



# **Unitronics Remote I/O URB-PNT**

## **User Guide**

**Table of Contents**

1. ENVIRONMENT SPECIFICATION .....3

2. URB-PNT (PROFINET NETWORK ADAPTER) .....3

2.1. SPECIFICATION.....3

2.2. WIRING DIAGRAM .....5

2.3. LED INDICATOR.....5

2.4. ELECTRICAL INTERFACE .....7

3. PROFINET-IO CHARACTERISTICS.....8

APPENDIX A – TIA PORTAL CONFIGURATION .....9

## 1. ENVIRONMENT SPECIFICATION

Environmental specification	
Operating Temperature	(-40°)C – 60°C : 1.5A full load is allowed.
UL Temperature	(-20°)C – 60°C
Storage Temperature	(-40°)C – 85°C
Relative Humidity	5%-90% non-condensing
Mounting	DIN Rail

General specification	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039: Vibration Class B, 4g
Industrial Emission	EN 61000-6-4/A11:2011
Industrial Immunity	EN 61000-6-2:2005
Installation Position	Vertical and horizontal
Product Certifications	CE, UL

## 2. URB-PNT (PROFINET NETWORK ADAPTER)

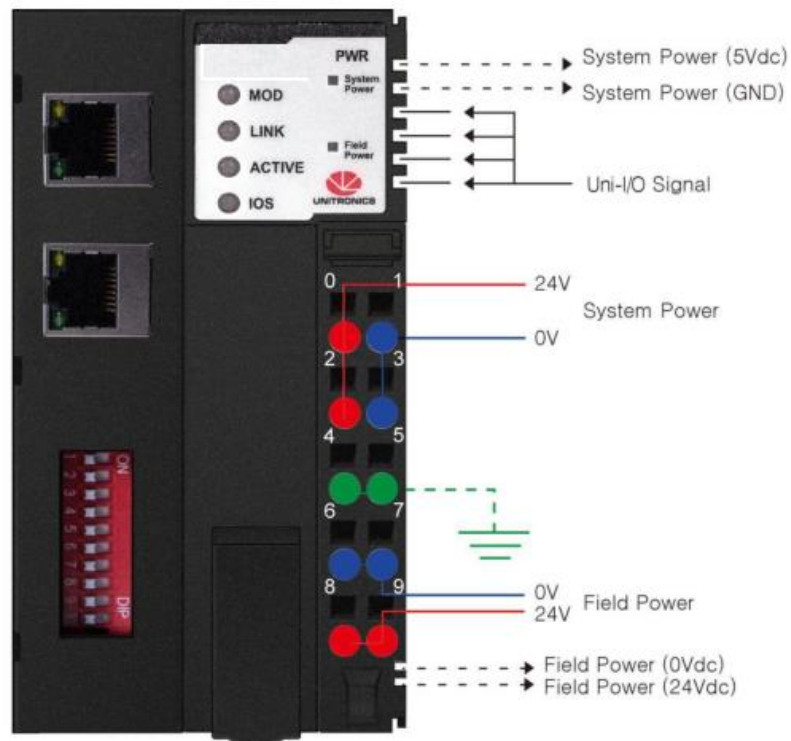
### 2.1. SPECIFICATION

Communication specification	
Adapter Type	Slave node (PROFINET)
Protocol	PROFINET, Modbus RTU
Max. Expansion Module	32 slots
Max. Data Size	Max 1440 bytes
Max Length Bus Line	Up to 100m from Ethernet Hub/Switch with twisted CAT5 UTP/STP
Max. Nodes	Limited by PROFINET Specification.
Baud Rate	100Mbps, Auto-negotiation, Full duplex
Interface Connector	2 X RJ-45
IP-Address Setup	Via Master Device
Max. Parameter Size	2048 Bytes (1 slot = 64 Byte + I/O Parameter Size (DWORD size))
IAP Mode	When DIP Switch 1 to 8 setting is 254 or 255 (Using only Internet Explorer / recommended version 11)
Serial Port	RS232 for MODBUS/RTU, Touch Panel
Serial Configuration (RS232)	Node: 1 (Fixed) Baud Rate: 115200 (Fixed) Data bit: 8 (Fixed) Parity bit: No parity (Fixed) Stop bit: 1 (Fixed)
Indicator	6 LED 1 Green/Red, Module Status (MOD)

	1 Green, Physical Connection (NET) 1 Green/Red, Network Error (ERROR) 1 Green/Red, Expansion I/O Module Status (IOS) 1 Green, System Power Status 1 Green, Field Power Status 2 LED (each RJ45 Connector) 1 Yellow, Link/Active 1 Green, Not used
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General specification	
<b>System Power</b>	Supply voltage: 24VDC nominal Supply voltage range: 15-30VDC Protection: Output current limit (Min. 1.5A) Reverse polarity protection
<b>Power Dissipation</b>	70mA typical @ 24VDC
<b>Current for I/O Module</b>	1.5A @ 5VDC
<b>Isolation</b>	System power to internal logic: Not isolated System power I/O driver: Isolated
<b>Field Power</b>	Supply voltage: 24VDC typical (Max. 30VDC) * Field Power Range is different depending on the I/O Module series. Refer to the I/O Module's Specification.
<b>Max. Current Field Power Contact</b>	DC 10A Max
<b>Wiring</b>	I/O Cable Max. 2.0mm (AWG 14)
<b>Torque</b>	0.8Nm (7 lb.-in)
<b>Weight</b>	172g
<b>Module Size</b>	54mm x 99mm x 70mm

## 2.2. WIRING DIAGRAM



URB-PNT WIRING			
0	System Power, 24VDC	1	System Power, 0VDC
2	System Power, 24VDC	3	System Power, 0VDC
4	Functional Ground	5	Functional Ground
6	Field Power, 0VDC	7	Field Power, 0VDC
8	Field Power, 24VDC	9	Field Power, 24VDC

## 2.3. LED INDICATOR

LED DESCRIPTION		
<b>MOD</b>	Module Status	Green / Red
<b>NET</b>	Communication Status	Green
<b>ERROR</b>	PROFINET Error	Green
<b>IOS</b>	Extension module status	Green / Red
<b>System Power</b>	System Power Presence	Green
<b>Field Power</b>	Field Power Presence	Green

MOD LED		
<b>No Power</b>	OFF	No power supplied
<b>Device Operational</b>	Green	The device is in a normal operation state
<b>Unrecoverable Fault</b>	Red	Internal memory or CPU failure

NET LED		
<b>No Power</b>	OFF	No power supplied
<b>Communication</b>	Green	The device is in a normal communication state
<b>Communication Ready</b>	Blinking Green	Communication identification state
<b>Invalid Configuration</b>	Blinking Red	Invalid configuration

ERROR LED		
<b>No Error</b>	OFF	
<b>Connection Error</b>	Red	Communication connection error

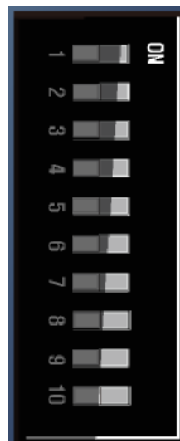
IOS LED		
<b>No Power</b>	OFF	
<b>No Expansion Module</b>	Blinking Red	The adapter has no expansion module
<b>Internal Bus Connection, Run Exchanging I/O</b>	Green	I/O Exchange
<b>Expansion Configuration Failed</b>	Red	<p>One or more expansion modules occurred in a fault state.</p> <ul style="list-style-type: none"> <li>- Detected invalid expansion module ID.</li> <li>- Overflowed Input/Output Size</li> <li>- Too many expansion modules</li> <li>- Initialization failure</li> <li>- Communication failure.</li> <li>- Changed expansion module configuration.</li> <li>- Mismatch vendor code between adapter and expansion module.</li> </ul>

Field Power LED		
<b>No Field Power</b>	OFF	No 24VDC supplied
<b>Filed Power Supplied</b>	Green	

## 2.4. ELECTRICAL INTERFACE

RJ45 Socket		
1	TD+	Transmit +
2	TD-	Transmit -
3	RD+	Receive +
4	N/C	
5		
6	RD-	Receive -
7	N/C	
8		
Case	Shield	

DIP Switch		
1	Node ID Bit 0	Device Name, URB-PNT-XX - XX allowed values 1-99
2	Node ID Bit 1	
3	Node ID Bit 2	
4	Node ID Bit 3	
5	Node ID Bit 4	
6	Node ID Bit 5	
7	Node ID Bit 6	
8	Reserve	
9	IP Address	Assigned by the master
10	Node ID / Name: Memory value assigned by the master	



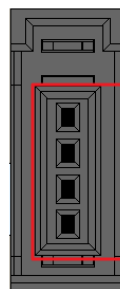
- When the ID DIP switch is set to non-zero (1-99): The name of the device will be fixed as URB-PNT-XX (XX: 1-99).
- When the DIP switch #9 is set to ON: When the URB-PNT device is powered on, the assigned IP Address, Gateway, and Subnet mask values stored in the EEPROM are used. If the IP address, Gateway, and Subnet mask values assigned from the master device are different from the stored EEPROM values, the values that are assigned by the master are stored to the EEPROM.
- When the DIP switch #10 is set to ON: URB-PNT Devices on a PROFINET network must have unique names. The device names must comply with the DNS naming conventions. This means that the following rules must be observed:
  - Names are limited to a total of 127 characters (letters, numbers, dashes, or dots)

- ii. Any component part (that is, a character string between two dots) of the device name may only be up to 63 characters long.
- iii. Names cannot contain any special characters such as umlauts, parentheses, underscores, slashes, empty spaces, etc. The dash is the only special character allowed.
- iv. Names must not begin or end with the "-" or "." characters.
- v. Names must not have the format n.n.n.n (where n = 0...999).
- vi. The device name must not start with numbers.

Device names are assigned to PROFINET-IO device when the device is being set up and placed in operation for the first time ("commissioned").

The default name is "URB-PNT-address".

RS232 Socket		
1	Reserved	
2	TXD	Transmit
3	RXD	Receive
4	GND	Ground



### 3. PROFINET-IO CHARACTERISTICS

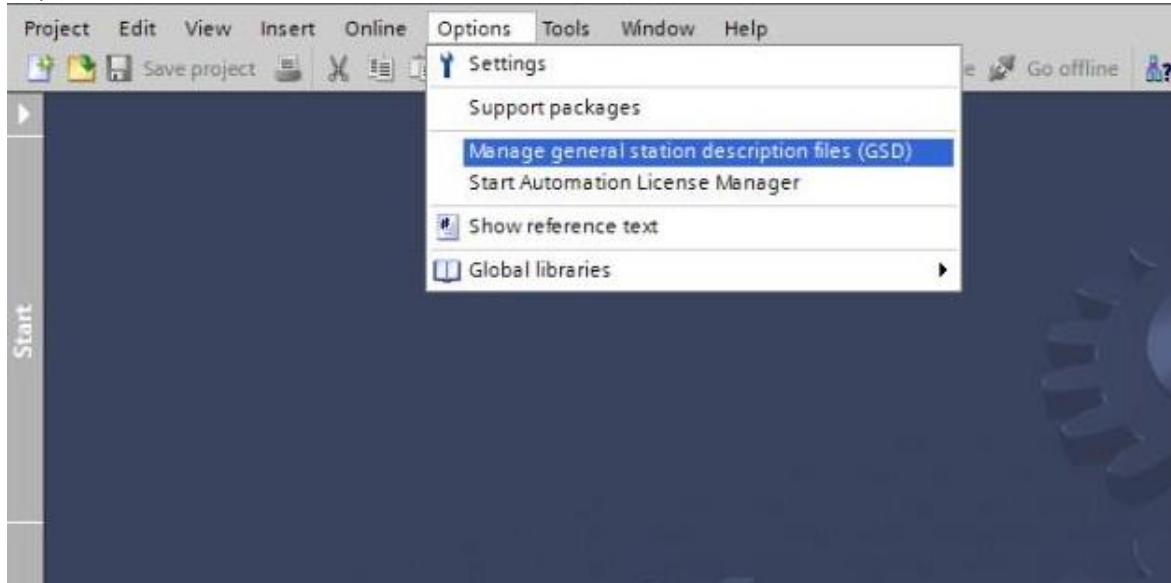
Device Access Point	
Maximal Input Length	1440 Bytes
Maximal Output Length	1440 Bytes
Minimal Device Interval	4 mSec
Supports Extended Assignment of IP Address	No
Requires Engineering tool which supports at least GSDML Version	V2.32



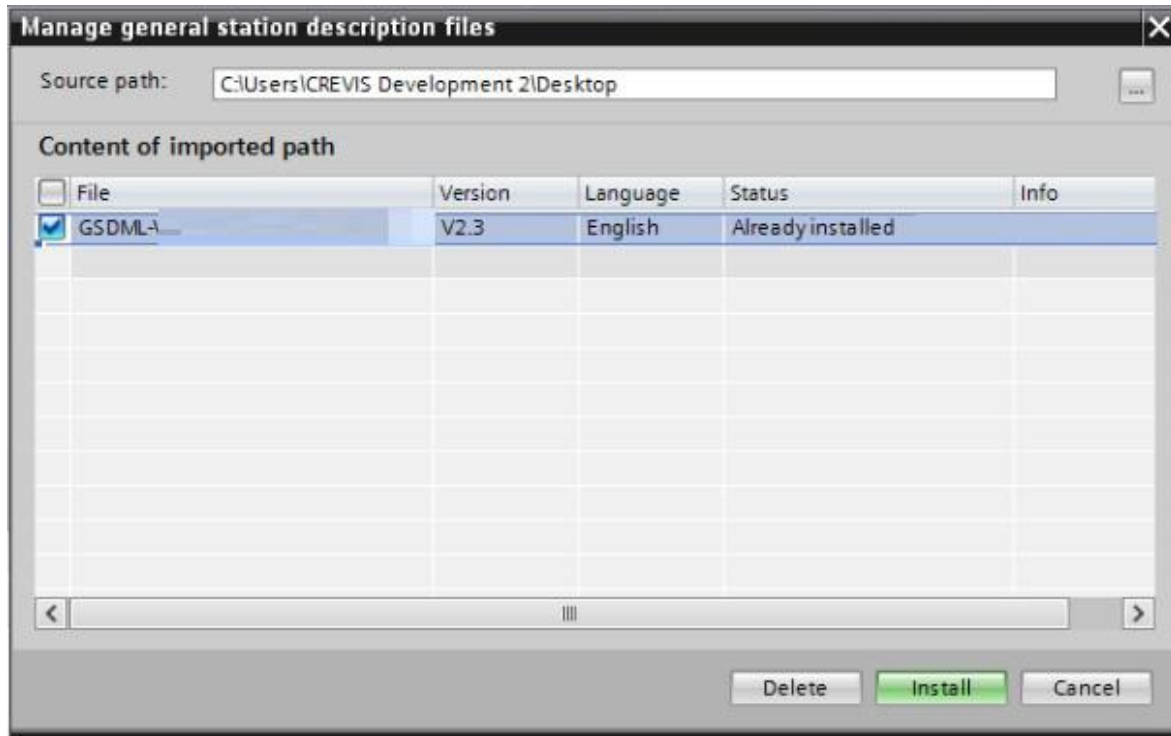
## APPENDIX A – TIA PORTAL CONFIGURATION

The following steps are based on TIA Portal version 14.

1. Import the URB-PNT GSDML file:



2. Select the GSDML file >> Install:



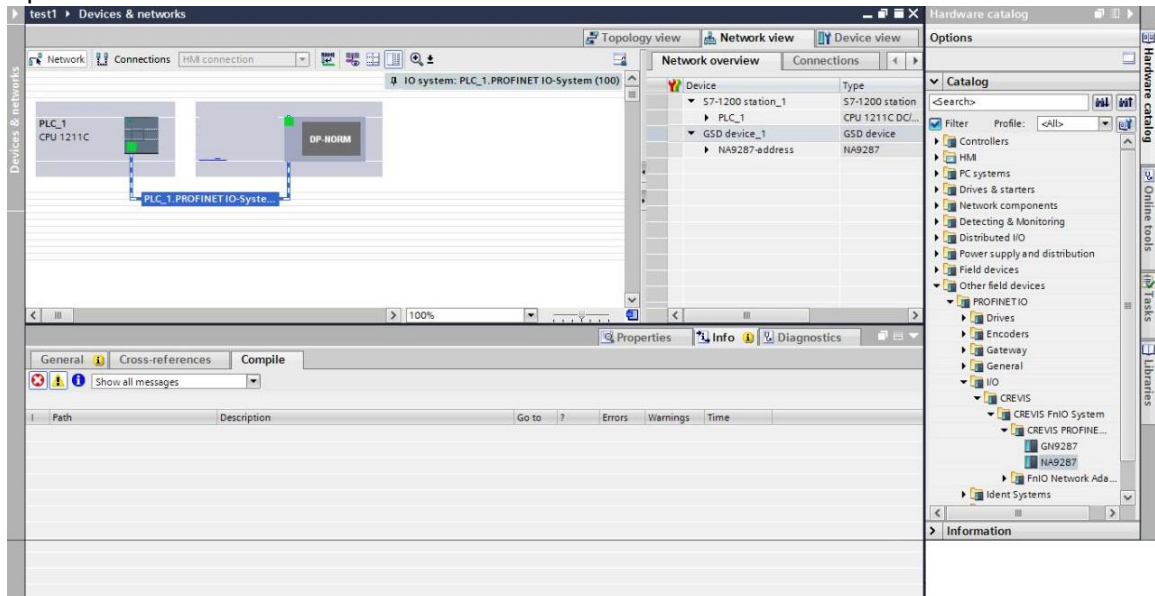
### 3. Add new device:

The screenshot displays the Siemens STEP 7 software interface. The top window, 'Add new device', shows the selection of a SIMATIC S7-1200 CPU 1211C DC/DC. The 'Device name' is set to 'PLC\_1'. The 'Article no.' is '6ES7 211-1AE40-0XB0' and the 'Version' is 'V4.2'. The 'Description' field provides technical specifications for the CPU.

The bottom window shows the 'Device overview' table for the selected device. The table lists modules and their addresses:

Module	Slot	I address	Q address	Type
PLC_1	1			CPU 1211C DC/DC
DI 6/DQ 4_1	1 1	0	0	DI 6/DQ 4
AI 2_1	1 2	64...67		AI 2
HSC_1	1 16	1000...10...		HSC
HSC_2	1 17	1004...10...		HSC
HSC_3	1 18	1008...10...		HSC
HSC_4	1 19	1012...10...		HSC
HSC_5	1 20	1016...10...		HSC
HSC_6	1 21	1020...10...		HSC

4. Open network View >> Add URB-PNT >> Connect:



5. Set module name, and add I/O modules from the list.  
6. Download to PLC:

