COMPUTRONIC

EXCELLENCE IN CCTV

EXTERNAL KEYBOARD

KB1

Installation and user manual

READ THE INSTRUCTIONS
Be sure to read all the safety and operating instructions before using the device.

KEEP THE INSTRUCTIONS
Be sure to keep all the safety and operating instructions for possible future need and queries.

FOLLOW THE INSTRUCTIONS
Be sure to follow all the safety and operating instructions.

WATER AND HUMIDITY
Do not use the unit near water – for example near a bathtub, or in any area showing evidences of humidity.

POWER SUPPLY
This equipment can be charged only by the type of supply quoted by a production code on the device. Do not overload electric adapters and extension cords as this can result in fire or electric shock.

REPAIR
Do not open covers and repair this unit yourself, refer all repairs to a qualified person.

UNPACKING
Transfer package is a safe cover for any device transportation. We recommend keeping the wrapping for possible future usage.

CONTENTS

INTRODUCTION

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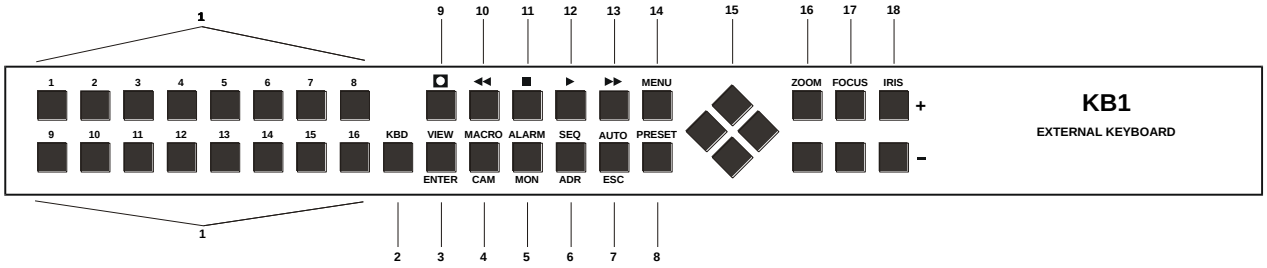
External keyboard KB1 is used for controlling of up to 240 devices in a range 1000 m. All devices are connected with CAN bus (shielded twisted pair cable). Keyboard KB1 can control pan-tilt units, zoom lenses and multiplexers.
Keyboard sends commands with the controlled device address (e.g. TC) that receives the commands and executes it (e.g. switches on rotator turning). There is no difference between operating a multiplexer with the external keyboard and the multiplexer local keyboard. External keyboard KB1 light indicators show the state of the controlled device. The sound signalling is also transferred to the keyboard.

KEYBOARD DESCRIPTION



Picture 1:KB1 External keyboard front panel

KEYBOARD FRONT PANEL

1. 1 – 16

Assigned to the 1 - 16 keys of the controlled device or used for numeric address settings in the keyboard-setting mode, memory number selection, etc.

2. KBD

Pressing the KBD key the KB1 keyboard mode is switched on, the KBD light indicator is on. There are several special functions assigned to some keys in this mode.

3. VIEW, ENTER

Assigned to the VIEW key of the controlled device or used as a ENTER key in the keyboard setting mode. Pressing the ENTER key, you confirm changes and terminate the keyboard setting mode.

4. MACRO, CAM

Assigned to the MACRO key of the controlled device or assigned to CAM key in the keyboard setting mode (reserved for future use).

5. ALARM, MON

Assigned to the ALARM key of the controlled device or assigned to MON key in the keyboard setting mode (reserved for later use).

6. SEQ, ADR

Assigned to the SEQ key of the controlled device or used for controlled device address settings in the keyboard setting mode.

7. AUTO, ESC

Assigned to the AUTO key of the controlled device or assigned to the AUTOSCAN key – automated camera turning (telemetry receivers only) or used for undo last step in the keyboard setting mode.

8. PRESET

Assigned to the PRESET key of the controlled device or used for calling up the controlled device address from the keyboard memory in the keyboard setting mode.

9. 

Assigned to the REC key of the controlled device or used for storing the controlled device address in the keyboard setting mode.

10. 

Assigned to the REWIND key of the controlled device.

11. 

Assigned to the HOLD (STOP) key of the controlled device or used for deleting the auxiliary video switcher address in the setting mode.

12. 

Assigned to the PLAY key of the controlled device.

13. 

Assigned to the FAST FORWARD key of the controlled device.

14. MENU

Assigned to the MENU key of the controlled device or used for keyboard KB1 address settings in the keyboard setting mode.

15. CURSOR KEYS

Assigned to the cursor keys of the controlled device or used for direction controlling of telemetry receivers.

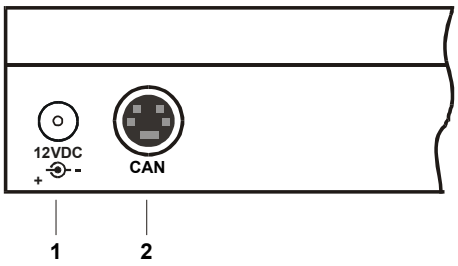
16. ZOOM +/-

Assigned to the ZOOM+ and ZOOM- keys of the controlled device or used for the camera lens zooming (telemetry receivers only).

17. FOCUS +/-
Assigned to the FOCUS+ and FOCUS- keys of the controlled device or used for the camera lens focusing (telemetry receivers only).

18. IRIS +/-
Assigned to the IRIS+ and IRIS- keys of the controlled device or used for the camera lens iris controlling (telemetry receivers only).

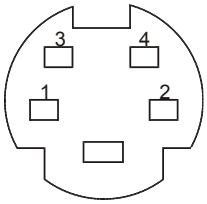
KEYBOARD KB1 BACK PANEL



1. 12V DC Power supply connector
2. CAN bus connector

Picture 2: Keyboard KB1 Back Panel

CAN BUS
All controlled devices (pan-tilt units, zoom lens, multiplexers) are connected using the CAN bus that consists of shielded twisted pair cable. Maximum length of the bus is 1000m. Maximum length of one stub is 60m and length of all stubs must not exceed 300m. The terminators 120 Ω are required at the both ends of the bus. CAN bus is connected with the 4-pins MINI DIN connector (see picture 3). Transfer speed is 50 kBd.



1. CAN_GND
2. CAN_L
3. CAN_H
4. CAN_V+ (5V/100mA)

Picture. 3:CAN bus Connector – rear view.

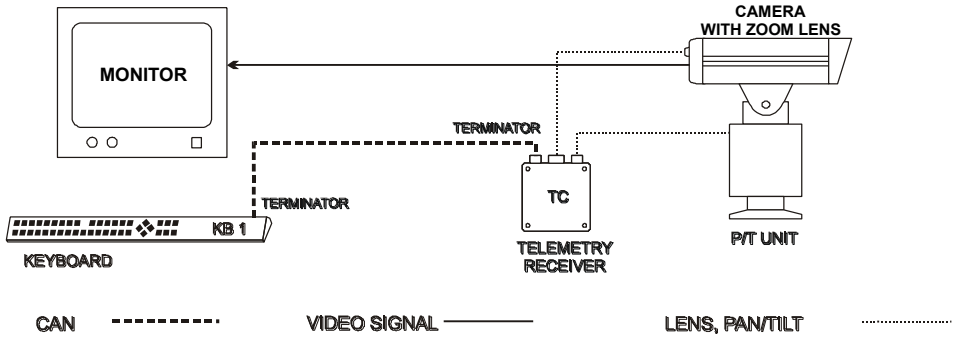
INSTALLATION

POWER SUPPLY CONNECTING
Put the connector of power adapter into the socket no.1 of the KB1 keyboard that shortly beeps.

CAN BUS CONNECTING
Connect the KB1 keyboard and CAN bus with 4-pin mini din male connector. Outlets CAN_L and CAN_H connect with the Can bus. CAN_GND connect to cable shield. CAN_V+ is used only for possible charging of converters. All devices must be connected to CAN bus in this way. The terminators 120 Ω are required at the both ends of the bus.

KEYBOARD SETTING
Set the address of KB1 keyboard first. Every device connected to the bus must have its own unique address in a range 1-240. KB1 keyboard has pre-installed address 10.
Entering the device address is necessary for its use. After switching on KB1 has set address of the last used device.

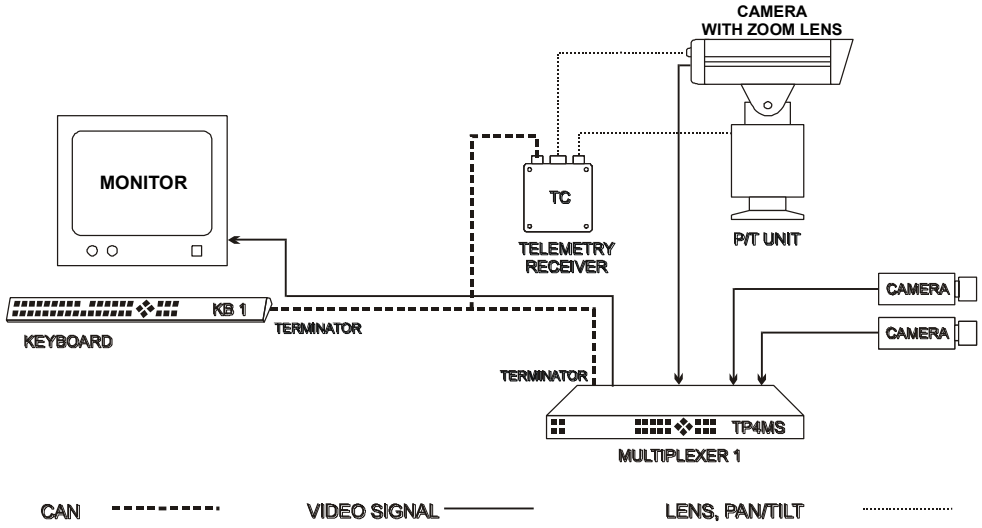
CONNECTING AND USING EXAMPLES



Picture 4:Telemetry system controlling diagram

In the picture 4 there is shown a diagram of simple camera with the pan-tilt unit and the zoom lens and the monitor. The KB1 keyboard controls the telemetry receiver with the CAN bus.

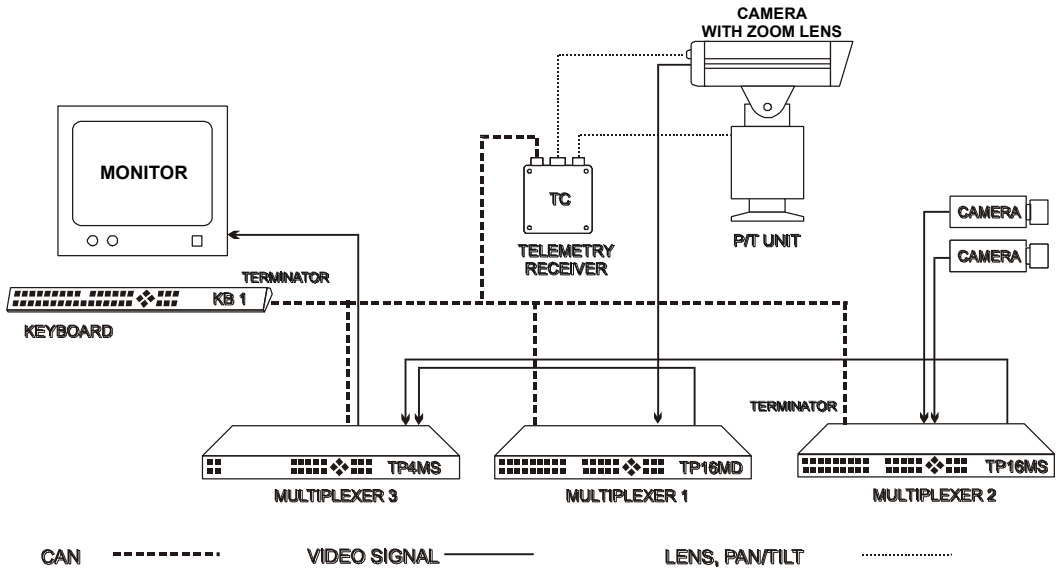
MULTIPLEXER AND TELEMETRY SYSTEM CONTROLLING DIAGRAM



Picture 5: Multiplexer and telemetry system controlling diagram

In the picture 5 there is shown a diagram of connecting the multiplexer and the keyboard and the telemetry receiver. The KB1 keyboard controls all devices connected to the CAN bus using their address or using the multiplexer. Key assignments respond to a type of controlled device (see the controlled device manual).

MULTIPLEXERS NETWORK EXAMPLE



Picture 6: Multiplexer network diagram

In the picture 6 there is shown a diagram of connecting three multiplexers using the CAN bus. Multiplexers 1 and 2 have several cameras connected. Some of the cameras are equipped with pan-tilt unit and the zoom lens. Using the remote controlled video switcher (multiplexer 3) it's possible to display the controlled multiplexer output. Main outputs of multiplexers 1 and 2 are connected to inputs 1 and 2 of the video switcher (multiplexer 3 - see picture 6). The output of the auxiliary video switcher (multiplexer 3) leads to the monitor input.

The sequential switcher of the multiplexer 3 can be used instead of video switcher. The rest of the multiplexer video input can be used as needed, but at this case the sequential switcher of this multiplexer can not be used in other way.

For simple use of this system set the keyboard:

1. Set the auxiliary video switcher (multiplexer) address. Store the multiplexer 1 address in the memory 1.
2. Store the multiplexer 2 address in the memory 2.

Selecting the address of multiplexer no.1 or no.2 (pressing KB1, 1 or KB1, 2 keys) is auxiliary video switcher automatically switched to the input of corresponding memory number. Deleting the video switcher address the keyboard stops transmitting of switching commands to the switcher. The camera and its pan-tilt unit (see picture 6) can be controlled by selecting the multiplexer 1 address and selecting the camera at this multiplexer. The telemetry commands of this multiplexer are leaded to the camera telemetry receiver. This camera can be also controlled directly by selecting the address of telemetry receiver. Connecting the camera video output to auxiliary video switcher input is necessary for displaying camera pictures on the monitor

KEYBOARD USING

The keyboard informs about the current state of the controlled device using sound signalling (see tab 1). In case of being the controlled device on the keyboard shows also the state of the light indicators. Pressing the key assigned to a controlled device currently used by some different user would be ignored and the keyboard signal long beeps. Device can be controlled 5 sec. after the end of using by another user.

State of controlled device	Sound signalling
Device is on	*Two short beeps*
Device is on, but used by another user	*One short and one long beep*
Device doesn't respond	*One short beep*

Tab. 1: The Controlled Device State

KEYBOARD SETTINGS

You can enter the keyboard mode by pressing KBD key that is signalled with KBD light indicator. The keyboard doesn't transmit any commands or show the state except for CAM and MON keys (reserved for later use). All keyboard settings are stored in EEPROM memory and are not lost even the keyboard is turned off.

DEVICE SELECTING

To control any device connected to the CAN bus you have to enter its address. There are two ways: direct entering and using the memory.

DIRECT DEVICE SELECTING

Direct device selecting is made by following keys pressing:

KBD | ADR | Num.Addr. | ENTER

Pressing ADR the keyboard shows the address of the currently selected device.

DEVICE SELECTING USING THE MEMORY

Following keys pressing makes device selecting using memory:

KBD | 1 - 16

This selection is successful only if the address of controlled device is stored. If the entered memory is not pre-set, the keyboard beeps and previous device stays active.

STORING THE ADDRESS INTO MEMORY

The keyboard allows selecting the device addresses using the memory for more comfortable use. To be able to use the memory the addresses of the controlled devices must be store in it. The current address of controlled device is stored.

Storing procedure: Select the address of the device first and store it into the memory pressing the following keys:

KBD | PRESET | ◘ | 1 - 16

During the storing (after RECORD is pressed) keyboard shows already used parts of the memory.

KEYBOARD ADDRESS SETTING

Following keys pressing makes keyboard address setting:

KBD | PRESET | MENU | Num.Addr. | ENTER

Pressing MENU keyboard shows current address of the keyboard. The KB1 keyboard has pre-installed address 10.

THE VIDEO SWITCHER ADDRESS SETTINGS

Following keys pressing sets video switcher address:

KBD | PRESET | SEQ | Num.Addr. | ENTER

Pressing SEQ keyboard shows a current video switcher address. If the switcher's address is erased the keyboard shows nothing.

THE VIDEO SWITCHER ADDRESS ERASING

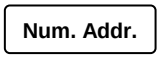
Following keys pressing erase the video switcher address:

THE MEMORY SELECTION DELETING

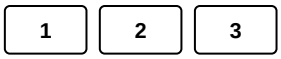
Following keys pressing delete the memory selection:

THE NUMERICAL ADDRESS SETTING

In the setting procedures the numerical address setting is signed:



The numerical address is a succession of digits. For example address 123 is set by following 1,2,3 keys pressing.



The address in range 1-16 is set by pressing key 1-16.

In case of the selecting address greater than 9 the 10 key has value 0. For example pressing 2 and 10 keys sets address 20.

VALUE DISPLAYING

KB1 keyboard shows current state of previous settings by the light indicators during setting of several parameters. For example during a direct address selection is displayed the currently selected address. The address is displayed as a digit sequence. The address 123 is displayed by following 1,2,3 blinking. The address in a range 1-16 is displayed by the still lighting indicator 1-16. In case of the selecting address greater than 9 the light indicator 10 displays 0.

BEFORE LOOKING FOR HELP

YOUR TROUBLE	CAUSE AND ITS SOLUTION
After the power cord-connecting Kb1 doesn't beep.	The power cord is not connected. *Check the power socket and its polarity.* Insufficient power adapter. *Check whether the voltage and the consumption of the used adapter respond to demands of KB1 keyboard.*
KB1 responds only to KBD pressing.	There is no controlled device selected. *Select a device with its valid address.*
KB1 doesn't control remote device (doesn't beep twice after selection)	The keyboard or the controlled devices address is set wrong. *Check the address setting.* CAN bus is disconnected or not incorrectly connected. *Check the CAN bus connection, both at KB1 and at the controlled device. Check the cable and the bus terminator.* Controlled device is off. *Check whether controlled device is on and connected correctly to the CAN bus.*
KB1 doesn't control remote device and beeps long after key pressing.	Another user controls remote device. *It will be possible to control this device 5 seconds after the last use by another user. Wait 5 seconds and try again.*
During controlling several keys doesn't respond.	The key has no use for this device. *Check whether there is some use for the key to control this device. (Keys with no importance for the controlled device are ignored).*

TECHNICAL SPECIFICATION

GENERAL	
Input voltage:	12 VDC
Power consumption:	max. 2 W
Connector:	Concentric 5,5 × 2,1 mm
CAN BUS	
Number of addresses:	240 (1 – 240)
Baud rate:	50 kBd
Maximum bus length:	1000 m
Maximum stub length:	60 m
Cumulative stubs length:	300 m
Terminators:	120 Ω on both ends
Cable for bus length 0 – 40 m	0,25mm^2 - 0.34mm^2 (AWG23, AWG22)
Cable for bus length 40 – 600 m	0,34mm^2 - 0.6mm^2 (AWG20)
Cable for bus length 600 – 1000 m	0,75mm^2 - 0.8mm^2 (AWG18)
WEATHER CONDITIONS	
Range of operating temperatures:	0 – 40 °C
Humidity:	Max. 85 %
MECHANICAL SPECIFICATION	
Dimensions:	436 (W) x 34(H) x 46(D) mm
Weight:	0.6 kg