

INSTRUCTIONS

STM7-CB/CBA

Control box for manual/Control box for motorized

STM7-CB
STM7-CBA

This instruction manual is for the Evident measuring microscope.

To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this microscope, we recommend that you study this manual thoroughly before operating the microscope.

Retain this instruction manual in an easily accessible place near the work desk for future reference.

Optical Microscope Accessory

This product is applied with the requirements of standard IEC/EN61326-1 concerning electromagnetic compatibility.

- Emission Class A
- Immunity Industrial electromagnetic environment

Emissions exceeding the level required by aforementioned standards may occur if this product is electrically connected to other equipment.

Some interference may occur if this product is used in residential environments.



In accordance with European Directive on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.

Refer to your local Evident distributor in EU for return and/or collection systems available in your country.

NOTE: This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

For Korea only

A급 기기 (업무용 방송통신기자재)

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Introduction

The control box for manual/the control box for motorized is the control box to be installed to the measuring microscope STM7 to control the measuring microscope.

Contents of instruction manuals

This instruction manual is for the control box for manual/motorized STM7-CB/CBA.


Please also read the separately available instruction manuals listed below to obtain comprehensive understanding of the microscope operating procedures.

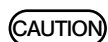
Manual name	Main contents
Control box for manual/motorized STM7-CB/CBA (this manual)	Functions of the control box for manual/motorized STM7-CB or STM7-CBA
Measuring microscope STM7	Operating procedures of the measuring microscope
Hand switch/Focus controller quick guide STM7-HS/STM7-MCZ	Easy operation procedures of the hand switch or the focus controller
Autofocus unit STM7-AF	Functions of the autofocus

Safety precautions

If the product is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the product may also be damaged. Always use the equipment according to this instruction manual.

The following symbols are used in this instruction manual.

 **CAUTION** : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

 **CAUTION** : Indicates a potentially hazardous situation which, if not avoided, may result in damage to the equipment or other property.

 : Indicates commentary (for ease of operation and maintenance).

CAUTION - Installation of the device -

Install the control box on a sturdy, level table or bench.

For safety in particular, do not place the mat, etc. under the device.

Always install the control box for motorized STM7-CBA to allow operating the emergency stop switch.

The emergency stop switch is used to stop the motorized focusing unit in case of an emergency.

Confirm that the device is installed stably before use.

Operate the emergency stop switch before using devices, and make sure that the control box is not operated excessively.

CAUTION - Electric safety -

Always use the power cord provided by Evident.

If the proper power cord is not used, the electric safety and the EMC (Electro-Magnetic Compatibility) performance of the device cannot be assured.

If no power cord is provided, please select the proper power cord by referring to the section "Proper selection of the power supply cord" at the end of this instruction manual.

Always connect the ground terminal.

Connect the ground terminal of the power cord and that of the power outlet. If the device is not grounded, our intended electric safety and EMC performance of the device can not be assured.

Do not use the device in close proximity to the sources of strong electromagnetic radiation.

Proper operation may be interfered. The electromagnetic environment should be evaluated prior to operation of this device.

Remove the power cord in case of emergency.

In case of emergency, be sure to unplug the power cord from the power cord connector on the product or from the wall power outlet. Install the product at the location where you can reach the power cord connector or the wall power outlet at hand to remove the power cord quickly.

Be sure to turn OFF the power of the device before connecting /disconnecting cables and units.

This device is designed for use in Class A industrial environment for IEC61326-1 International Standard concerning EMC. Using it in a domestic environment may cause radio interference.

This device complies with the emission and immunity requirements described in IEC61326 series.

CAUTION - Protection for electric shock -

Do not insert any tools or metal fragments in the air vents of the device.

Doing so could cause electric shock or failure of the product.

Do not bend, pull or tie the power cord/cables in a bundle.

Otherwise they could be damaged, causing a fire or an electric shock.

Remove the power cord from the product when replacing the fuses.

To avoid electric shock hazards when replacing the fuses, turn the main switch to "O"(OFF), then remove the power cord from the product in advance.




Applicable fuses:  T5 A H 250 V (LITTELFUSE 0215005.MXP)

For procedures to replace the fuse, refer to "Measuring microscope STM7 instruction manual".

CAUTION - Safety symbols -

The following symbols are placed on the product.

Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Meaning
	Indicates a non-specific general hazard. Follow the cautions given after this symbol or in the instruction manual.
	Indicates that the main switch is ON.
	Indicates that the main switch is OFF.

When caution labels are dirty or peeled off, contact Evident for replacement or inquiries.

Handling precautions

CAUTION • This product is a precision instrument. Handle it with care and avoid subjecting it to a sudden or severe impact.

• Never disassemble any part of the product. Otherwise, failure could be caused.

• Do not use the system in areas where it may be subjected to direct sunlight, high temperature and/or humidity, dust or vibrations.

(For the operating environmental condition such as temperature and/or humidity, see “1 Specifications” (page 4).

Avoid using the instrument in the following places.

- | |
|---|
| <ol style="list-style-type: none"> (1) Near an inlet or exhaust outlet of air conditioning equipment, etc. (2) In a place subjected to large vibrations or change in temperature. (3) Near equipment producing abnormal noise (including non-Evident equipment) (4) In a place subjected to direct sunlight. (5) In a place subjected to excessive dirt or high temperature and humidity. (6) Near flammable substance (gasoline, lacquer thinner, alcohol, etc.) |
|---|

• Do not block the air vents of the control box, keep a space of 10 cm or more between the right/left/back sides and the surrounding objects.

1. Install the control box horizontally.

Installing it vertically could cause it to fail from excessive heat.

2. After the DIP switch is set, be sure to attach the seal at the original position.

3. Set the DIP switch when the main switch is “○” (OFF), and then set the main switch to “I” (ON).

(If the DIP switch is set when the main switch is “I” (ON), the setting is not reflected.)

4. Do not touch the connector pins of modules with your hands directly.

The modules may be damaged by static.

5. Do not remove the caps or seals attached to the unused connectors.

If you touch an insertion port with the caps or seals removed, static electricity from your body could cause device failure.

6. Do not connect any cable to the CAN1 or CAN2 connector of the control box for manual STM7-CB.

7. Do not connect the autofocus unit MM6C-AF for measuring microscope STM6 to the AF connector of the control box for motorized STM7-CBA.

Maintenance and storage

1. Do not use organic solvents, which cause painted and plastic parts to deteriorate. Do not use organic solvents to clean device components other than the glass components. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.

2. Before disposing of this product, be sure to follow the regulations and rules of your local government.

1 Specifications

Item		Specification
Illuminator control	LED type	Reflected light illuminator: MM6-ILW Transmitted light illumination: MM6-ILG Illuminator for focus navigator unit: MM6-ILG
	Driving current	330 mA \pm 20 mA(max)
	Power consumption	Approx. 2 W per illumination
	Average life	Approx. 30000 hours (Ambient temperature 20 °C, light intensity level 50%)
Pilot lamp		ON: The main switch of the control box is turned ON. OFF: The main switch of the control box is turned OFF.
Indicator	REMOTE	ON: The measuring microscope can be controlled by the basic software STM7-BSW. OFF: The measuring microscope cannot be controlled by the basic software STM7-BSW.
	ERROR	ON (Blink): The error is found. OFF: The error is not found.
	HS (manual frame only)	ON: The control box is connected to the hand switch STM7-HS. OFF: The control box is not connected to the hand switch STM7-HS.
	MCZ (motorized frame only)	ON: The control box is connected to the focus controller STM7-MCZ. OFF: The control box is not connected to the focus controller STM7-MCZ.
	Z SCALE (motorized frame only)	ON: The Z axis scale is connected properly. OFF: The Z axis scale is not connected properly.
	AF (motorized frame only)	ON: ON: The control box is connected to the autofocus unit STM7-AF. OFF: The control box is not connected to the autofocus unit STM7-AF.
	HALF	ON: The counter data of X-, Y- and Z-axis is displayed in 1/2 value of the actual movement distance. OFF: The counter data of X, Y and Z axes is displayed normally.
	EPI SEL	ON: The reflected light illumination can be controlled. OFF: The reflected light illuminator cannot be controlled.
	DIA SEL	ON: The transmitted light illumination can be controlled. OFF: The transmitted light illumination cannot be controlled.
	FN SEL	ON: The illumination for focus navigator unit can be controlled. OFF: The illumination for focus navigator unit cannot be controlled.
	F FINE (motorized frame only)	F FINE ON: The movement distance of the fine/coarse focusing knob of the focus controller STM7-MCZ is small. F COARSE ON: The movement distance of the fine/coarse focusing knob of the focus controller STM7-MCZ is large.
	F COARSE (motorized frame only)	
	AF TRACK (motorized frame only)	ON: The autofocusing is in Track mode. OFF: The autofocusing is in One-Shot mode.
	Z LIMIT (motorized frame only)	ON: The lower software limit of the focus area is set. OFF: The lower software limit of the focus area is not set.
DIP switch/ Rotary switch		For settings of DIP switch (SW1), DIP switch (SW2) and Rotary switch (SW3), refer to "Instruction manual of Measuring Microscope STM7".

Item		Specification
Communication	Communication type	RS-232C
	Character encoding	ASCII code
	Transmission rate	19200 bps
	Delimiter	CR+LF
	Data character length	8 bit
	Parity	Even parity
	Stop bit	2 bit
Rating	100-120/220-240 V \sim 50/60 Hz 0.3 A/0.2 A (STM7-CB) 100-120/220-240 V \sim 50/60 Hz 0.6 A/0.35 A (STM7-CBA)	
Dimensions and weight	250(W)x300(D)x149(H) mm (excl. projection) Approximately 4.9 kg (STM7-CB) / Approximately 5.4 kg (STM7-CBA)	
Operating environment	<p>Accuracy guarantee Temperature: 20 °C \pm1 °C. Humidity: 65%\pm10%</p> <p>Operation guarantee Temperature: 10 °C to 35 °C. Humidity: 30% to 85%</p> <p>Standby condition Temperature: 0 °C to 40 °C. Humidity: 20% to 85%</p> <p>Storage condition Temperature: -10 °C to 60 °C. Humidity: 10% to 90%</p> <p>Safety standards:</p> <ul style="list-style-type: none"> Indoor use. Altitude: Max. 2,000 meters Ambient temperature: 5 to 40 °C (41 to 104 °F) Maximum relative humidity: 80% for temperatures up to 31 °C (88 °F) (without condensation) In case of over 31 °C (88 °F), the relative humidity is decreased linearly through 70% at 34 °C (93 °F), 60% at 37 °C (99 °F), and to 50% at 40 °C (104 °F). Supply voltage fluctuations: Not to exceed \pm10% of the normal voltage. Pollution degree: 2 (in accordance with IEC60664-1) Installation/Overtoltage category: II (in accordance with IEC60664-1) 	

■ Proper selection of the power supply cord

If no power supply cord is provided, please select the proper power supply cord for the equipment by referring to “Specifications” and “Certified Cord” below:

Caution : In case you use a non-approved power supply cord for Evident products, Evident can no longer warrant the electrical safety of the equipment.

Specifications

Voltage rating	125 V AC (for 100-120 V AC area) or, 250 V AC (for 220-240 V AC area)
Current rating	6 A minimum
Temperature rating	60 °C minimum
Length	3.05 m maximum
Fittings configuration	Grounding type attachment plug cap. Opposite terminates in molded-on IEC configuration appliance coupling.

Table 1 Certified cord

A power supply cord should be certified by one of the agencies listed in Table 1 , or comprised of cordage marked with an agency marking per Table 1 or marked per Table 2. The fittings are to be marked with at least one of the agencies listed in Table 1. In case you are unable to buy locally the power supply cord which is approved by one of the agencies mentioned in Table 1, please use replacements approved by any other equivalent and authorized agencies in your country.




















Country	Agency	Certification mark	Country	Agency	Certification mark
Argentina	IRAM		Italy	IMQ	
Australia	SAA		Japan	JET	
Austria	ÖVE		Netherlands	KEMA	
Belgium	CEBEC		Norway	NEMKO	
Canada	CSA		Spain	AEE	
Denmark	DEMKO		Sweden	SEMKO	
Finland	FEI		Switzerland	SEV	
France	UTE		United Kingdom	ASTA BSI	
Germany	VDE		USA	UL	
Ireland	NSAI				

Table 2 HAR flexible cord

Approval organizations and cordage harmonization marking methods

Approval organization	Printed or embossed harmonization marking (May be located on jacket or insulation of internal wiring)		Alternative marking utilizing black-red-yellow thread (Length of color section in mm)		
			Black	Red	Yellow
Comite Electrotechnique Belge (CEBEC)	CEBEC	<HAR>	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V. Prüfstelle	<VDE>	<HAR>	30	10	10
Union Technique de l'Electricite' (UTE)	USE	<HAR>	30	10	30
Instituto Italiano del Marchio di Qualita' (IMQ)	IEMMEQU	<HAR>	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	<HAR>	10	10	30
N.V. KEMA	KEMA-KEUR	<HAR>	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	<HAR>	10	10	50
Österreichischer Verband für Elektrotechnik (ÖVE)	<ÖVE>	<HAR>	30	10	50
Danmarks Elektriske Materialkontroll (DEMKO)	<DEMKO>	<HAR>	30	10	30
National Standards Authority of Ireland (NSAI)	<NSAI>	<HAR>	30	30	50
Norges Elektriske Materielkontroll (NEMKO)	NEMKO	<HAR>	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	<UNED>	<HAR>	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	<HAR>	30	30	70
Instituto Portages da Qualidade (IPQ)	np	<HAR>	10	10	90
Schweizerischer Elektro Technischer Verein (SEV)	SEV	<HAR>	10	30	90
Elektriska Inspektoratet	SETI	<HAR>	10	30	90

Underwriters Laboratories Inc. (UL)
Canadian Standards Association (CSA)

SV, SVT, SJ or SJT, 3 X 18AWG
SV, SVT, SJ or SJT, 3 X 18AWG

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