



SECURECOM

UNIO4 WxG

Internet based communicator for control and state monitoring via mobile App with WIFI + 4G (LTE) connection

User manual v1.0



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1. INTRODUCTION

UNIO4 is a modern IP-based signalling and control device for monitoring and controlling stand-alone equipment that has a contact input or contact output for control or status information. The device sends notifications to the user's smartphone when the status of the inputs changes and also provides the possibility to send events to monitoring station. Remote operation of output relays is also possible via control from the app. As it uses both WIFI and mobile network connections for communication, it provides reliable signalling and stable, fast control. A big advantage is that the device sends a confirmation of the control of the output relays to the user, so that it is 100% visible that the switching has actually taken place.

The contact events can be transmitted to both the user's smartphone and the monitoring station, making the device suitable as a remote monitoring communicator for systems where few, but up to 4 types of signals need to be distinguished, e.g. fire alarm systems.

1.1 Main features

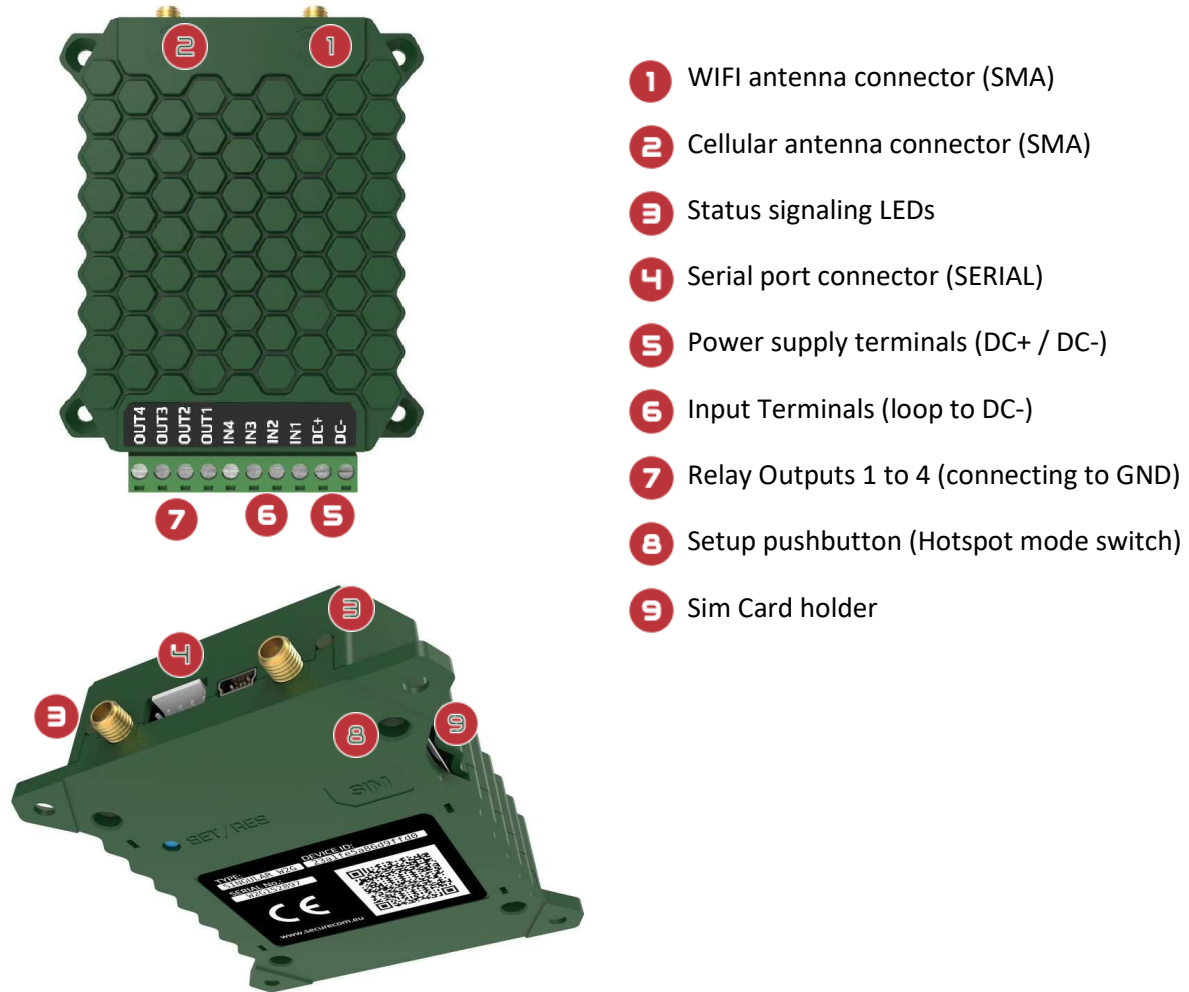
- 4 supervised contact inputs, triggered with dry contact (shortcut to ground)
- 4 controlled relay outputs with switching confirmation
- 2 parallel communication channels, WIFI and mobile network communication
- Unlimited number of signals with simultaneous notification of all users
- Reports sending to two independent Monitoring stations (SIA DC-09 receivers)
- AES-128 encrypted communication
- Serial port for remote programming of external device
- Inputs status supervision and control of outputs from web page or from smartphone application
- Connecting to WIFI network using device web page, in hotspot mode
- Full remote management via WEB interface (configuration, diagnostics)
- Supply voltage supervision
- MQTT 5.0 support

1.2 Usage Areas

Supervision and control of remote device or multiple devices on one App platform:

- Controlling relays and switching events monitoring via mobile App
- Remote programming of Alarm panels, Fire panels, PLC or any standalone device with serial connection to a software (vending machines, car diagnostic, sensor reading..)
- Control gates from mobile application
- Status change signaling to maintenance with immediate multiple reporting and confirmation with identification (Error is sent to all maintenance workers on smartphone, one can confirm to "take the case" and other see that error is being handled by that operator)

2. DEVICE PARTS AND CONNECTORS



2.1 Status indicators

The LEDs, located next to an antenna connector are providing the status information about the connection through antenna located next to it, i.e through that type of network.

State of WIFI connectivity

Continuous Red	No settings
Flashing Red	Connecting... If the flashing continues for longer time, device can not connect (bad settings)
Flashing Green	Idle mode, device connected to Internet through WIFI network
Green/Red alternately	Hotspot mode, device programming in progress

State of Cellular connectivity

Continuous Red	APN setting empty
Flashing Red	Connecting... If the flashing continues for longer time, device can not connect to network (bad setting, bad SIM or missing SIM)
Flashing Green	Idle mode, device connected to Internet through cellular network

2.2 Inputs

There are four inputs that can be triggered with a “dry contact” (shortcut to ground)

2.3 Outputs

UNIO4 device contains 4 relay outputs (OUT1-OUT4). When activated, output terminal will be connected to negative supply (DC-). Control of these outputs is possible from a Puloware server web site or from the smartphone application.

2.4 Serial port

The serial port is provided as a 5-pin connector, providing both RS232 and TTL signal levels, with different pinout and cables. Please check on Securecom web site for available cables and specify your request for cable when purchasing them from your Securecom supplier.

When connected with appropriate cables, the serial port of device can be forwarded to the virtual port of your PC or laptop through the Puloware service. This feature can be used in same way for any device that allows a connection with corresponding software through onboard serial port (like fire panels or alarm panels). With it, you can remotely monitor or program any alarm panel (or any other device that supports monitoring/programming through onboard serial port) from any place, you only need an internet connection to your laptop.

3. DETAILED DESCRIPTION OF FUNCTIONALITY

3.1 Signalling to remote monitoring receiver

The UNIO4 communicator can report the following events to the monitoring station, with the unique event code assigned: **-Inputs activated, -Outputs activated, -Setup changed, -WIFI connection failure, -Cellular connection failure, -Battery low, -Test report.**

The signals are sent according to the communication protocol defined in the SIA DC-09 standard.

3.2 Sending messages to Smartphone

All events generated in UNIO4 device will be immediately sent to all user application, regardless if they were sent to Monitoring station. Users can assign a device to his “Puloware client” application on his smartphone device.

Events can trigger a push notification, depending on device settings, application settings and smartphone settings (application rights). The push notification will generate a sound only if all settings are appropriate, enabled for this message type and all corresponding services are fully operational. If an event was generated by other user (E.G output switched), that user will be also identified and stored with the event. Therefore, identification of event causer is also visible later in the “event list” along with time stamp.

3.3 Mobile data (GPRS) as alternate for WIFI connection

If the connection to internet through primary WIFI network is broken, the communicator will automatically switch the communication to the backup cellular network. While the communication is maintained through the backup cellular data network, the device continuously checks the main connection (through WIFI), and when it becomes available, communication is switched back to it (with appropriate algorithm, series of steps).

UNIO4 device will connect to a mobile network to provide backup communication path as soon as it is turned on. It will first try to connect to network that has a strongest signal and is authorized to it with inserted SIM card. In case of network failure, it will try to connect to next strongest available network, until the connection is successful. Once connected, the device will use that network for data sending (when communication on WIFI fails) until next restart or reconnection.

4. INSTALLATION

UNIO4 device was built for operation as a standalone communicator. All wire terminals should be connected to appropriate signals.

After the connection to Internet was established, device should be set properly to fit required features.

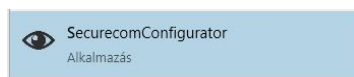
4.1 Connecting the device

For easier working with wires, terminal block on the device are removable.

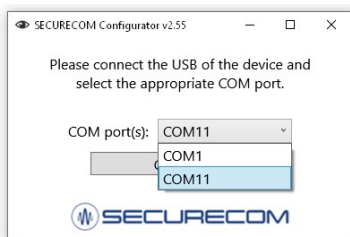
1. Connect the power supply to terminals DC+ and DC-, with appropriate polarity.
2. The INPUTs can be triggered with a “dry contact” (a shortcut to negative supply line). If the communicator is not supplied from the same power source as any of devices connected to Input terminals, the UNIO4 power supply negative line (DC-) should be connected to other devices Ground or 0V points, in order to have one “common ground”
3. The OUTs terminals are one pole of output relay, and the other pole is the DC- (relay output connects to GROUND when activated). Connect the OUT terminal to provide negative power supply for the device (load) that is being switched with this output. The device positive power supply line should be connected to the power supply source, through an appropriate fuse.
4. If the serial port is being used, connect the serial port connector with appropriate cable to the serial port of device you want to access remotely.

4.2 Settings


In order to enter settings, install the SECURECOM CONFIGURATOR program first. The program can be downloaded from the webpage of <https://www.securecom.eu/>












After running the program, connect the USB port of the device to the PC, and select the appropriate serial port, then push the “Connect” button. For example:



Once connected, device settings can be found on the following interface.



TYPE: UNIO4 W4G
FIRMWARE: v2.3.566
Device ID: 8c69dc3bc2421567

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LATEST EVENTS

WARNING! Remote programming of the security system during USB connection is not allowed!

MODULE STATUS		MONITORING STATION 1 SETTINGS		MONITORING STATION 2 SETTINGS	
Mobile network:	-	IP address:		IP address:	
Network signal (%):	-	Port:	9998	Port:	9998
WiFi network:		Protocol:	UDP	Protocol:	UDP
WiFi signal:	-	SIA prefix:		SIA prefix:	
Monitoring station 1:		Object identifier:	0000	Object identifier:	0000
Monitoring station 2:		Replace obtained identifier:	NO	Replace obtained identifier:	NO
Input 1:	INACTIVE	Link test period:	3 mins	Link test period:	3 mins
Input 2:	INACTIVE	Link test code:		Link test code:	
Input 3:	INACTIVE	SERIAL PORT SETTINGS		MODEM AND GPRS SETTINGS	
Input 4:	INACTIVE	Baud rate:	9600	PIN code:	
Output 1:	INACTIVE	Data bits:	8	GPRS APN:	
Output 2:	INACTIVE	Parity:	None	User:	
Output 3:	INACTIVE	Stop bit:	1	Password:	
Output 4:	INACTIVE	INPUT 1 SETTINGS		INPUT 2 SETTINGS	
Supply voltage:	4.27V	Sensitivity:	0.3 sec	Sensitivity:	0.3 sec
		Contact type:	NO	Contact type:	NO
		Event code:	130	Event code:	130
		Partition:	01	Partition:	01
		Zone:	001	Zone:	002
		INPUT 3 SETTINGS		INPUT 4 SETTINGS	
		Sensitivity:	0.3 sec	Sensitivity:	0.3 sec
		Contact type:	NO	Contact type:	NO
		Event code:	130	Event code:	130
		Partition:	01	Partition:	01
		Zone:	003	Zone:	004

For operation of device requires the setting of mobile network (APN) or WIFI connection!

4.2.1 Administrative window



TYPE: UNIO W2G [MODEL 3]
FIRMWARE: v1.16.347
Device ID: 360c563a1d72ce22











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The connected module type and version number are displayed in this area, along with control icons and language selection.



Restarting the connected device



Control of output- the number on the icon presents the output number (OUT1 to OUT4)

Clicking on this icon will cause the status changing, i.e activation of corresponding output. The way for the output state changing on control signal can be changed in the „ ARM mode” field. The „ Change NO/NC state” means that every control signal will change the output state. The „Negative impulse” setting will result that on every control signal the output turns ON for one second, and then automatically goes back to OFF state.



Open previously saved settings from file



Save displayed settings to a file



Create or change the Connection password (used ONLY for USB connection)



Change special LOCK settings- More details in section 4.2.2 Locking features and device



Load (write) presented settings to connected device

If any setting value was changed in software, it will be loaded to the device only after this button was used. If device is disconnected before loading new values, they will be gone with new connection. On every connection software reads valid values from device and displays them.

4.2.2 Locking features and device



Please use this feature with extreme attention, using it may result with unwanted blocking of device reset and password protection that can be unlocked only at authorized service, distributor. Once entered, a password value is always requested to open this dialog. To close the dialog and store new settings a password must be entered (it can be same as previously used), containing numbers and/or alphabetic characters.

4.2.3 Device status display

MODULE STATUS	
Mobile network:	EDGE (2G) Vodafone
Network signal (%):	38%
Wifi network:	IPBMikroTik
Wifi signal:	100% [-43 dBm]
Monitoring station 1:	
Monitoring station 2:	
Input 1:	INACTIVE
Input 2:	INACTIVE
Input 3:	INACTIVE
Input 4:	INACTIVE
Output 1:	-
Output 2:	-
Output 3:	-
Output 4:	-
Supply voltage:	4.68V

The presented values are showing the status and changes in real time for all shown items. Status of connection to monitoring station is based on report sending to that Monitoring station. If the last reporting (CID from alarm panel, or a periodic test report) to Monitoring station was successful, the status will show OK. If there are no settings for MS (Monitoring Station) the status will be empty, since device did not try to send any report to MS.

4.2.4 Communicator Event codes

COMM. EVENT CODES	
WIFI failure:	
Phone failure:	
Battery low:	314
Setup changed:	306
OUT controlled:	205

This area contains settings for the event codes that will be generated by Communicator and sent to monitoring station if the defined event has occurred. If the field is left blank, the event will not be reported. Setting the appropriate value (that will be recognized in monitoring software), the monitoring station will be notified when WIFI or mobile data communication is malfunctioning, when the device supply voltage is insufficient (even for a very short time, “peak”), when the communicator settings have changed, or when some output state changed.

4.2.5 Inputs Settings

INPUT 1 SETTINGS		INPUT 2 SETTINGS		INPUT 3 SETTINGS		INPUT 4 SETTINGS	
Sensitivity:	0.3 sec ▾	Sensitivity:	0.3 sec ▾	Sensitivity:	0.3 sec ▾	Sensitivity:	0.3 sec ▾
Contact type:	NO ▾	Contact type:	NO ▾	Contact type:	NO ▾	Contact type:	NO ▾
Event code:	130	Event code:	130	Event code:	130	Event code:	130
Partition:	01	Partition:	01	Partition:	01	Partition:	01
Zone:	001	Zone:	002	Zone:	003	Zone:	004

These fields are used to define the four inputs on device. Type of input contact (Normally Open or Normally Closed), sensitivity (how long should be that input active, to accept that a change has happened), and a full Contact ID code can be set in these fields.

NOTE: The “sensitivity” parameter is useful to “filter” some unwanted events- for example, when some NOISE generates an uncontrolled short contact on device input.

4.2.6 Monitoring station settings

To set up the UNIO4 device for reporting to the monitoring station in a required way, following settings are available:

MONITORING STATION 1 SETTINGS		MONITORING STATION 2 SETTINGS	
IP address:	siatest.securecom.eu	IP address:	siatest.securecom.eu
Port:	9998	Port:	9999
Protocol:	UDP ▾	Protocol:	TCP ▾
SIA prefix:		SIA prefix:	
Object identifier:	9005	Object identifier:	1050
Replace obtained identifier:	YES ▾	Replace obtained identifier:	NO ▾
Link test period:	1 min ▾	Link test period:	3 mins ▾
Link test code:		Link test code:	

IP address	IP address or domain name of the monitoring station
Port	Port number of the monitoring station's IP address
Protocol	Selectable communication IP protocol: TCP, UDP
SIA prefix	2 characters long SIA prefix, it can be used if the identifier of the connected alarm control panel is just 4 characters long, but the necessary identifier of receiver is 6 characters long
Object identifier	The self identifier of the UNIO4 device (4 characters long).
Replace obtained identifier	Not used
Link test period	Sending test report to the monitoring station <ul style="list-style-type: none"> • NO: test report is not sent • 30sec – 24 hours: the device sends test reports to the monitoring station by the given interval
Link test code	Any code can be defined. If this field is empty than the communicator sends Null Message, as defined by standard.

4.2.7 MQTT communication option

Along with other communication features, UNIO4 devices can communicate with a MQTT broker, send status change of inputs and accept commands to change outputs status. For further details about the MQTT please turn to manufacturer. .

4.2.8 Communication details

U his area presents a detailed communication between the device and monitoring receiver. All messages and feedback data, as well as error messages are presented with a source and a time stamp (date, hour, minute, second), when was the signal received

LATEST EVENTS	
2020.09.14 20:42:56:	PRODUCT: IO W2G
2020.09.14 20:42:56:	SERIAL: IO-W2G190021
2020.09.14 20:42:57:	Local IP: 192.168.1.118
2020.09.14 20:42:58:	Send MS1 SIA
2020.09.14 20:42:59:	MS1 SIA response: ACK
2020.09.14 20:42:59:	Remote serial: idle mode
2020.09.14 20:43:12:	Send MS1 SIA
2020.09.14 20:43:12:	MS1 SIA response: ACK

4.2.9 Mobile Network Connection Settings

MODEM AND GPRS SETTINGS	
PIN code:	
GPRS APN:	m2m.sim.com
User:	
Password:	

The parameters for internet access with used SIM card should be entered in this field. PIN code should be entered if the SIM card is set to request PIN code on startup, and the APN parameters should be provided by the provider of SIM card. If the APN data fields are empty, device will keep the GPRS modem turned off, and communicate through WIFI only.

Device tries to access Internet through SIM card with entered APN parameters immediately after starting, and in case of failure it will restart. Therefore wrong APN data may cause continuous restarting of device, instable operation.

Note: Some providers do not request an Username and password, only the APN Name.

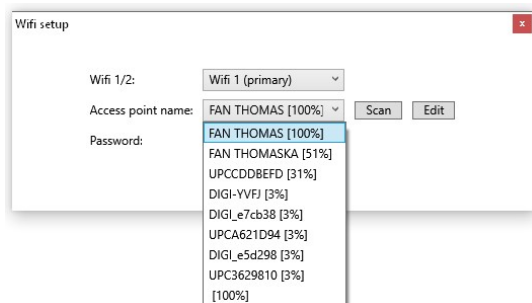
4.2.10 WIFI Network Connection Settings

Setting up a WIFI connection reduces the data traffic on the SIM card, and also increases the signaling transfer speed. If a WIFI network is available at the installation, we recommend setting up access to the network in the unit. However for setting up of SINGULAR WIFI device the local WIFI network access is required, moreover access to 2 different WIFI networks can be set, thus further increasing functional safety!

1. Setup is started by clicking on the gear icon of the **WIFI network** value field in the **MODULE STATUS** window.



2. Accessible WIFI networks are listed by clicking on the **Explore** button.



3. After selecting the appropriate network, and entering the valid password, click on the **Save** button to establish the WIFI connection. Successful connection is indicated by the green flash of status indicator LED, while an error is indicated by a red flash. In addition the information window shows the appropriate status message as well.

The “Assign MAC” option will lock the connection to the selected access point. This should be used in case when the device is installed in a position where multiple SSID with same names are visible (eg. in case of WIFI signal repeaters). This way the device will always connect to same access point (node) after every restart.

4.3 Reset to factory default

Device must be online (at least one led flashing green) to perform the reset. Press and hold down the SETUP/RESET button on back of device (image on next page) for 20 seconds. LEDs will start blinking fast yellow, then on and finally turn off. After that you can release the button. All settings of device will be reset to default values. Concerning Puloware service device will be deleted from all accounts and from all smartphones. Refreshing (restarting) the site and application will remove the deleted device.

Note: If the device was LOCKED (section 4.2.2. Locking features and device), the defaulting procedure will fail. You must remove the LOCK to perform the successful procedure

5. TRANSPARENT FORWARDING OF SERIAL PORT

The UNIO4 -like a data bridge- provides remote access to devices with a serial port through their own management software.

A description can be found at the following link: <https://www.securecom.eu/en/application-notes>

6. TECHNICAL DATA

Electronic and telecommunication parameters

Connections to Internet	
Primary communication channel (WIFI)	IEEE 802.11 b/g/n
Secondary communication channel (Cellular Data)	GPRS/LTE
Inputs (IN1, IN2, IN3, IN4)	
Type	Dry contact, connecting to negative power supply (DC - terminal)
Input definitions	NO or NC FULL CID code(CID, zone, partition) for each input Sensitivity (zone speed, in ms)
Self-generated and transmitted signals	Settings changed WIFI communication failure Mobile data communication failure Output controlled Test report
Controllable outputs (OUT1, OUT2, OUT3, OUT4)	
Relay outputs When active, output connected to negative power supply (DC - terminal) While Inactive, it is „floating”- terminal is just connected to a relay contact.	Relay contact declaration: Max. Switching power: 30W; 62.5VA
Power supply (DC+ / DC-)	
Supply voltage	9-30V DC
Maximum consumption	500mA @ 12V DC (in case of GPRS transmission)
Nominal consumption	150mA @ 12V DC
Dimensions	98x75x24 mm

7. CONTENT OF THE PACKAGE

- UNIO4 WxG communicator (WIFI, W2G, W4G, depending on type)
- Antenna (for WIFI: 1pc, for W2G and W4G: 2pcs)
- USB cable
- Warranty