

06 FLUID MANAGEMENT SYSTEM

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NEX-U.
FLUID MANAGEMENT SYSTEM

NEXUS + YOU = NEX-U.®

THE GOOD HAS JUST GOTTEN BETTER

After years of field proven reliable performance with the AMS system, SAMOA is proud to introduce NEX-U.® Fluid Management System. NEX-U.® is a hybrid system that combines wireless flexibility with hard wired reliability.

WIRELESS FLEXIBILITY

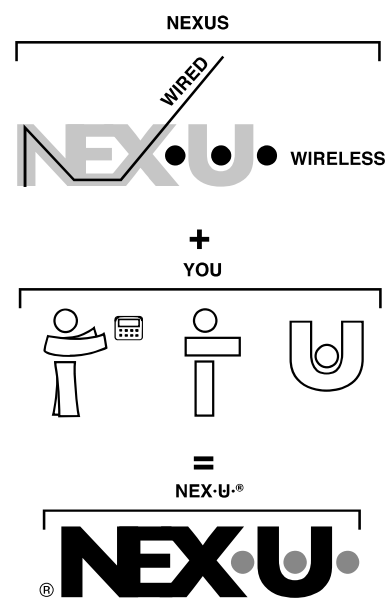
- Data can be transmitted wirelessly among the different system components, avoiding long and expensive cable runs.
- Easy to add new components as required as your maintenance needs grow.
- System uses existing Wi-Fi® networks, simplifying its installation. No need for special, custom made, network components.

HARD WIRED RELIABILITY

- Constant and reliable power source always present for reliable energizing of solenoid valves.
- No empty batteries to let you down.
- Hard-wired data transmission to avoid interferences and other obstacles which can make difficult wireless data transmission.

NEX-U.® has been conceived with the user in mind, making fluid management and fluid inventory control an easy, trouble free activity. NEX-U.® contributes to increase maintenance operations profitability and productivity:

- Provides total control and record of each and every fluid dispense.
- Secures access to fluids only to authorized technicians.
- Provides accurate, real time fluid inventory information.



NEX-U.® name combines the Latin word "NEXUS", which means connection, with "U" (You), the system User, the Human.

CENTRAL PROCESSING UNIT

U-net

U-net

U-net is the key NEX-U.® component. Using a powerful 2,4 Ghz processor, 4 Gb RAM and with 64 Gb storage capacity, it controls all the system functions and manages the wired and wireless communication among the NEX-U.® components.

U-net also includes the U-track software. U-track can be available through an existing or a new network and in any licensed terminal. It can also be available as a stand alone system, with access through the U-pad keypads.

U-net has the following communication parts.

- USB and RS232 for connecting peripheral accessories (ticket printer, RFID card reader, etc.).
- Ethernet port, to connect NEX-U.® to the workshop network using a router or a PC.
- Can-Bus in and out parts; for Hard-wired connection with other system components.



PC SOFTWARE

U-track

U-track

A powerful software package that gives you full control of fluid usage and inventory. It is a web based software that allows multiuser applications. All PCs or tablets under the same network can have access to U-track (multiple user licenses required). U-track can work using Windows or Linux operating systems.

U-track allows a simple, intuitive, system set-up and simplifies regular maintenance tasks like adding and deleting users, keeping fluid inventory and generating powerful reports. Thanks to U-track you will be able to:

- Simple and intuitive system set-up
- Simplified system maintenance (manage users, fluid inventory, etc.).
- Manage all the system hard-wired and wireless communication.
- Generate a wide variety of reports, which can be easily exported in Excel format.
- Record and manage Validated Preset Transactions (required for operating with U-Vision+)
- Transform any PC or any other terminal device in the workshop in a NEX-U.® virtual keypad (multiple user licenses required).

U-track also contributes to increase your operations efficiency and profitability:

- Keeps control of every drop of fluid dispensed in the system.
- Improves inventory accuracy, generating automatic warnings and email notifications for reordering and critical predefined inventory levels.
- Generates a variety of reports, to help you to track dispense information such as date and time, technician, work order, fluid dispensed, volume delivered, etc.

U-track makes also possible communicating with most workshop DMS systems.

U-track can operate using a PC connected to U-net and within a Wi-Fi® network, or as a stand alone component. In this case, access to U-track is done using the U-dat keypad.



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SYSTEM ACCESS KEYPAD. CONTROL HANDLE WITH A DISPLAY AND ACCESS KEYPAD

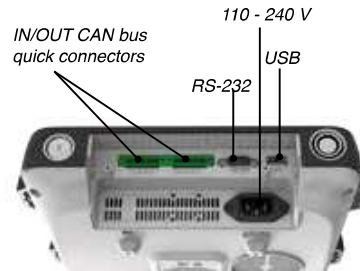
Udat

SYSTEM ACCESS KEYPAD



System Access Keypad includes a 7" full color graphics display and a complete QWERTY keypad. U-dat allows system access to technicians either through a PIN code or using a RFID card.

U-dat supports Can-bus cable communications, that transmits data and the power to open the solenoid valves in the system. Cabling is easy using "plug-and-play" type connectors. U-dat includes the transformer required to simultaneously open up to 8 solenoid valves. U-dat also supports Wi-Fi® data communication with other system components. U-dat requires 110 - 240 V power supply.



U-dat connection panel.
All wired connections can be done fast and easy without requiring to open U-dat.

Uvision⁺

CONTROL HANDLE WITH A DISPLAY AND ACCESS KEYPAD

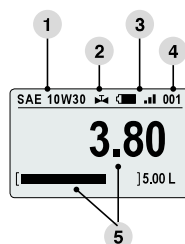
U-vision⁺

The backlight display is connected using Bluetooth® with a U-valve, U-meter⁺ or U-count module and it displays the following parameters:

- Hose reel (fluid outlet number and fluid dispensed type).
- Battery life and Bluetooth® signal strength.
- Volume delivered and operation progress.
- U-valve solenoid valve open or closed.

U-vision⁺ includes a six-buttons keypad and it can replace the U-dat keypad for data entry in the system as it allows the following operations:

- User PIN enter.
- Scroll through existing open job orders to select the one corresponding to each operation.
- Enter the volume of fluid to be dispensed.
- Confirm fluid type and transaction.



U-vision⁺ is powered with 4 AA 1,5 V alkaline batteries.

- 1 Fluid dispensed type.
- 2 Solenoid valve open or close.
- 3 Battery life and Bluetooth® signal.
- 4 Hose reel / fluid outlet number.
- 5 Volume delivered and operation progress.

NEX-U.® FLOW CONTROL COMPONENTS



NEX-U.® offers multiple options for controlling fluids flow. All of them are based in a pulse meter and a 24 DC solenoid valve using a constant and reliable power source for dependable and accurate flow control. All NEX-U.® flow meters include a double reed switch. This allows detecting changes in the flow direction.

FLOW VALVE

Uvalve Uvalve+

U-valve combines in a compact unit a high accuracy pulse meter, a solenoid valve and a large and cleanable fluid screen filter with the electronics required to control the meter and valve operation and to communicate with other system components. Reduces installation time and eliminates the risk of leak when using separate components. It has a large, high visibility LED display showing the U-valve number assigned in the system, four colored LED lights that show the U-valve operation for diagnosis and two buttons for system configuration. U-valve supports Can-bus cable communication that transmits data and the electric power required to open the solenoid valve. It also supports Bluetooth® communications for connecting with a U-vision or a U-vision+ fluid handle with display. Requires 24 V DC supplied by a U-dat or a U-power module.

U-valve+
Same as the U-valve it also supports Wi-Fi® to communicate with other system components.

U-valve and U-valve+ wired connections use fast connection in/out Can-bus terminals.

Component	Pulse meter	Solenoid valve	Communication module	Bluetooth®	Wi-Fi®	Materials and Inlet / outlet ports available
U-valve	Yes	Yes	Yes	Yes	-	Aluminum 1/2"
U-valve+	Yes	Yes	Yes	Yes	Yes	



FLOW METER

Umeter Umeter+

U-meter
High accuracy pulse meter that includes, in a compact unit, the electronics required to control the meter and valve operation and communication with other system components through a Can-bus connection. It has an LED display showing the U-meter number assigned in the system, four colored LED lights that show the U-meter operation for diagnosis and two buttons for system configuration. Equipped with fast connection in/out Can-bus terminals. Available in different materials and sizes to match different applications. Only for connection with U-dat, an adjacent U-meter, U-valve or U-valve+. Requires a 24 V DC solenoid valve (U-dat or U-power).

U-meter+
Same as the U-meter, it also supports Bluetooth® communication for connecting it to a U-vision or U-vision+ delivery handle.

Component	Pulse meter	Solenoid valve	Communication module	Bluetooth®	Wi-Fi®	Materials and Inlet / outlet ports available
U-meter	Yes	-	Yes	-	-	Aluminum 1/2" and 3/4"
U-meter+	Yes	-	Yes	Yes	-	PVC & SS 1/2"



U-meter in stainless steel (windshield wash, DEF, antifreeze).



U-meter+ in aluminum (lubricants, antifreeze solutions).

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Upulser Upulser+

PULSE METER



3/4" aluminum. U-pulser for high volume lubricants and diesel.



1/2" aluminum. U-pulser+

U-pulser

High accuracy line pulse meter. Equipped with connection terminal and valve open indication light. Only for connection to a U-count module. This meter does not have a display or function buttons. Available in different materials and sizes to match different applications. Requires a 24 V DC solenoid valve.

U-pulser+

High accuracy line pulse meter module combined with a 24 V solenoid valve to start and stop fluid flow and an inlet filter screen. Reduces installation time and eliminates the risk of leak when using separate components. Equipped with fast connection in/out Can-bus terminals. Only for connection to a U-count module. This meter does not have a display or function buttons.

Component	Pulse meter	Solenoid valve	Communication module	Bluetooth®	Wi-Fi®	Materials and Inlet / outlet ports available
U-pulser	Yes	-	-	-	-	Aluminum 1/2" and 3/4" PVC & SS 1/2"
U-pulser+	Yes	Yes	-	-	-	Aluminum 1/2"

Ucount+

FLUID CONTROL MODULE



Stainless steel U-pulser and solenoid valve controlled using a U-count+ module.

U-count+

Fluid control module that includes a high visibility LED display and the software required for controlling any U-pulser or U-pulser+ and solenoid valve combination with the rest of the NEX-U.® system components. The LED display shows the U-valve number assigned in the system and four colored LED lights show the operation of the valve for diagnosis and two buttons for system configuration. U-count supports Can-bus hard wired communication that transmits data and power required to open the solenoid valve, Wi-Fi® for data communication with other system components and Bluetooth® to communicate with a U-Vision or U-Vision+ handle.

Component	Pulse meter	Solenoid valve	Communication module	Bluetooth®	Wi-Fi®	Materials and Inlet / outlet ports available
U-count+	-	-	Yes	Yes	Yes	N/A

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NEX-U ACCESSORIES

Solenoid valves

NEX-U.® requires 24 V DC, normally closed solenoid valves to operate. U-valve, U-valve+ and U-pulser+ include a solenoid valve. For other metering elements, a solenoid valve compatible with the fluid and the application requirements must be used. SAMOA offers a complete offering of solenoid valves in different materials and sizes to meet your demands.

U-power

Supply module for energizing solenoid valves when a U-dat keypad is not used. 110- 240 V AC input; 24 V DC output. Two models available:

U-power (75 w) can be used to energize a maximum of 2 solenoid valves.

U-power+ can (300 w) be used to energize a maximum of 8 solenoid valves.



Air solenoid valve to control air supply to the pump.



U-pulser with solenoid valve and y-strainer assembly for lubricants.

NEX-U.® REMOTE DISPLAYS - INVENTORY CONTROL MODULE



REMOTE LED DISPLAY

Uview

U-view

Is a remote, high visibility, LED display that shows the volume delivered through various U-valves (no simultaneous operation supported). U-view supports Wi-Fi® and hard wired communication. U-view requires hard-wired connection (data and power) to a U-dat keypad or to a 110 - 240 V AC power supply using a 24 V DC external transformer.



CONTROL HANDLE WITH BACKLIGHT DISPLAY

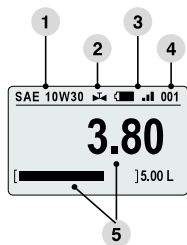
Uvision

U-vision

Is a control handle with backlight display. It is connected to a U-valve, U-meter+ or U-count by Bluetooth®.

U-vision displays the hose reel (fluid outlet) number, the type of fluid delivered, the battery life and Bluetooth® signal strength, the solenoid valve (open or closed) status, the volume delivered and delivery progress.

U-vision is powered with 4 AA 1,5 V alkaline batteries.



- 1 Fluid dispensed type.
- 2 Solenoid valve open or close.
- 3 Battery life and Bluetooth® signal.
- 4 Hose reel / fluid outlet number.
- 5 Volume delivered and operation progress.



TANK LEVEL MONITOR MODULE

Utank

Tank level monitor module to control two tanks. When mounted in a NEX-U.® system it keeps real time inventory and increases operation safety preventing air entering into pumps when the tank is empty and overflow during clean oil delivery and in waste oil storage tanks. It can also be used to control the general air supply to the pumps.

U-tank has two independent graphic displays and level bars, each of them shows the inventory available in each tank. It also has a set-up keypad for inventory adjustment if required⁽¹⁾.

The number of input and output ports are:

- One analogical input per tank for a probe (pressure or ultrasonic probe) with 4-20 mA or 0-10V
- Three digital inputs per tank for a low, intermediate or high level probe⁽¹⁾.
- One output per tank for a solenoid valve to control air supply to each pump.
- One output per tank for an electro-pneumatic valve to prevent tank overflow
- One output for controlling an air solenoid valve to stop the air supply to all pumps during the time the workshop is closed.

U-tank supports Can-bus wired and Wi-Fi® wireless communication with other NEX-U.® system components. It requires a 110 -240 V AC supply.

⁽¹⁾ The use of digital probes does not allow real time inventory monitoring. NEX-U.® will use declining balance for inventory control and will require manual inventory adjustment.



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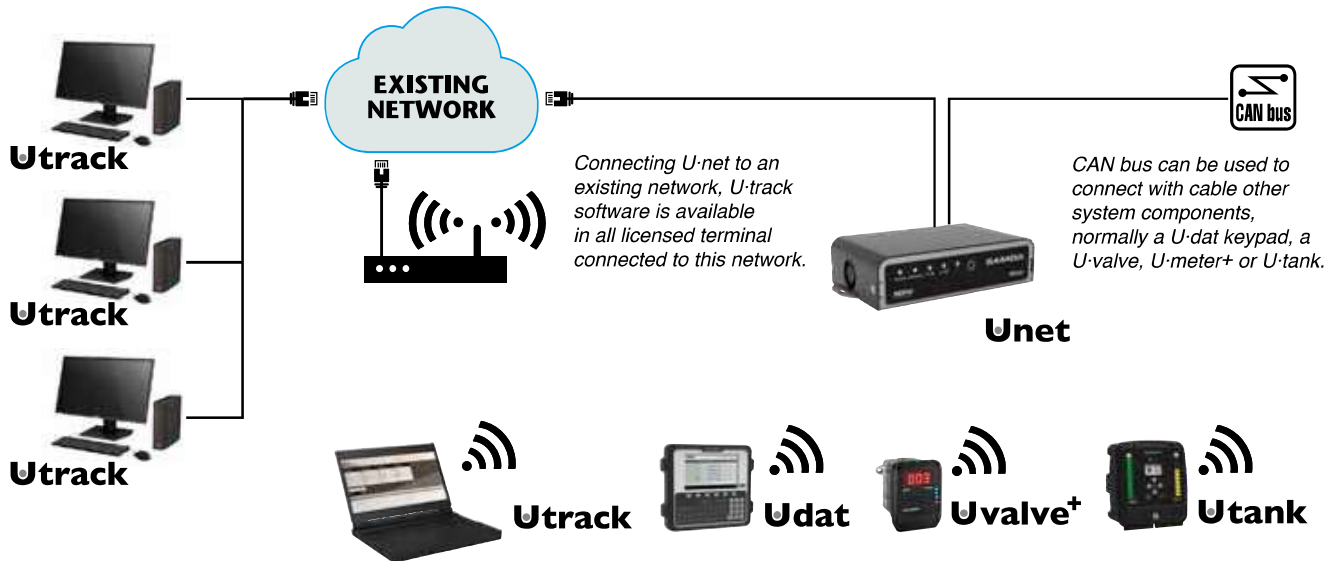
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There are two possibilities of creating a wireless network:

- Using an existing Wi-Fi® network. Requires access to an existing network wireless credentials.
- Creating a dedicated Wi-Fi® network. New wireless credentials are created for this network.

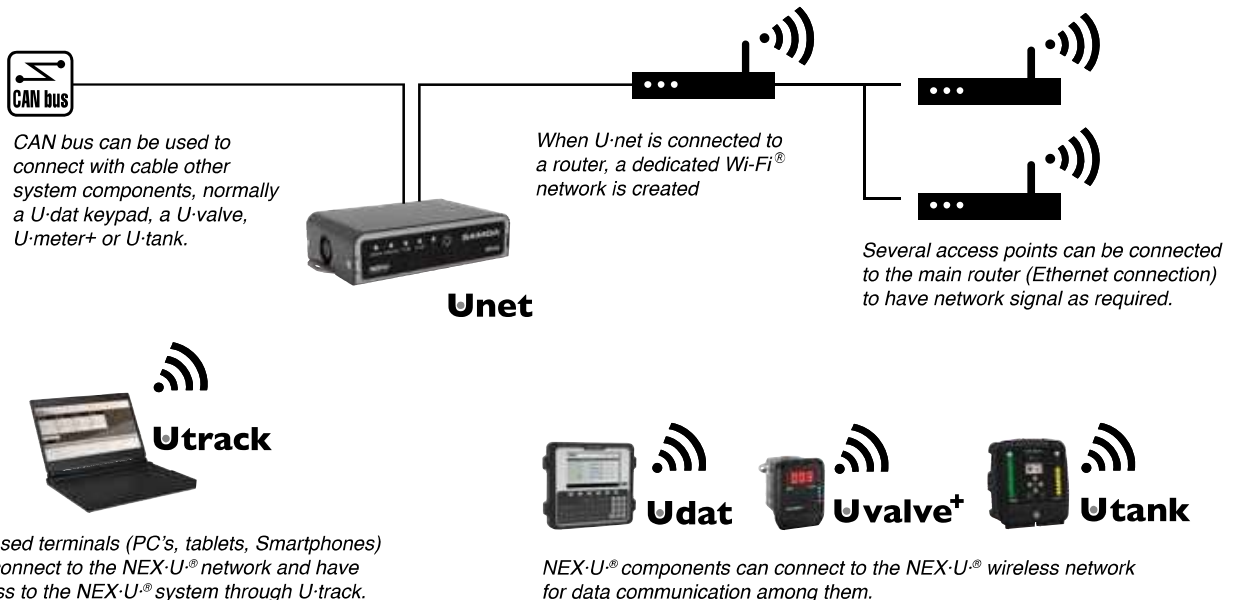
In both cases IP addresses, network and default gateway, are required. The key component is U-net.

USING AN EXISTING NETWORK



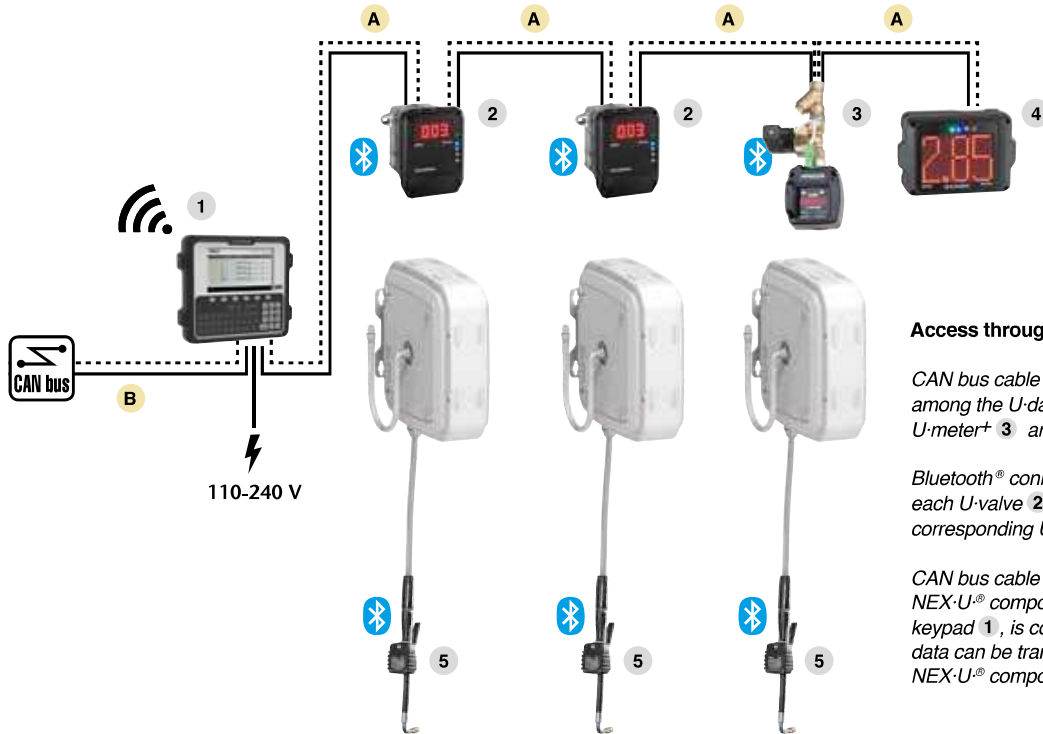
If the network uses Wi-Fi®, NEX-U® components with Wi-Fi® can connect to the network via Wi-Fi®. Additionally, other licensed terminals (Laptops, tablets, Smartphones) can have access to U-track.

CREATING A NEW NETWORK



NEX-U.® provides maximum flexibility in the way the user interacts with the system, the most effective connection method and enhanced reporting capability.

ACCESS THROUGH U-DAT



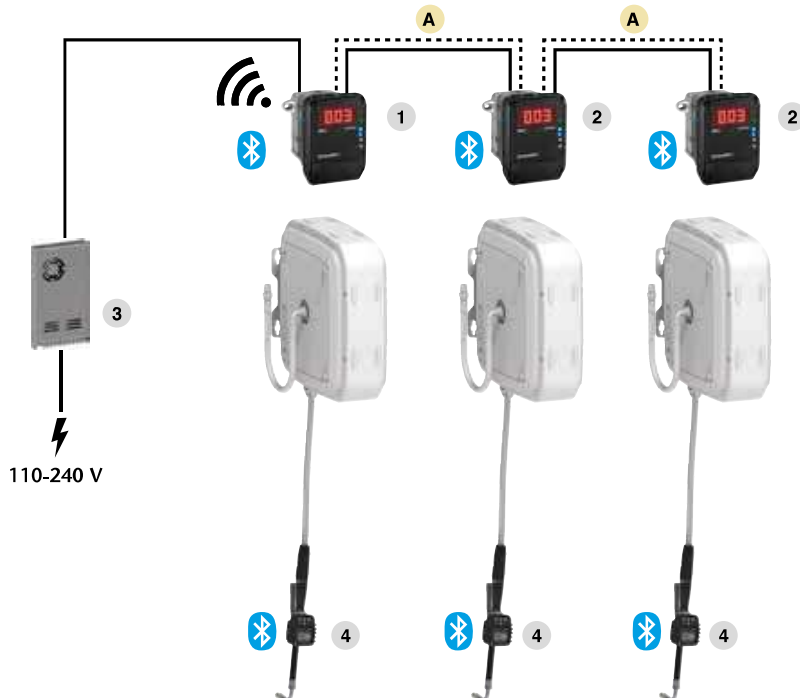
Access through U-dat

CAN bus cable **A**, transmits power and data among the U-dat keypad **1**, the U-valves **2**, the U-meter+ **3** and the U-view remote display **4**.

Bluetooth® connection is used to communicate each U-valve **2** and U-meter+ **3** with its corresponding U-vision **5** hand held display.

CAN bus cable **B** communicates with other NEX-U.® components. Alternatively, and if the keypad **1**, is connected to the wireless network, data can be transmitted wirelessly by other NEX-U.® components.

ACCESS THROUGH U-VISION+



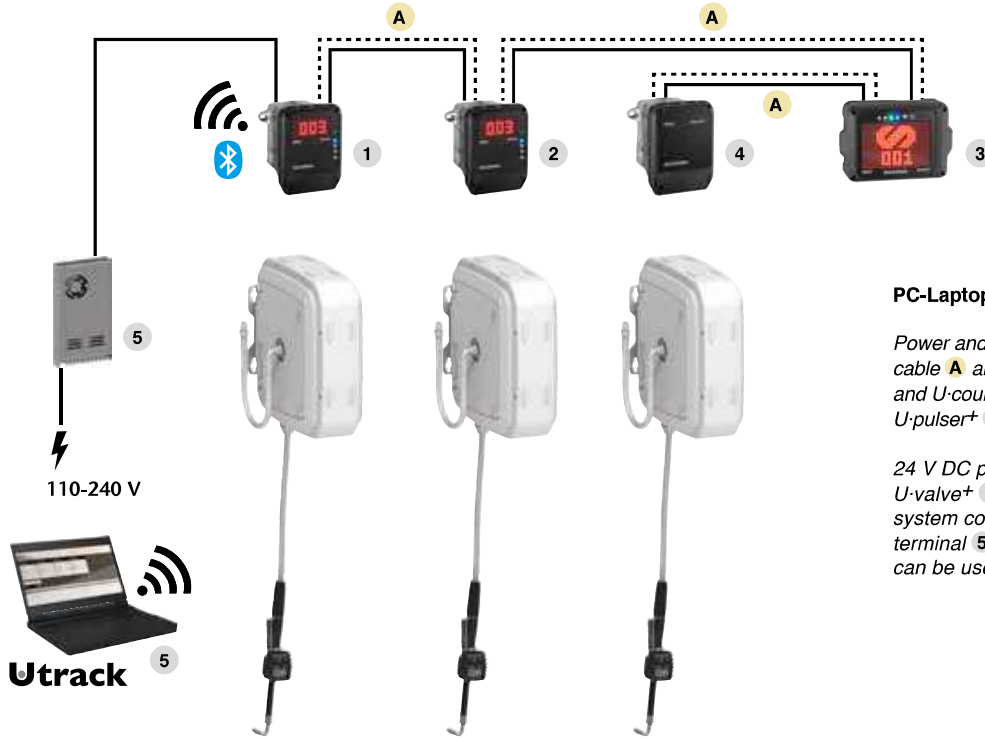
Access through U-vision+

Power and Data are transmitted using CAN bus cable **A** among the U-valve+ **1** and the other U-valves **2**. Power to energize the solenoid valves is amplified by the U-power **3**, connected to U-valve+ **1**.

Each U-valve+ **1** and U-valve **2** is connected to its corresponding U-vision+ **4**, hand-held display and systems access Keypad.

Wireless data transmission is done by U-valve+ **1**.

PC - LAPTOP CONNECTION



PC-Laptop connection

Power and data are transmitted using CAN bus cable **A** among the U-valve+ **1**, U-valve+ **2** and U-count+ **3**. U-count+ **3** is connected to U-pulser+ **4** also using CAN bus connection.

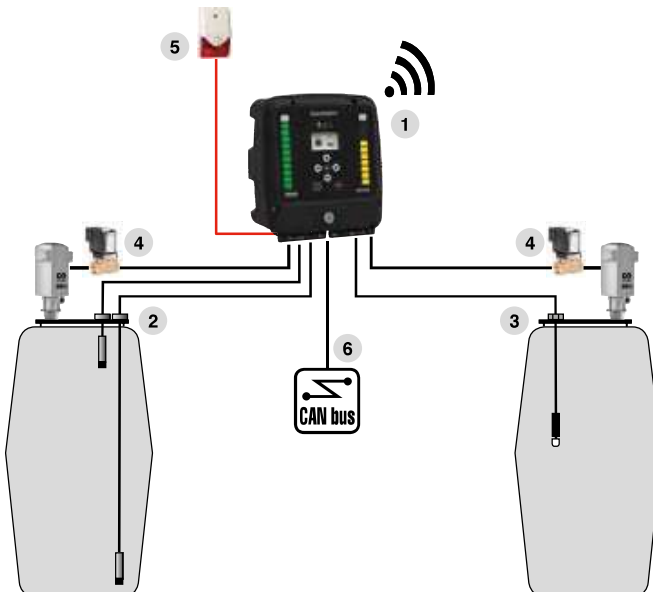
24 V DC power is supplied by U-power **5** to U-valve+ **1** connects using Wi-Fi® with all system components, including any licensed terminal **5** that is connected to U-track and can be used as a virtual access keypad.

TANK MONITORING

CAN BUS FAST CONNECTION

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U-dat, U-valve, U-meter, U-count, U-tank and U-net use in/out CAN bus fast connectors that make cabling easier, faster and prevent disconnections.

Tank monitoring

U-tank **1** can monitor up to two tanks. Each tank can be fitted with low and high level sensors **2** or with a pressure gauge **3** for real time control of the inventory in the tank. U-tank **1** can also control pump operation opening or closing an air solenoid valve **4** that prevents pump running dry or air entering the oil distribution lines if there is no oil in the tanks.

U-tank **1** can also control a remote flash light or siren **5** to announce when any tank is empty.
U-tank **1** can communicate with other NEX-U® elements using Wi-Fi® or through CAN bus **6** wired connection.