CONV5 – PELCO <-> SENSORMATIC v 1.3

PTZ protocol code translator

MANUAL GUIDE

The is microprocessor based device, designed to integrate any CCTV equipment using Pelco-P / Pelco-D protocol (speed dome cameras, PTZ keyboards), DVR's, etc) with Sensormatic CCTV equipment. The CONV-5 is two-way translator – Pelco to Sensormatic or Sensormatic to Pelco depend on the configuration. Sensormatic devices are connected to 2-wire or 4-wire RS-422 interface and equipment with Pelco protocol is connected to RS-485. The code translator can support only one camera with Presets storing Pattern function or multiple cameras with simple translation – P/T/Z moving only.

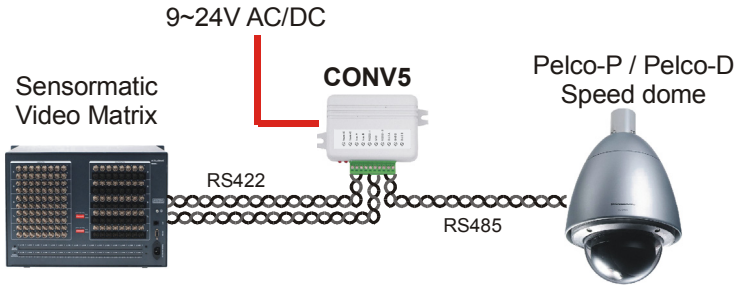
Only one type of translation can be selected at the same time, only Sensormtic to Pelco or Pelco to Sensormatic. Extended functions like Presets and Pattern are stored with internal memory of the translator CONV-5.

Before device installation, carefully read this manual guide.

Structure connection

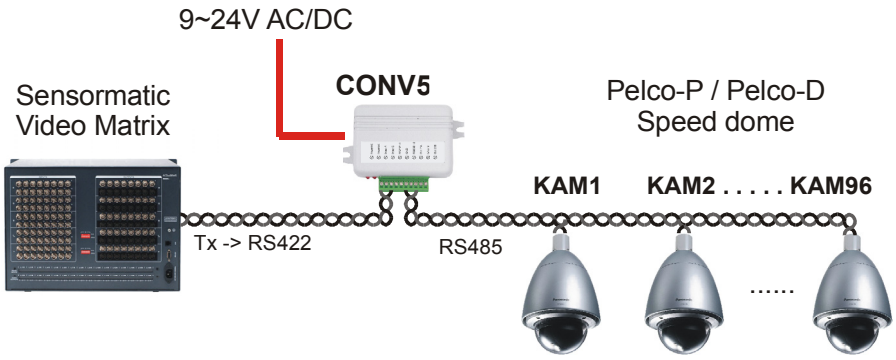
Translation Sensormatric to Pelco-P / Pelco-D – support only one camera

Each converter supports one camera with Pelco protocol with storing 60 presets and Pattern function.



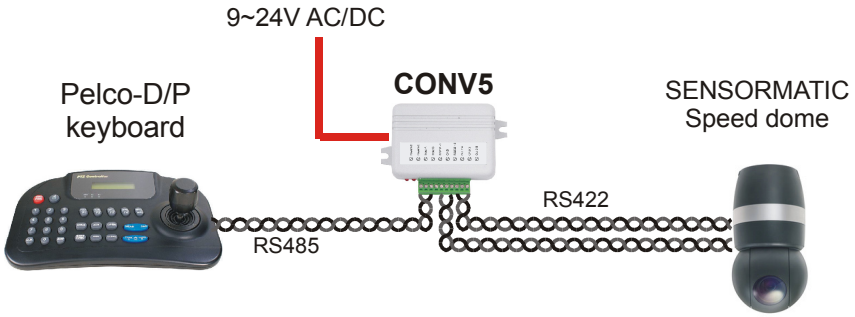
Translation Sensormatric to Pelco-P / Pelco-D - support multiple cameras

Each converter supports multiple cameras with Pelco protocol, but only motion commands can be used– without presets and Pattern function.



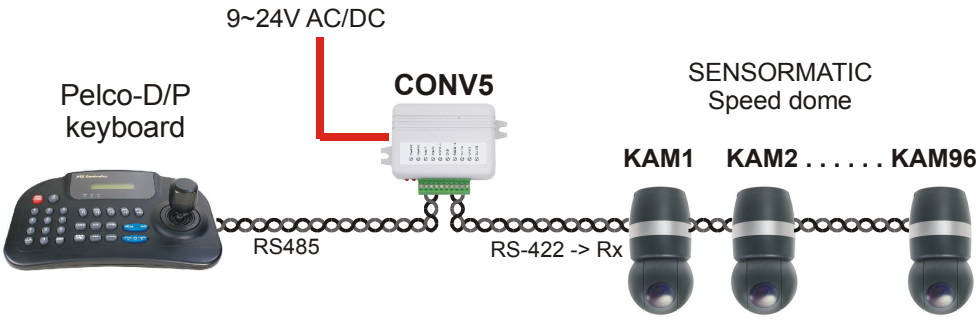
Translation Pelco to Sensormatic – support only one camera

Each converter supports one camera of Sensormatic, with storing 60 presets and Pattern function. Camera of Sensormatic do not have memory for presets. They are stored always in converter memory.



Translation Pelco to Sensormatic – support multiple cameras

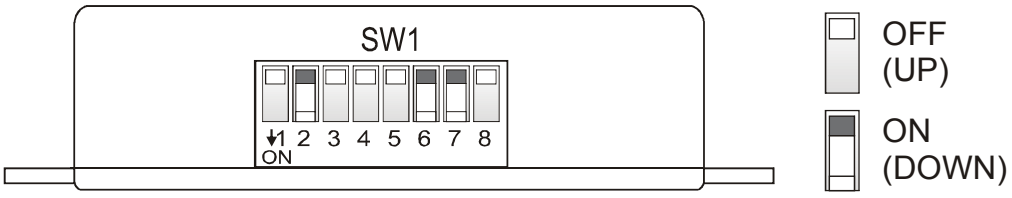
Each converter supports multiple cameras with Sensormatic protocol, but only motion commands can be used– without presets and Pattern function.



Switches and connection terminal

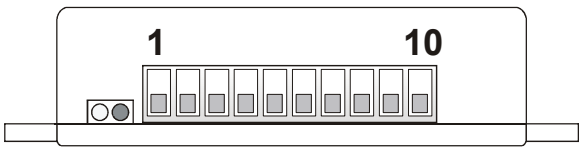
CHANGE CONFIGURATION

DIP switches are used to configuration of the CONV5. To change most configurations, power supply must be disconnected from the unit. Other some changes will no have the effect.

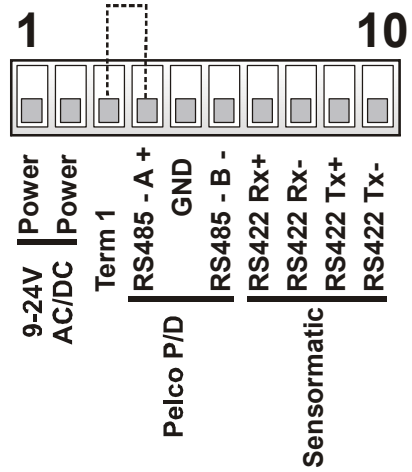


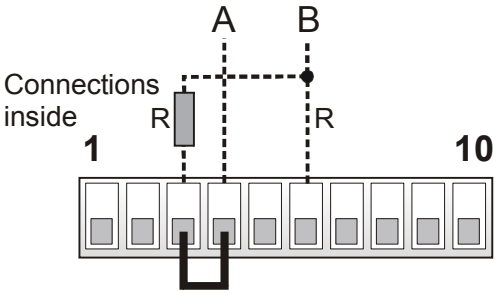
CONNECTION TERMINAL

○ **LED1** – Transmission indication of input data
● **LED2** – Transmission indication of translation



LED lights are flashing due the time of transmission in proper protocols. The lack of flashing means connection error or converter switches setting.





Power Supply: 9~24V DC / AC

Sensormatic
RS-422, designed to connect converter to Sensormatic Video Matrix or Sensormatic Speed Some – depend on configuration

Pelco P /D
RS-485, designed to connect Pelco Speed Dome, (Pelco-D or Pelco-P protocol) ora PTZ keyboard with Pelco.

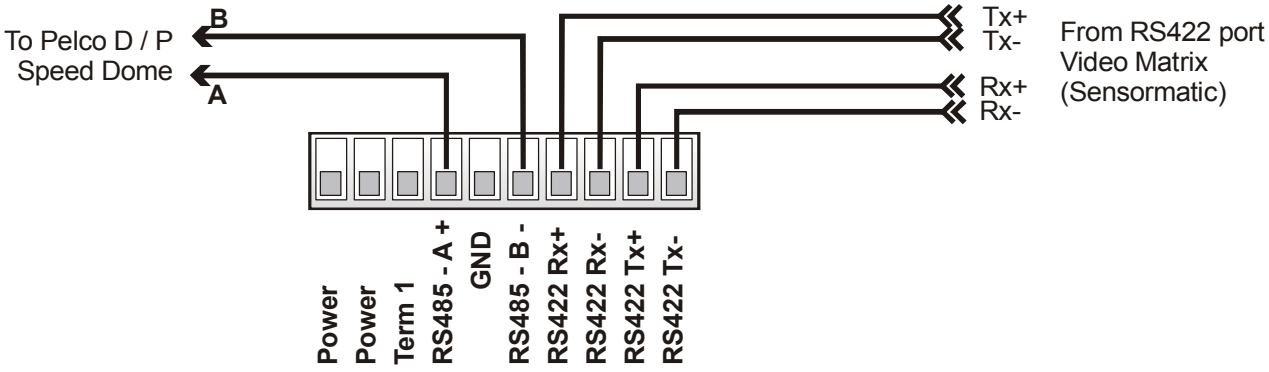
GND: These are terminals for connecting the shielding of the RS-485 (cable shield).

For long cables of RS-485 bus, should be connected to terminating resistor (120 Ohm). This will prevent wave reflections in cables, which are cause of transmission errors.
Terminating resistors should be connected only on first and last devices. To many resistors will cause an excessive burden of transmission.

The CONV-5 translator have internal resistor only for RS-485 port. To close terminating resistor please make wire link between TERM and A+. terminals. For RS-422 must be used external resistors between + and – terminal – only when cables are longer than 50m.

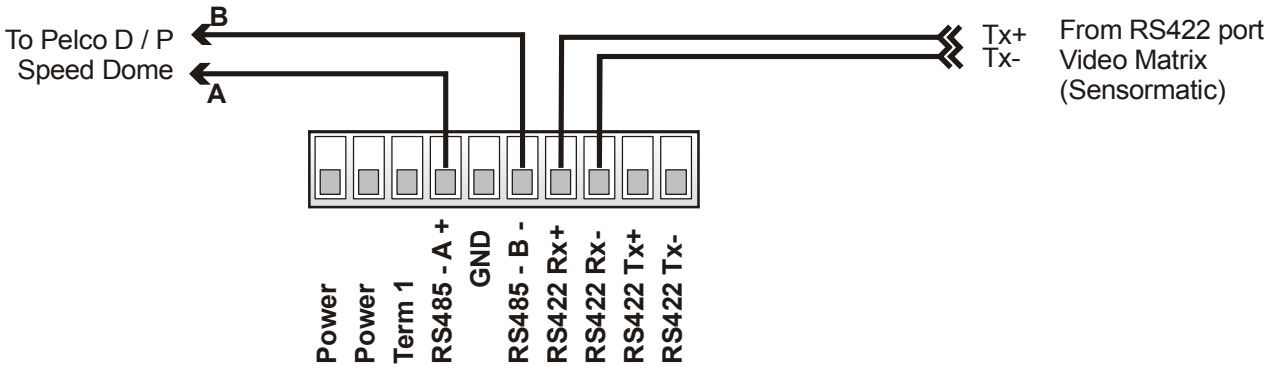
TRANSLATION SENSORMATIC TO PELCO

CONNECTIONS FOR ONE CAMERA SUPPORT MODE



Above drawing explains how to connect one camera in mode, which supports Preset and Pattern function. For this mode 4-wire connection of RS-422 bus is used. We suggest to place translator direct at Sensormatic Video Matrix. If more Pelco cameras is needed to connect in this mode, one translator per one camera must be used. Everything translator must be connected in the same port of Sensormatic Video Matrix

CONNECTIONS FOR MULTIPLE CAMERAS



Above drawing explains how to connect many cameras with a single converter. Because in this mode memory of converter can not be used, Presets or Pattern functions are not available.
For connection in this mode, only two wires of RS-422 port is needed. Converter will operate camera addresses 1-254 (dependly on matrix switcher configuration).

GENERAL CONFIGURATION FOR TRANSLATION SENSORMATIC TO PELCO

1. Disconnect power supply from the CONV5
2. **Set the switches DIP 8 and DIP 5 to ON position.**
3. Set other switches as you need
4.Connect power supply into the CONV5
5. Wait until red LED will start flashing, then disconnect a power supply.
6. **Set the switch DIP 8 to OFF position – (DIP 5 leave ON)**
7. Connect power supply into the CONV5

Description of switches:

Transmission speed Pelco camera	2400baud	4800baud	9600baud	19200baud
DIP 1	OFF	ON	OFF	ON
DIP 2	OFF	OFF	ON	ON

Switches defines transmission baud rate for Pelco-P / Pelco-D camera.

Output protocol	Pelco-D	Pelco-P
DIP 3	OFF	ON
Switch defines type of output protocol for Pelco.		
Address decrement	Not active	Active
DIP 4	OFF	ON

Switch turnes on/off decreasing address (value 1) for Pelco-P protocol, while converting data. Because in Pelco-P protocol starts address from „0”, can be neccesary to use this function to save bigger compatibility.

Conversion mode	Pelco to Sensormatic	Sensormatic to Pelco
DIP 5		ON

To get translation from Sensormatic to Pelco, DIP No5 must be ON during change configuration.

Saving configuration	
DIP 8	To save configuration, must be turned ON

SELECT CONFIGURATION FOR ONE CAMERA OT MULTIPLE CAMERAS

Setting address determines support one camera or multiple cameras. When address is set as **NONE** translator dues support multiple cameras. When any address is set, translator does support one camera with determined address. **Address is binary set in according to the following table.**

1. Disconnect power supply from the CONV5
2. **Set the switches 1~8**
   (DIP 8 must be OFF!!! – other general configuratin will be changed, not address).
3. Set address required address (for multiple cameras "NONE" – DIP1-7 OFF)
4.Connect power supply into the CONV5

If you want to change address again, please reply steps 1-4.

Address	1	2	3	4	5	6	7	8
NONE	All TURNED OFF – mean support multiple camera							OFF
1	●							
2		●						
3	●	●						
4			●					
5	●		●					
6		●	●					
7	●	●	●					
8				●				
9	●			●				
10		●		●				
11	●	●		●				
12			●	●				
13	●		●	●				
14		●	●	●				
15	●	●	●	●				
16					●			
17	●				●			
18		●			●			
19	●	●			●			
20			●		●			
21	●		●		●			
22		●	●		●			
23	●	●	●		●			
24				●	●			
25	●			●	●			
26		●		●	●			
27	●	●		●	●			
28			●	●	●			
29	●		●	●	●			
30		●	●	●	●			
31	●	●	●	●	●			
32						●		
33	●					●		
34		●				●		
35	●	●				●		
36			●			●		
37	●		●			●		
38		●	●			●		
39	●	●	●			●		
40				●		●		
41	●			●		●		
42		●		●		●		
43	●	●		●		●		
44			●	●		●		
45	●		●	●		●		
46		●	●	●		●		

Address	1	2	3	4	5	6	7	8
47	●	●	●	●		●		OFF
48					●	●		
49	●				●	●		
50		●			●	●		
51	●	●			●	●		
52			●		●	●		
53	●		●		●	●		
54		●	●		●	●		
55	●	●	●		●	●		
56				●	●	●		
57	●			●	●	●		
58		●		●	●	●		
59	●	●		●	●	●		
60			●	●	●	●		
61	●		●	●	●	●		
62		●	●	●	●	●		
63	●	●	●	●	●	●		
64							●	
65	●						●	
66		●					●	
67	●	●					●	
68			●				●	
69	●		●				●	
70		●	●				●	
71	●	●	●				●	
72				●			●	
73	●			●			●	
74		●		●			●	
75	●	●		●			●	
76			●	●			●	
77	●		●	●			●	
78		●	●	●			●	
79	●	●	●	●			●	
80					●		●	
81	●				●		●	
82		●			●		●	
83	●	●			●		●	
84			●		●		●	
85	●		●		●		●	
86		●	●		●		●	
87	●	●	●		●		●	
88				●	●		●	
89	●			●	●		●	
90		●		●	●		●	
91	●	●		●	●		●	
92			●	●	●		●	
93	●		●	●	●		●	
94		●	●	●	●		●	
95	●	●	●	●	●		●	
96						●	●	

● – Mean switch is TURNED ON

For one camera support mode number of camera controlled from matrix switcher, converter address and camera address with Pelco protokol must be the same, other way operating is not possible. Only exception are cameras with Pelco-P, which received address must be lower than that indicated on the settings made in it.

START-UP FOR SENSORMATIC TO PELCO TRANSLATION

Make sure if polarization of RS-485 or RS-422 interfaces is correct.
Correct operation of the translator can be determined by observing the LEDs. The red LED flashes when data from the matrix are interpreted correctly by the converter. The green LED indicates that the received data has been converted and transmitted to the camera with Pelco protocol.

To make sure camera is properly detected, in system can not exist camera with the same ID address on Sensornet or Manchester bus.
At 4 wire connection of RS-422 configuration converter is automatically detected as RS-422 Ultra Dome camera. At 2-wire mode type of camera must be set manually in the Video Matrix as below.

SET VIDEO MATRIX IN MULTIPLE CAMERA SUPPORT MODE:

To proper work in multiple mode, you should set model „SD ULTRA 3,4 or 5 (422)"manually in Sensormatic Video Matrix. To do that we should:

Example for VM96 matrix switcher

1. Enter menu: Config -> Cameras.
2. Press ALT + S, select GoTo and confirm by pressing ENTER.
3. Select from the list the type of camera that will be changed and press ENTER.
4. Go to the "Camera Type" and delete the position by pressing the DEL.
5. Move the arrow down one row below.
6. Return the up arrow to the "Camera Type" - a list of cameras to choose from is displayed. You must select from a list of camera "SD ULTRA 3.4 or 5 (422)" and confirm with Enter.
7. Exit the menu and reselect by Touch Tracker keyboard the camera you want to control.

To change the settings for other cameras, repeat steps 2 ~ 6.

The second way to set up the camera is connect the converter as in for one camera (4-wire connection) mode and set the camera address to be controlled by the converter. These types of camera will be automatically detected and set in the matrix.

1. Connect the RS-422 bus as for CONV5-A mode - 4 wires.
2. Disconnect the power supply of converter.
3. Set by switches on converter the number of the camera to be controlled by it - identically as for CONV-A mode.
4. Select on the Touch Tracker keyboard the camera number that has been set.
5. Connect the power supply to converter.
6. Wait until the on monitor appears Camera XX is ONLINE (XX is the number of the camera)
7. Disconnect the power supply of converter.
8. Set on the converter switches for CONV5-D mode.
9. Connect the power supply to converter.

To change the settings for other cameras, repeat steps 2 ~ 6. 4-wire connection can stay, it will not affect the operation of the system.

OPERATING IN TRANSLATION SENSORMATIC TO PELCO MODE

Motion control

Motion control is fully accessible via the TouchTracker keyboard in accordance with their instructions. At the same time can be used to control the direction of the camera and the lens (aperture, focus and and zoom).

Pattern function support (only camera support mode)

By the CONV5 can be saved one Pattern in Pelco camera – by way described in manual of Touch tracker and Video Matrix. While programming the Pattern rotation speed is reduced twice, which is imposed by the Video Matrix of Sensormatic. The converter support only the first Pattern on the list created for each camera in the Video Matrix, another Patterns are ignored.

Preset function support (only camera support mode)

In CONV5 we can programed 60 presets (View) + preset 95, which in cameras with Pelco protocol is used to Entry Menu.
Starting Preset (View) works in accordance with to the instructions for TouchTracker keyboard.

To program a preset, follow the steps below. DO NOT disconnect a power supply during below operations!!!

1. ***Remember current settings of the switches on the converter.***
2. Use the TouchTracker keyboard to set the camera in the desired position.
3. Select the preset number (DIP 1-7) on the converter and turn on the switch No. 8.
4. Save the preset using the TouchTracker keyboard.
5. ***Set the switches to the previous position and turn off the switch no.***

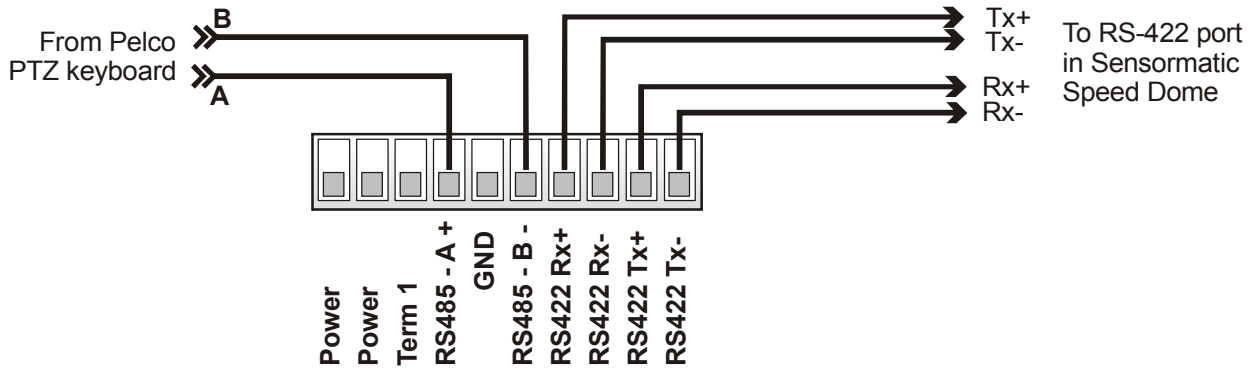
To program the other presets, repeat steps 2 ~ 4.

Preset	1	2	3	4	5	6	7	8
None								•
	Inactive							
1	•							•
2		•						•
3	•	•						•
4			•					•
5	•		•					•
6		•	•					•
7	•	•	•					•
8				•				•
9	•			•				•
10		•		•				•
11	•	•		•				•
12			•	•				•
13	•		•	•				•
14		•	•	•				•
15	•	•	•	•				•
16					•			•
17	•				•			•
18		•			•			•
19	•	•			•			•
20			•		•			•
21	•		•		•			•
22		•	•		•			•
23	•	•	•		•			•
24				•	•			•
25	•			•	•			•
26		•		•	•			•
27	•	•		•	•			•
28			•	•	•			•
29	•		•	•	•			•
30		•	•	•	•			•

Preset	1	2	3	4	5	6	7	8
31	•	•	•	•	•			•
32						•		•
33	•					•		•
34		•				•		•
35	•	•				•		•
36			•			•		•
37	•		•			•		•
38		•	•			•		•
39	•	•	•			•		•
40				•		•		•
41	•			•		•		•
42		•		•		•		•
43	•	•		•		•		•
44			•	•		•		•
45	•		•	•		•		•
46		•	•	•		•		•
47	•	•	•	•		•		•
48					•	•		•
49	•				•	•		•
50		•			•	•		•
51	•	•			•	•		•
52			•		•	•		•
53	•		•		•	•		•
54		•	•		•	•		•
55	•	•	•		•	•		•
56				•	•	•		•
57	•			•	•	•		•
58		•		•	•	•		•
59	•	•		•	•	•		•
60			•	•	•	•		•
95	•		•	•	•	•		•
• – Switch TURNED O								

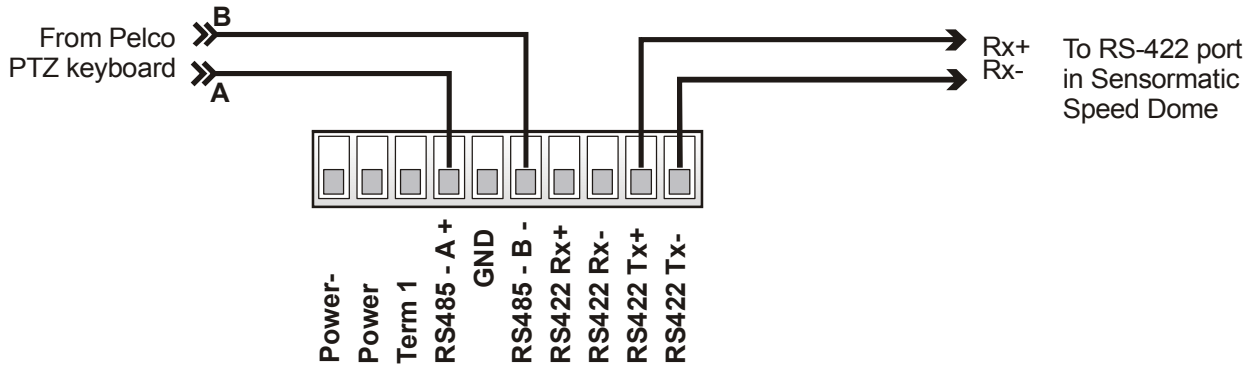
TRANSLATION PELCO TO SENSORMATIC

CONNECTIONS FOR ONE CAMERA SUPPORT MODE



Above drawing explains how to connect one camera in mode, which supports Preset and Pattern function. For this mode 4-wire connection of RS-422 bus is used. We suggest to place translator direct at Sensormatic Speed Dome. If more Sensrmatic cameras is needed to connect in this mode, one translator per one camera must be used.

CONNECTIONS FOR MULTIPLE CAMERAS



Above drawing explains how to connect many cameras with a single converter. Because in this mode memory of converter can not be used, Presets or Pattern functions are not available.
For connection in this mode, only two wires of RS-422 port is needed. Converter will operate camera addresses 1-254 .

GENERAL CONFIGURATION FOR TRANSLATION PELCO TO SENSORMATIC

1. Disconnect power supply from the CONV5
2. **Set the switches DIP 8 and DIP 5 to OFF position.**
3. Set other switches as you need
4.Connect power supply into the CONV5
5. Wait until red LED will start flashing, then disconnect a power supply.
6. **Set the switch DIP 8 to OFF position – (DIP 5 leave OFF)**
7. Connect power supply into the CONV5

Description of switches:

Transmission speed For Pelco camera	2400baud	4800baud	9600baud	19200baud
DIP 1	OFF	ON	OFF	ON
DIP 2	OFF	OFF	ON	ON

Switches define transmission speed for Pelco-P / Pelco-D keyboard.

Input protoccol	Not used	
DIP 3	Pelco-D and Pelco-P are detected automatically	
Address Increment	Not active	Active
DIP 4	OFF	ON

Switch turnes on/off increasing address (value 1) for Pelco-P protocol, while converting data. Because in Pelco-P protocol starts address from „0", can be neccesary to use this function to save bigger compatibility.

Conversion mode	Pelco to Sensormatic	Sensormatic to Pelco
DIP 5	OFF	

To get translation from Pelco to Sensormatic, DIP No5 must be OFF during change configuration.

Saving configuration	
DIP 8	To save configuration, must be turned ON

WARNING! If the CONV5 worked na translation Sensormatic to Pelco before, everything stored preset will be deleted.

SELECT CONFIGURATION FOR ONE CAMERA OT MULTIPLE CAMERAS

Setting address determines support one camera or multiple cameras. When address is set as **NONE** translator dues support multiple cameras. When any address is set, translator does support one camera with determined address. **Address is binary set in according to the following table on PAGE 5.**

START-UP FOR PELCO TO SENSORMATIC TRANSLATION

Make sure if polarization of RS-485 or RS-422 interfaces is correct.
Correct operation of the translator can be determined by observing the LEDs.
The green LED indicates that the received data has been converted and transmitted to the camera with Pelco protocol. The red LED flashes when data from the matrix are interpreted correctly by the converter

OPERATING IN TRANSLATION SENSORMATIC TO PELCO MODE

Motion control

Controling motion is enable by Pelco keyboard, in accordance with its user guide. At the same time we can control moving cameras and lens (Iris, Focus and Zoom).

Support Pattern function

By the CONV5 can be saved one Pattern in Sensormatic camera – by way described in manual of Pelco PTZ keyboard. While programming the Pattern speed of rotation is reduced twice – this is typicall fo these cameras. The converter support only one Pattern. The pattern working in loop mode after start..

Support Preset function

In CONV5 we can stored 60 presets in accordance with standard procedure of Pelco keyboard – refer to manual