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Installation and user manual for PRO system digital panels:
COMO-PRO-CODE-Vx / COMO-PRO-CODE-Ax

GENERAL INFORMATION

COMO PRO CODE (generation 3) digital video door entry panel is dedicated to single- and multi-family houses that require transmission of video signal along with audio signal. The panel can also be used internal communication between receivers. The panels are available in COMO-PRO-CODE-Vx version with built-in camera as well as in COMO-PRO-CODE-Ax audio version (without built-in camera - in which case the panels work the same way, except for missing the video functions). It is also possible to connect an external camera to audio panels - the system operation will be similar to that with a built-in camera (for details of this solution, contact Aco technical department).

The front part of the panel is made of stainless steel, which provides effective mechanical and weather protection.

IMPORTANT! Always use cleaning agents based on alcohol only when disinfecting panels made of stainless steel. Any chlorides (which are present in common cleaning products) are harmful to the steel surface, causing abrasion of its natural protective coating and increasing the risk of corrosion.

The panel features a backlit keypad of a code lock for gate/door opening using an individual 4-digit code and up to two independent backlit call buttons that can be assigned to specific apartments. The panel also features illuminated description fields next to the buttons, to fill in apartment number or other information. It also features an integrated proximity key fob reader for gate/door opening directly from the panel (two key fobs are included).

The panel is powered by energy-saving PS45-15-PRO-13 switched-mode power supply unit with built-in video splitter: 1 panel input, up to 3 outputs for monitors or outputs for audio receivers. The door entry unit supports receivers of the PRO system: video receivers include such as units as: GLASS-PRO-7, MPRO 4, MPRO800 3.5 series, and audio receivers: UPRO or UPRO800 series. The door entry unit is easy to handle, functional and its installation is simple. After connecting the optional PRO-I/O-60 module (module with built-in relay and input for additional button) it enables control of external devices, such as gate, barriers, roller shutters, lighting. The PRO-I/O-60 module can also function as a doorbell - after connecting the bell button, the receivers will ring in different ringtones (PRO receivers can also be connected directly to the bell button, but it is necessary to install additional cables to each receiver that is to perform this function).

The wiring (topology) of the door entry unit is based on UTP min. cat. 5e for a video door entry unit or any three wires for an audio door entry unit Note that cable cross-section is important for maximum distance between the power supply and components of the door entry system.

The panel is preconfigured in a way that its settings are suitable for most cases - therefore no configuration of the unit is necessary - it will work immediately after powering up. Configuration of all settings is possible only via the "PRO 3 MANAGER" PC application and optional PRO-USB 2.0 modules for connecting the system to a PC (to be purchased separately). The PRO 3 MANAGER application can also be used to manage proximity key fobs and for software updates. All applications are available free of charge at www.aco.com.pl. PRO-USB 2.0 can be connected anywhere in the intercom installation and will manage the settings of all generation 3 PRO devices. Adding and deleting proximity key fobs is also possible using the master key fob, which is included in the set (without connecting the panel to a PC and without having to disassemble the panel).

Generation 3 PRO includes:
- Programming settings and software update via system bus (optional PRO-USB module required)
- Individual number of each module (Dev ID)
- Compatibility with earlier PRO system generations
- Connecting two door entry panels in one system, i.e. master and slave (to switch the camera signal it is necessary to use the PRO-VIDEO-SW2-60 (G3) camera switch module)

TECHNICAL PARAMETERS

• Supply voltage	15VDC ±5%
• Standby power consumption	~2.5W
• Maximum power consumption	400mA
• E-lock supply voltage	12VDC - 15VDC
• Permitted load of E-lock output	1,5A
• Output type	normal or reversible (by default: normal)
• Lock activation time	0.6 to 25s (by default: 4s)
• Type of output control	pulse to E-lock (default) or fixed to relay
• Camera viewing angle	approx. 90º
• Horizontal and vertical camera adjustment angle	20º
• Connector type	RJ45 socket/removable ARK screw connectors
• Housing material	Stainless steel
• Resistance of external opening input	≤ 20Ω, input type: NO
• INPUT delay time	0 - 25s (default: 0s)
• Front dimensions (H x W)	Video 286 x 90 mm, Audio 197 x 90 mm, Audio surface-mounted 174.8 x 67.8 mm
• Standard of supported proximity cards (RFID)	Unique 125 kHz
• Maximum number of supported proximity cards	10 for each address/call button (or 10210 available via the PC application)
• Maximum number of supported codes	1 for each address/call button (or 1024 available via the PC application)

OPERATION

The panel will ringing upon pressing the call button, as long as the system features a receiver with the address is assigned to the pressed button. If no such receiver is present, the panel will not ring and will generate a busy signal. By default, the buttons ring addresses from 1 (lower button) and 2 (upper button), and this can be freely changed via the PC application from 0 to 1023, where 0 is used to ring all receivers in the system. If the system features a <u>receiver</u>, which is set to address 0 (so called broadcast; default setting of <u>receivers</u>) the panel will call it using any call button.

By default the ringing tone lasts 45 sec. and if a call is received on the receiver during this time, a voice connection is possible (by default, the connection can take 4 minutes).

Door opening (typically activation of the E-lock connected to the ELOCK output) can be done from the receiver (the "key" icon) or from the panel: after typing in a proper code, bringing the entered proximity key fob to the window, as well as using optional external button connected directly to the panel (INPUT terminal or PRO-I/O-60 module).

Only the code for the lower pushbutton, **1111,** is set by default (other codes are disabled and can be activated via the PC application or for the upper pushbutton by resetting the default code -> refer to the section on changing the codes.). **Please note!** It is recommended to change the code after installing the panel. When the door is opened with the code or key fob, a soft beep will be heard in the receiver. The panel will give a short triple beep when trying to use a key fob which is not registered. If entering the code or using the key fob is preceded by pressing the "key" button on the keypad, it will activate an additional device, such as a gate (this requires an optional PRO-I/O-60 module).

Using the PC application the opening time can be set to between 0.6s and 25s (by default 4s) and the delay to between 1s and 25s (by default 0) after which the door will open from the moment of pressing the external button connected to the INPUT terminal of the panel. When two panels are connected, the master panel always has priority and performs all functions by default, for instance in standby mode it will open the door or start a call. When ringing and during conversation the calling panel will automatically broadcast the image and the door can be opened using only that panel. Only one panel can be used to call, the other panel will generate a busy signal when trying to use it.

CHANGING CODES, ADDING AND REMOVING PROXIMITY KEY FOBS

The code can be changed as follows: Enter the current code, then within 1.5 second press and hold the "key" button (for approximately 4s), until the panel emits a single beep. Then enter a new four-digit code, which the panel will confirm with a triple sound. Resetting the default code and activating the code for the upper push button (default code 2222) can be done the same way as adding the master key fob - see point 1 below

Adding and removing the key fobs is most conveniently done directly on the panel, using the "Master" key fob, which is always the first one added, independently for each address/call button. A maximum of 10 key fobs can be added for each address/call button. Proximity key fobs can also be managed using the PC application (PRO 3 MANAGER) for easy adding and removal of key fobs, for backups as well as for transferring stored key fobs to other panels.

PLEASE NOTE! For panels supplied with two key fobs (master and regular) these key fobs are already registered so point 1 can be skipped. The panel will give a short triple beep when trying to use a key fob which is not registered.

1. In order to add the "master" key fob and set the default codes (lower button: "1111", upper button: "2222"), turn off the panel power supply, press the call button that corresponds to the address for which the key fob needs to be added/default code needs to be restored and then (while holding the button) turn the power back on. The panel will generate a continuous tone, which means that all key fobs added to the address/call button have been deleted and the default code has been restored - then release the button. The panel will start to generate a fast intermittent tone - during this time apply the master key fob to register it. When applying a registered key fob the door will open immediately.

2. To register another key fob, not yet registered, apply it together with the "master" key fob (to the same address as the master key fob). It must be done within approx. 5s from starting the opening with the master key ring, otherwise the panel will terminate key fob adding. When key fob registration is successful, a short continuous beep will be heard.

3. In order to delete all key fobs added to the address/call button, press and hold the call button when opening using the master key fob until the panel starts generating fast intermittent sound - then release the button. All key fobs will be deleted, including the master key fob. If during this fast intermittent sound the key fob is applied it will be added again as a master key fob (similarly to point 1) When deleting key fobs added to address/call button, remember to open the door with the "master" key fob assigned to that address/call button and also press the button used to call that address.

4. The panel can also support one 1 administrator's code and 10 administrator's key fobs, not assigned to any receiver address. Adding an administrator's code and administrator's key fobs is only possible via the PC application.

SYSTEM ASSEMBLY AND CONNECTION

Connect the door entry unit following the diagram in Fig.2 **with power off**. It is recommended to use RJ45 connectors and twisted-pair cable (UTP min. cat 5e). In this case, the maximum cable lengths is: 100m between the panel and the power supply and 70m between the monitor and the power supply (for information on longer connection lengths refer to Fig. 3). All RJ45 connectors must be crimped the same way as per **T568B**. For an audio system, the minimum required number of wires between the main module and the receiver is 3 wires (min. wire diameter 0.5 mm / then the maximum distance between the panel and power supply unit is 50m).

Before turning the power on, make sure that all connections correspond to the diagram, the RJ45 plugs are crimped correctly and no short circuit is present between wires.
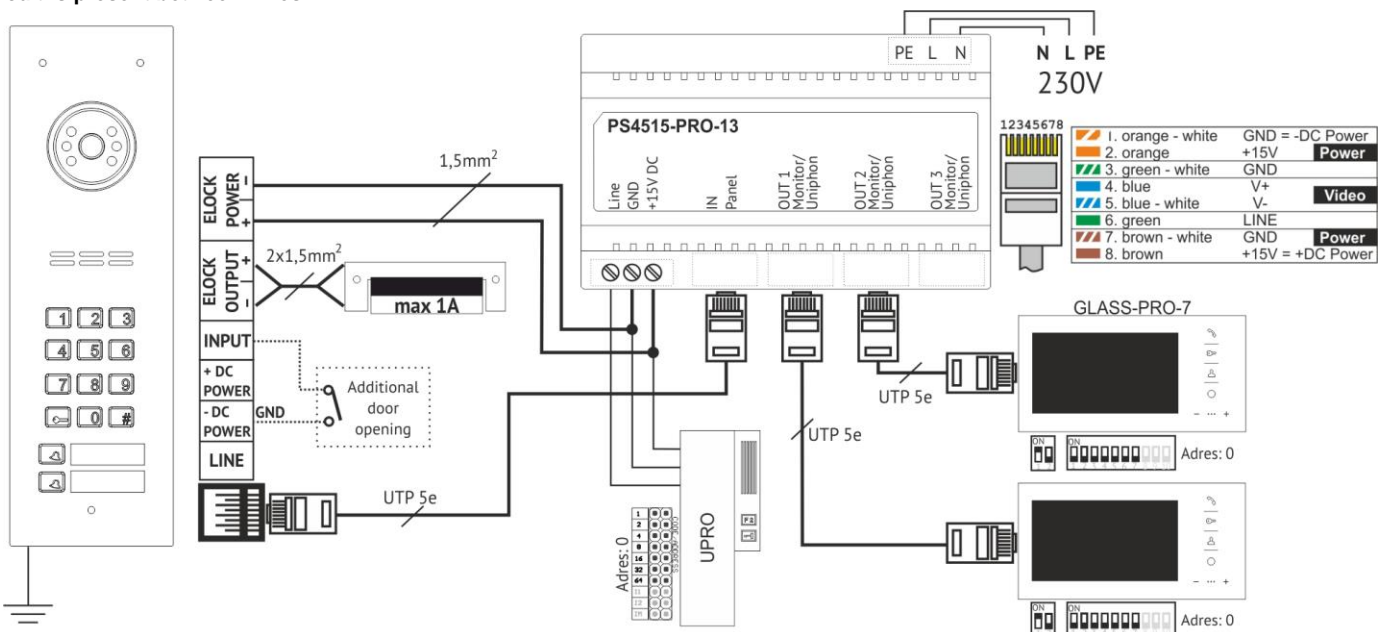

Fig. 1 Example wiring diagram of a panel in a video system.

If the RJ45 is not used, connect to screw terminals: power supply to +DC POWER and -DC POWER (GND) terminals, signal line (communication / audio) to LINE terminal, video signal to the V+ and V- terminals.

Connect the external NO-contact button ("ringing" button) to INPUT and GND terminals; this button will then be used for direct door opening (or for calling an apartment - after changing the settings via the PC application).

Connect the E-lock to ELOCK OUTPUT terminals (+ and -) and connect its power supply to ELOCK POWER (+ and -). In this case it is recommended to use wires selected based on the current drawn by the E-lock (typically 1.5mm^2) and to ensure the distance according to fig. 3. The ELOCK OUTPUT is set by default to "E-lock" mode - the output voltage will appear during opening and will be modulated accordingly, so that if DC voltage +15V, 12V can be used for the E-lock. In the settings, the ELOCK OUTPUT can be changed to: "Reversible" (such as when connecting a reversible E-lock) - in this case the voltage on the output will be lost during opening or "Relay" type - the voltage on the output will appear during opening without additional modulation (for instance when connecting a relay). **PLEASE NOTE!** For the "Reversible" and "Relay" type, the value of the voltage connected to the ELOCK POWER input will appear directly on the output and it is necessary to use a power supply unit with parameters consistent with the E-lock/relay (AC power supplies can also be connected to ELOCK POWER - then the output control type must be set to "Relay"). Then the <u>distance</u> between the power supply unit and the panel <u>is short (up to several meters),</u> the E-lock can be powered using the power supply voltage of the panel (twisted pair - UTP). For this purpose jumpers J2 and J3 should be inserted. **This type of connection is not recommended and depends on the type of E-lock used - use a separate wire for the E-lock if in case of improper operation of the system.**

The above diagram example uses the dedicated and recommended PS45-15-PRO-13 power supply, which features a built-in splitter for connecting more monitors. If the door entry installation requires one receiver or if it is an audio installation, PS-MDR-20-15 power supply can be used - **then all connections should be made using screw connectors rather than RJ45.**

PLEASE NOTE! For proper system operation and user safety, it is recommended to connect the PE terminal to the panel housing. To do this, unscrew the M3 nut marked as ⏚ (by the panel speaker) and then crimp the yellow/green protective conductor of the electrical installation onto the supplied ring connector. Finally, screw the connector back on in the same place.

For proper transmission of video image (without interference and distortion) it is necessary to use UTP cable min. cat 5e. For connecting other signals, another type of cable (such as a door entry system cable) can be used. The manufacturer guarantees correct operation of the system when using cables featuring UTP min. cat 5e parameters. When using other types of cables, the user is required to test the correct operation of the system.

In order to properly connect the PRO-USB 2.0 module to manage the settings of all devices of the PRO door entry system, it is recommended to use RJ45 connectors for connection between the power supply unit and the panel or between the power supply unit and the receiver, or for connection directly to the power supply unit output **(Please note!** PRO-USB must not be connected directly to the panel). Alternatively, screw connectors can be used, connecting anywhere on the system bus using the following terminals: +DC POWER, -DC POWER (GND), LINE. Proper connection of the PRO-USB module to the door entry system and the PC is signalled by all three LEDs lighting up.

Multiple panels.

If the panel is used as a stand-alone device, leave jumper J1 (Master/Slave) open (position: Master). If multiple panels are connected in the system, one of them must be set as the master panel and the others as slave panels (jumper J1 closed). In the video version, up to 2 panels can be connected together and the optional PRO-VIDEO-SW2-60 (G3) camera switch must be used for this purpose. In the audio version, up to 4 panels can be connected together and are connected directly to +DC POWER and -DC POWER (GND) and LINE terminals.
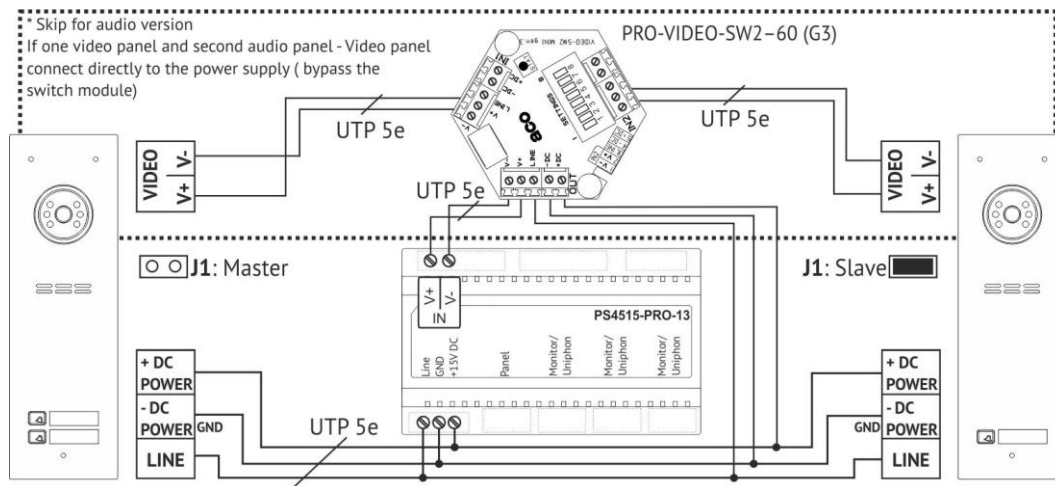

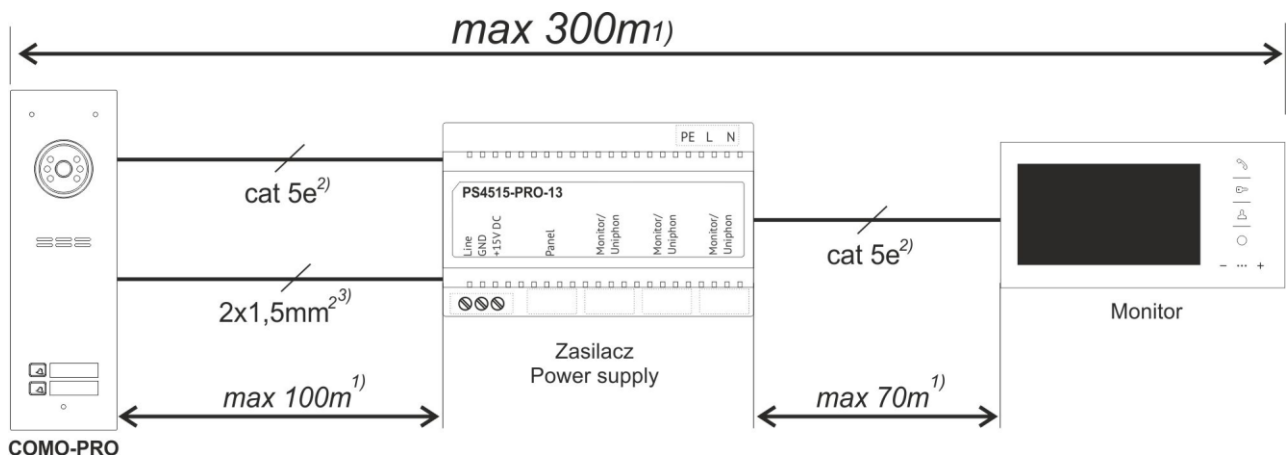Fig. 2 Example wiring diagram of a panel in a video system.

Notes on line length:

Fig. 3 Maximum line lengths.

1) The distance recommended for cat. 5e can be extended by increasing the cable cross-section (for instance cat. 6e or by adding thicker cable for LINE, -DC POWER, +DC POWER signals). To connect the door entry unit over a distance of more than 100m, use an additional power supply connected directly to the panel.
2) A UTP cat 5e is required for proper video transmission, other types of cables may cause image interference
3) Power supply for E-lock (if required), no separate power supply for E-lock

1)2)3) If other wires than those recommended are used for connection of the system, or distances are longer than those specified, installation is possible, but a test connection of the kit should be carried out and the correct functioning of the whole system should be checked. Avoid arranging wires (in particular Audio/Video signal wires) close to wires from other installations (power, telecommunication, alarm systems) as this may adversely affect the operation of the system. More information is available at www.wsparcie.aco.com.pl, by sending an email to: bok@aco.com.pl , or by calling us (contact details available at www.aco.com.pl).

Volume settings.

The call volume of the panel is pre-set (as shown in Figure 5) and requires no re-setting. To change the volume settings, connect to the monitor as follows:

- adjust the sensitivity of the unit microphone using the "**MIC**" potentiometer,
- adjust the unit speaker volume level of the unit using the "**SPK**" potentiometer.
Fig. 4 Volume control potentiometers.

As these values are set, use the "**BALANCE**" potentiometer to determine the position of the excitation points (squeak) in the loudspeaker of the door entry unit and set the potentiometer halfway between these points. The volume of sounds emitted by the module is set using the "**BEEP**" potentiometer.

Assembly

The panel should be assembled so as to minimise the impact of adverse weather conditions, in particular water. Make sure that the camera is installed at the desired height. Typically that height is 1.60 m from the ground. For optimal field of view of the camera, verify the installation location and position of the panel by trial and error. Avoid locations where the camera lens may be exposed to direct, perpendicular, light (from the sun, street lamps, etc.).

Install the **flush-mounted back box** (or flush-mounted adapted) in the appropriate wall opening, using holes **5** and rawlplugs (or screws) as well as gypsum; make sure that the back side of the box flange **A** is flush with the mounting surface. When mounting on a steel pole (or on similar structure with a maximum wall thickness of 32 mm), use an additional MONT-PPT-FAM set of gaskets and screws: **3** - available as an option. Run the wires through hole **1** in the box base (cut out the cap if larger hole is needed). Use additional holes **4** for makeshift installation with nails etc. when mounting the unit in soft materials such as polystyrene. Holes **4** also make installation easier when using mounting foam. The cover cap **2** should be cut out in order to install the add-on module in its place. For the best possible tightness, cut out only those holes that are necessary to install the panel. Check the condition of the gasket on box **B**. Cracks, deformations and soiling of the gasket may lead to loss of tightness.
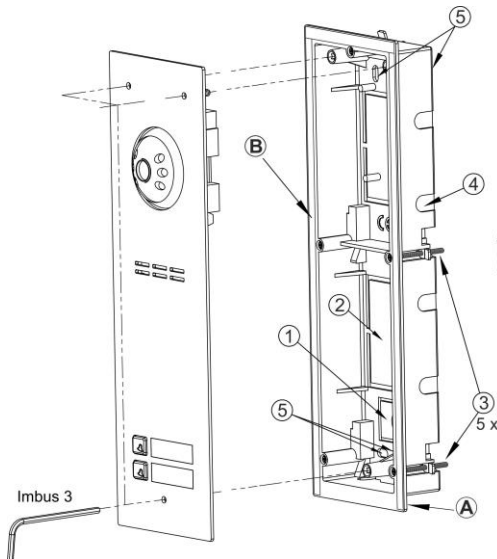
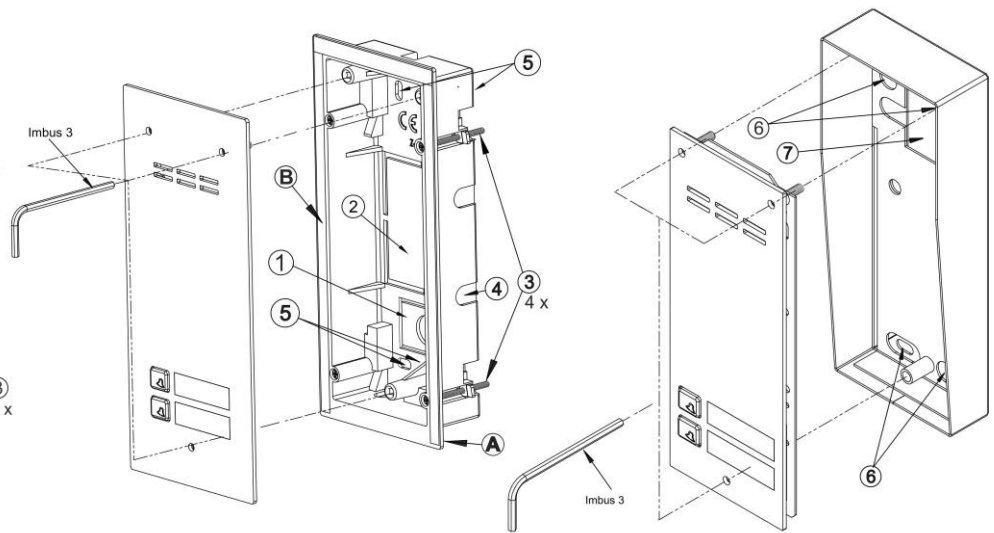Fig. 5 Mounting the flush-mounted panels   Fig. 6 Mounting surface-mounted panels

Install the **surface mounted box** in a suitable place, using holes **6** holes and rawlplugs or suitable screws. Pull the wires out through the hole with gasket **7** in the base of the box - pierce the gasket with a sharp pick (NOT a knife) and press the wires tightly through the hole. Then screw evenly all screws of the housing to the back box using a 3mm Allen wrench.
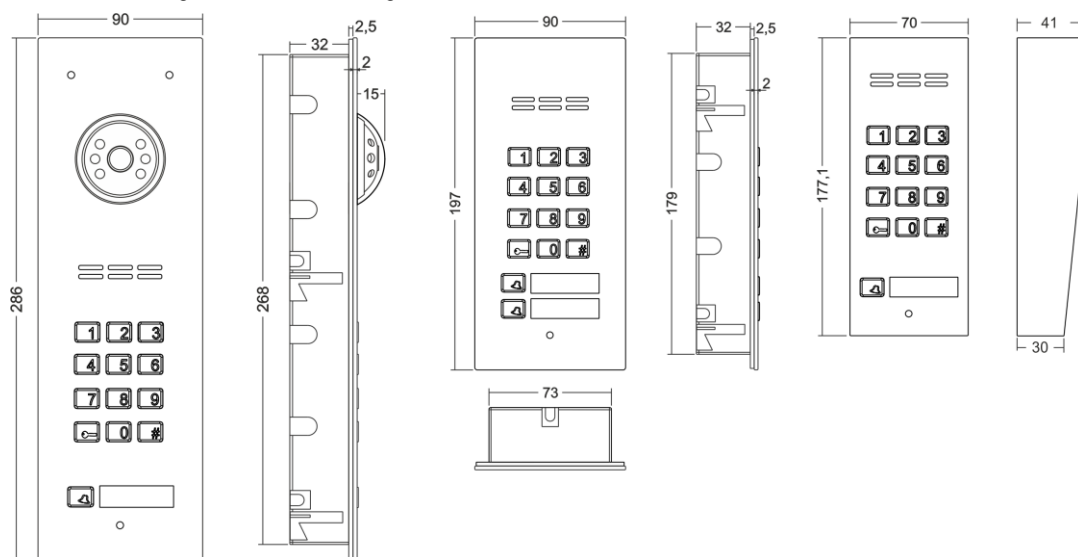
Fig. 7 Panel dimensions

RULES FOR STORING WASTE ELECTRICAL EQUIPMENT

Waste electrical equipment must not be disposed of with other waste. It should be stored in places designated for this purpose. For this purpose, please contact the responsible institutions or companies involved in waste recycling. - Directive 2002/96/EC of 27.01.2003