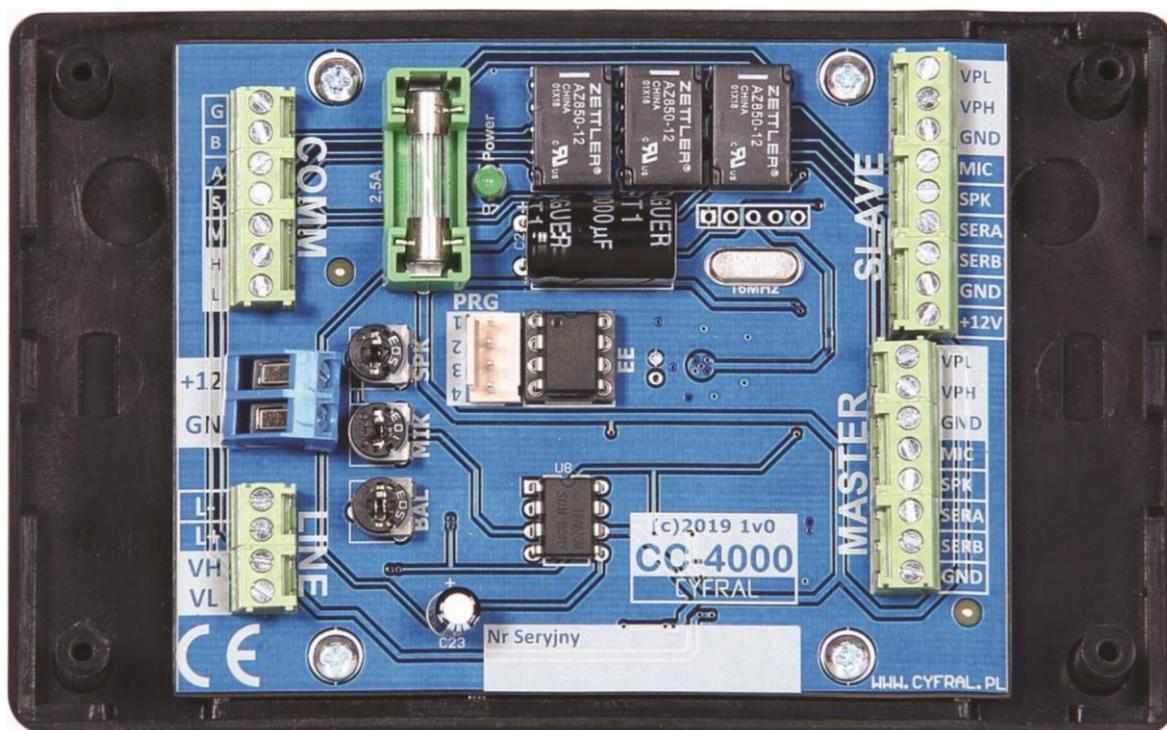


## CC-4000 CONTROL ELECTRONICS

### OPERATING, INSTALLATION AND PROGRAMMING MANUAL



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## 1. INTRODUCTION

Before installing the device, read the following operating instructions. Installation may only be carried out by a qualified person with the adequate qualifications.

This manual applies only to the CC-4000 control electronics which is part of the CC4000 system. The description of programming and connecting with the rest of the system elements can be found in the **CC4000 System Manual**.

CC-4000 control electronics and devices connected to it are only allowed to be supplied with very low voltage (ELV) with a value not exceeding the acceptable safe touch voltage. Power devices (12V DC power supplies) **must** comply with EMC and safety standards in accordance with applicable European Union standards and ensure full **galvanic isolation from the power grid**.

The device is equipped with a 2.5 A fine fuse It is forbidden to connect foreign installations and devices to the terminals of the CC-4000 board, as this may result in unforeseen operation of the device, fire or electric shock.

The device is intended for installation in a plastic housing inside rooms or flush-mounted housing of the PC-4000 panel. It is not allowed to install the CC-4000 control electronics on the building façade or fence posts.

Terminal marking on the CC-4000 board:

### POWER SUPPLY:

- +12V Positive power supply
- GND Supply minus

## COMM:

- G Signal ground
- B Serial communication B
- A Communication series A
- S Audio speaker signal
- M Audio sound microphone
- H Differential video signal (positive)
- L Differential video signal (negative)

## SLAVE:

- +12V Positive supply of the panel
- GND Supply ground of the panel
- SERB Communication series B
- SERA Communication series A
- SPK Audio speaker signal
- MIC Audio sound microphone
- GND Video signal ground
- VPH Differential video signal (positive)
- VPL Differential video signal (negative)

## MASTER:

- GND Supply ground of the panel
- SERB Communication series B
- SERA Communication series A
- SPK Audio speaker signal
- MIC Audio sound microphone
- GND Video signal ground
- VPH Differential video signal (positive)
- VPL Differential video signal (negative)

## LINE:

- L- Uniphone ground voltage
- L+ Uniphone line
- VL Differential video signal(negative)
- VH Differential video signal(positive)

## 2. DEVICE DESCRIPTION

CC 4000 control electronics is a device that fulfils the function of an entry system private control panel. It receives commands from the call panels and controls uniphones/monitors. It includes a full duplex sound channels, a sound splitter and a video splitter. It contains all subscriber settings such as:

- Table of subscribers. Each physical address of the uniphone has a subscriber number assigned to it in the range of 1-9999. E.g.: If to a physical address No. 5 a subscriber No. 100 is assigned, then after entering "100" on the keypad the control panel will send to the uniphone line a command to ring for the uniphone addressed with the jumpers on No. "5". By default, the subscriber table is set to 1:1 for all 255 physical addresses

- Subscribers' entry codes. There are four different four-digit codes assigned to each physical address of uniphone 1-255. When using the codes from the producer code table, it should be taken into account that the codes refer to **physical addresses** and not to subscriber's numbers. Nonetheless, if the table of subscribers is set in a 1:1 ratio, then the physical address corresponds to the subscriber number.
- Proximity keys for subscribers, eight keys per one property
- Non-recorded keys in the amount of 1024 pcs
- In addition, there is a factory table of opening codes in the memory which can be restored at any time. (It cannot be deleted by the installer/user).

The CC-4000 electronics is powered by 12-13.8V and 40mA DC. It should be assumed that the power supply should have a current efficiency of 2.5A. The SLAVE panel is powered from its terminals.

### 3. INSTALLATION METHODS

**INTEGRATED ELECTRONICS** in the PC-4000 panel housing. This method allows you to minimize connections between devices. It is mounted on four plastic pins. To ease installation of a flush-mounted box, the electronics board can be removed from the pins.

**ELECTRONICS RAISED** outside the panel. Installed in a surface-mounted plastic housing.

### 4. CONNECTING

**The power supply** is connected to a double threaded connection marked with terminals +12V and GND. The power supply cables should ensure the lowest possible voltage drop. Approx. 1 mm<sup>2</sup> of cross-section for every 20 meters of the power supply cable should be assumed. Single UTP cables are not suitable for this, because their cross-section is 0.2mm<sup>2</sup> which will ensure correct operation at a distance of up to four meters.

Correct connection of the power supply is indicated by a LED. If supply voltage falls below 10V, the LED will go off. When below 8V, the control panel will be reset.

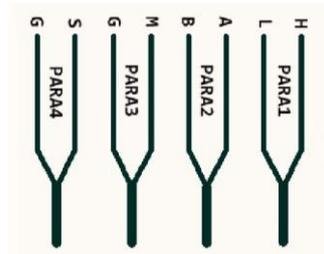
The power supply system is protected against reverse polarity and overvoltage.

Most switched-mode DC power supplies are commercially available with output voltage regulation. If it is possible, it is recommended to adjust this voltage to **13V**. This will allow to compensate for any voltage drops in the supply cables.

**Uniphone and video line** is a quadruple threaded connection marked as LINE. Cables for L + and L- uniphones should be connected with one pair of cables, as well as **VH** and **VL** video cables.

The resistance of wires in the uniphone line should not exceed 300 Ohm between the farthest devices and the CC-4000 board. Otherwise, it may be difficult to establish a connection.

**COMM interface** is a bus connecting in parallel all CC-4000 boards in a multi-input system. In a system in which there are single staircases without a hierarchy of inputs, this connector is left disconnected. Information is exchanged via this connector between all control electronics in the system and MASTER panels. It is recommended that the connection be made with UTP cable. A single pair is used for terminals B and A, another pair for terminals H and L. To connect S and M terminals, separate pairs should be used so that the two free cables from these pairs are connected to G.



**SLAVE** - Connector to which the SLAVE panel should be connected. Terminals + 12V, GND, SERB, SERA, MIC, SPK are connected to the six-pin connector on the PC-4000 panel board in accordance with the markings. The next three **GND, VPL and VPH** terminals are connected to the camera module in the PC-4000 panel. **GND** to GND, **VPL** to L, **VPH** to H. Terminals +12V and GND are panel power supply and should be of cross-section ensuring its correct operation. It is recommended for the power supply not to be run with the same cable as other signal cables. Approx. 1 mm<sup>2</sup> of cross-section for every 20 meters of the power supply cable should be assumed.

**MASTER** - Connector to which the MASTER panel should be connected. It differs in connection from the SLAVE connector in that it does not have a power pin. The rest of the connections are identical. MASTER panels are powered from their own power supplies.

**PRG** - A four-pin socket for connecting the GC-2000 programmer. The programmer allows you to view, edit and archive all settings on the PC disk.

**CAUTION!!!** If you connect the programmer to the CC-4000 board that is already part of the entry system installation - first connect the programmer to the CC-4000 PCB and then to the computer's USB port. Otherwise there is a risk of damage to the control panel.

For communication with the programmer, the CC-4000 power supply is not required.

## 5. ACOUSTIC CHANNEL

The control electronics are equipped with an advanced audio channel that provides excellent anti-locality with low susceptibility to acoustic feedback.

The CC-4000 board has three adjustment potentiometers that are pre-set by the manufacturer and do not change their position without clear need.

- **BAL** - potentiometer for adjustment of anti-locality - minimization of crosstalk between the panel's microphone and its loudspeaker. It **should not** be moved without clear need, as its correct adjustment in installation conditions may not be possible. The optimal position is located near the middle of the range of the "BAL" potentiometer
- **MIC** - adjustment of gain on the channel: panel microphone -> uniphones line. Its adjustment can only be useful in video systems. In other cases, its location should remain in the middle of the range. The volume in the uniphone headphones is made by the appropriate potentiometer on the uniphone board.
- **SPK** - regulation of sound intensity in the panel speaker. The principle is that the volume should be sufficient for intelligible voice communication. Setting the volume too high can result in unexpected feedback and interjections.

## 6. CONNECTION OF UNIPHONES AND VIDEO DISTRIBUTORS

CC-4000 control electronics works with all digital uniphones from CYFRAL, i.e. SMART-D and MAC-D. All uniphones are connected in parallel to L + and L- terminals. Connecting other uniphones or a uniphone of another company may block the operation of the entry system.

The correct voltage prevailing on the line of uniphones during idle mode is 9-10V. During a call 4.5-5.5V. Other voltages suggest incorrect operation.

In the Video system, connect the **DV-4** signal distributor to the **CC-4000 PCB**. It is connected with four wires to the terminals **LINE "L +" "L-" "VH" "VL"**. It is necessary to remember that addresses programmed in distributors cannot be repeated. In addition, the **"H" "L"** video cables must be terminated on the last distributor line.

In order to facilitate the installation of uniphones, use the "Installation mode" program, its detailed description can be found in the manual for the CC4000 system.

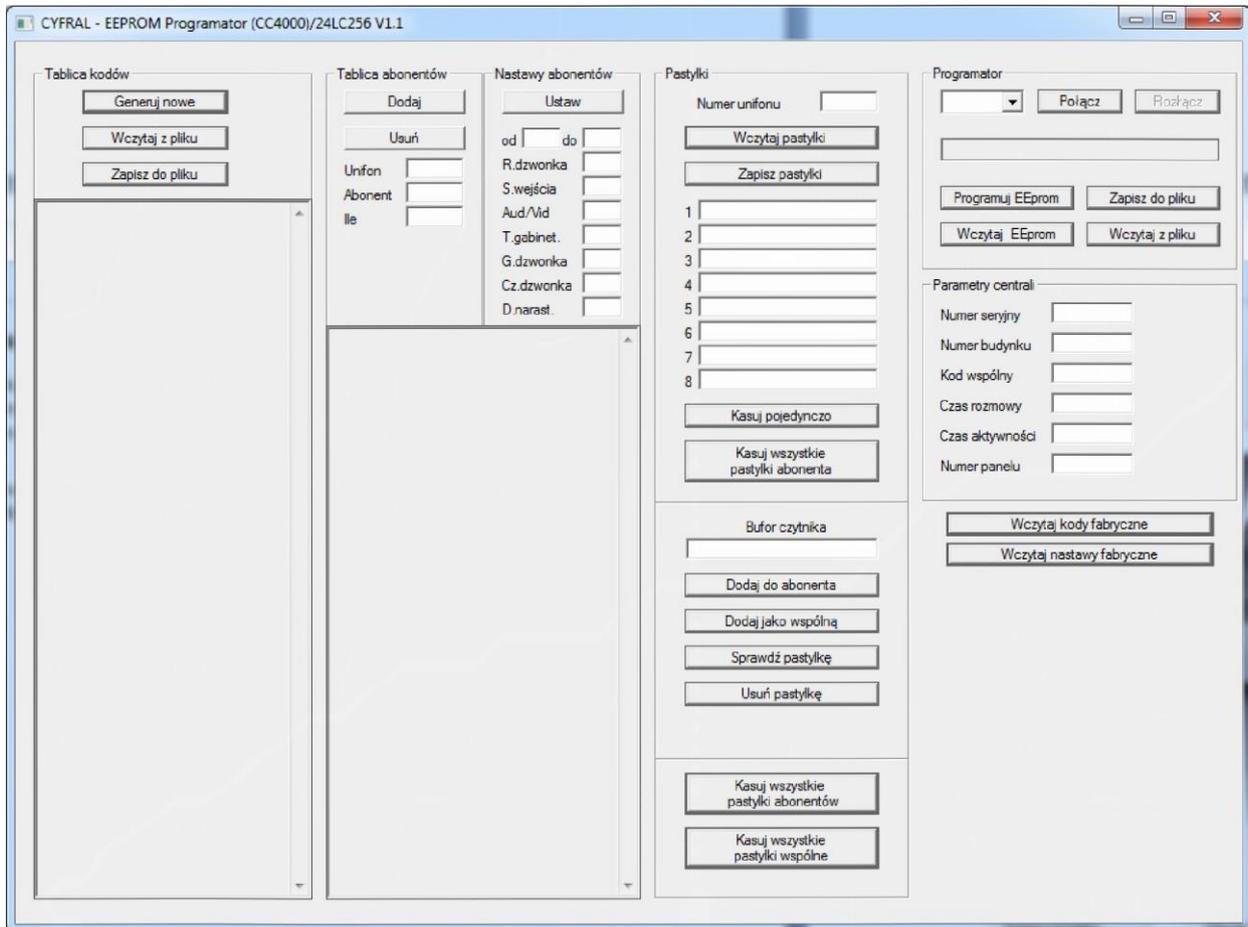
## 7. SERIAL NUMBER

Each CC-4000 board is identified in the CC4000 entry system via a unique 6-digit **serial number** starting with digit: 6xxxxx. The pre-defined paper code table, constituting a factory table, is assigned to this number. The serial number is located on the circuit board and as a sticker on the EEPROM memory. If the number on the stickers is illegible, you can use the GC-2000 programmer. Knowledge of the serial number of the control electronics is necessary to assign it to the panel during programming. It is not possible to change it.

## 8. PROGRAMMING

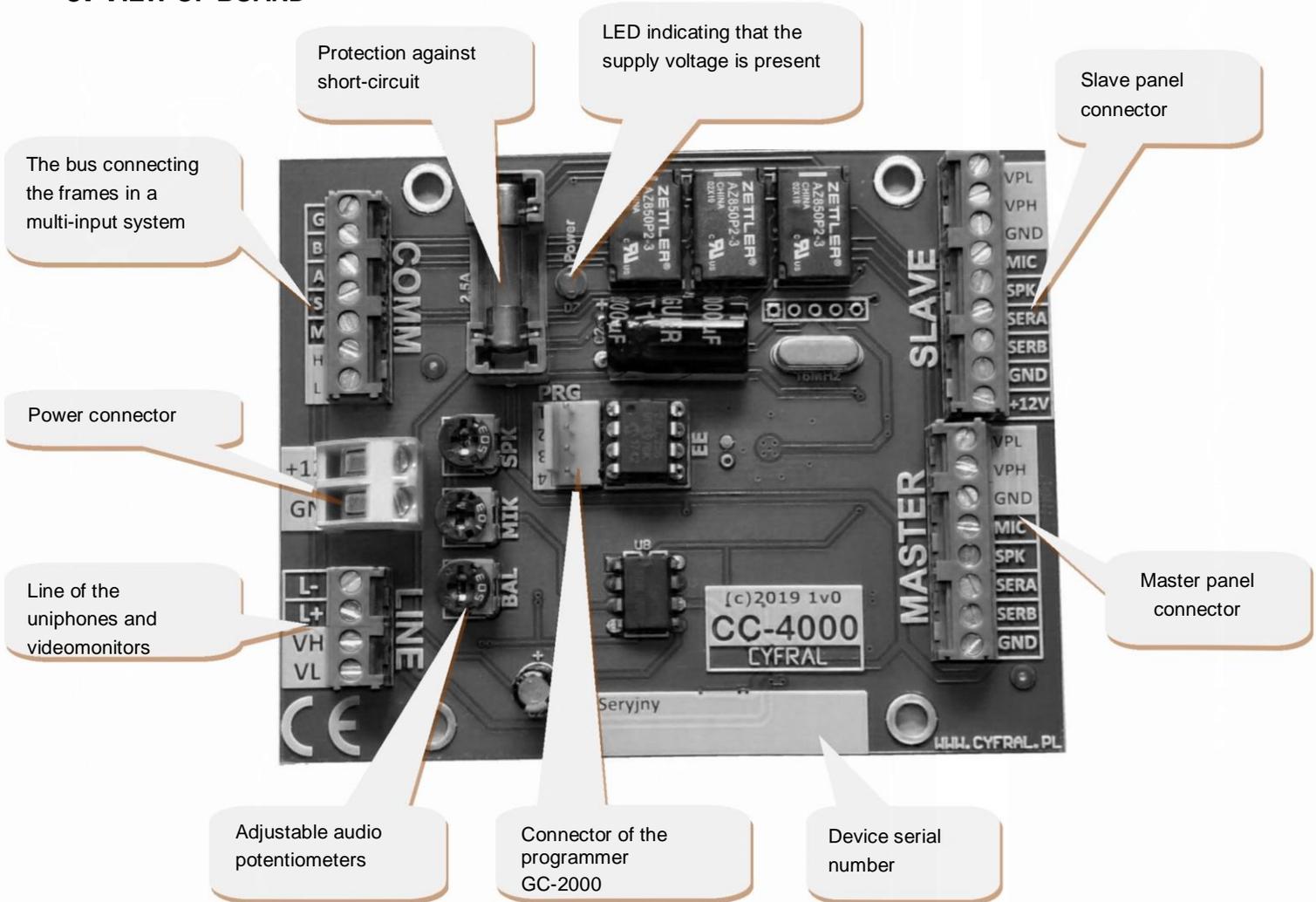
The control electronics house a number of settings, keys and codes in their memory. All parameters can be changed from the PC-4000 digital panel. The entire procedure is described in the CC4000 system manual. The panel programs from P02 to P05 relate to the control electronics settings.

It is possible to change the above settings using the GC-2000 programmer. It is connected to the "PRG" connector on the CC-4000 board. The settings edit window is shown below:



With the programmer, you can archive settings on a computer disk, download pre-stored settings, edit opening codes, add/delete electronic keys, change individual settings in groups, edit the table of subscribers and more.

## 9. VIEW OF BOARD



## 10. TECHNICAL DATA OF THE DEVICE:

- Supply voltage.....12-13.8V DC stabilized
- PC-4000 board current consumption .....about 40mA
- Max. power consumption.....about 250mA
- Dimensions with housing .....130x80x33mm
- Overcurrent protection .....2.5A
- Protection class.....IP30
- Transmission speed RS-485 .....3kbps
- Surge protection