standard (Version 2 Level B)



For optional accessories, observe the instructions enclosed with them!

Declaration of Conformity



We declare under our sole responsibility that devices of the series FOLD! comply with the regulations 2006/42/EG, 2006/95/EG, 2004/ 108/EG
Harmonized standards applied:
EN ISO 12000:2010
EN 60950-1+A1:2010
EN 55022:2010
EN 55024:2010
EN 61000-3-2/A1/ A2:2009
EN 61000-3-3:2008

Kuppenheim, 01.02.2021

A handwritten signature in black ink, appearing to read 'R. Küchel'.

Ralf Küchel
Technical Manager / CTO

Warranty

- (1) The warranty for ELEMENT ONE products is as follows from the date of purchase
 - 60 months on all purely mechanical components, and
 - 24 months on all electrical and electronic components.

In the case of a purchase that is a commercial transaction for both parties, the customer must report defects of any kind - except hidden defects - in writing within eight working days (Saturday does not count as a working day) after delivery; otherwise the goods are considered approved. Hidden defects must be notified in writing within eight working days (Saturday does not count as a working day) after discovery; otherwise the goods shall be deemed to have been approved also in view of these defects.

- (2) In the event of injury to life, limb or health for which we are responsible, as well as in cases of intent and gross negligence, the limitation period for material defect claims shall be two years. Otherwise, the limitation period for material defect claims shall be one year.
- (3) Insofar as the delivered goods have a not insignificant defect, the customer may demand, at our discretion, either the rectification of the defect (subsequent improvement) or the delivery of a defect-free item (replacement delivery) as subsequent performance. If we are not prepared or not in a position to rectify the defect/replace the delivery, in particular if this is delayed beyond a reasonable period of time for reasons for which we are responsible, or if the rectification/replacement delivery fails in any other way, the customer shall be entitled, at his discretion, to withdraw from the contract or to reduce the purchase price, provided that further attempts at subsequent performance are unreasonable for him.
- (4) There shall be no warranty obligation for normal wear and tear, in particular on parts subject to wear and tear. Furthermore, there shall be no warranty obligation if damage to or malfunctions of the delivery item occur due to improper handling or use of unsuitable operating conditions.
- (5) We shall only be liable for damage due to defectiveness of the delivery item within the limits specified in Clause 8.
- (6) Insofar as the defective delivery item is a third-party product, we shall be entitled to assign our material defect claims against our upstream suppliers to the customer and to refer the customer to their (legal) recourse. Claims may only be asserted against us under subsections 3 and 5 if the claims against our upstream suppliers cannot be enforced despite timely (judicial) recourse or if recourse is unreasonable in the individual case.



WEEE-Rg.Nr.: DE69117530

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Version: 06/2022

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