www.metalwork.eu

M0030403 IM00 - 12/2022

METAL WORK PNEUMATIC

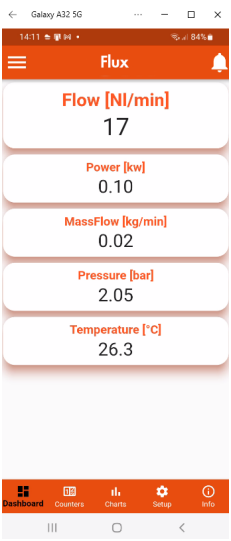
Metal Work FluxUp
MANUALE D'USO

Metal Work FluxUp
USER MANUAL

IT EN

L'APP Metal Work FluxUp, consente il collegamento via Bluetooth, da smartphone Android e IOS, ai flussimetri Metal Work della serie FLUX 1 e 2, dotati di interfaccia wireless.

Tramite Metal Work FluxUp è possibile visualizzare in tempo reale, tutti i dati rilevati da FLUX ed impostare i tutti parametri di funzionamento.



1. INSTALLAZIONE

1.1 DISPOSITIVI ANDROID

Scaricare l'app da Play Store ed installarla sullo smartphone.
La versione minima supportata è Android 6.0 MarshMallow.
Per la comunicazione con FLUX, il dispositivo necessita di Bluetooth LE.

1.2 DISPOSITIVI IOS

Scaricare l'app da Apple Store ed installarla sullo smartphone.
La versione minima supportata è IOS 11.
Per la comunicazione con FLUX, il dispositivo necessita di Bluetooth LE.

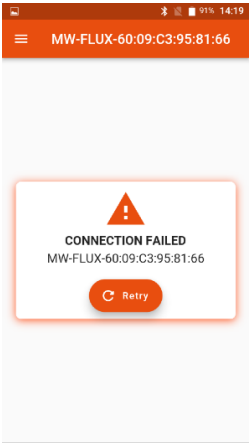
2. APPLICAZIONE

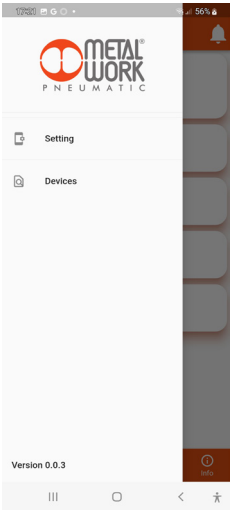
2.1 INTRODUZIONE

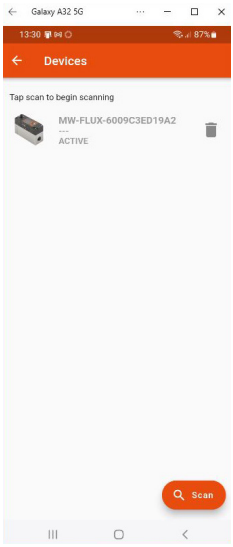
L'App permette di:
- scansionare i dispositivi FLUX 1 e 2 nelle vicinanze;
- connettersi e visualizzare le informazioni del dispositivo in tempo reale;
- impostare i parametri della rete Wireless;
- salvare e visualizzare i dati salvati per una visualizzazione offline.

2.2 UTILIZZO

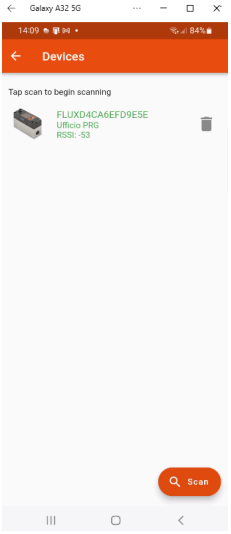
Avviare l'App, al primo avvio effettuare la scansione dei dispositivi, successivamente ad ogni avvio l'APP tenterà di ricollegarsi all'ultimo dispositivo connesso.
Se il dispositivo è disponibile, in caso di errore, è necessario premere il pulsante **Retry** per riprovare a collegarsi.
Per effettuare una nuova scansione, aprire il menù in alto a sinistra e selezionare **Devices**, verranno visualizzati tutti i dispositivi che sono stati precedentemente associati.







Premere sul pulsante **Scan** per avviare la ricerca di nuovi dispositivi.
I dispositivi rilevati saranno visualizzati in verde.
Il valore RSSI indica l'intensità del segnale, più il valore negativo è elevato più il segnale è forte.
Premere sul dispositivo per effettuare la connessione.

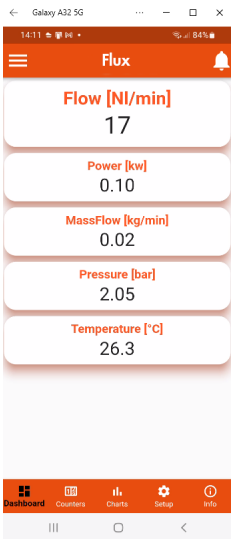


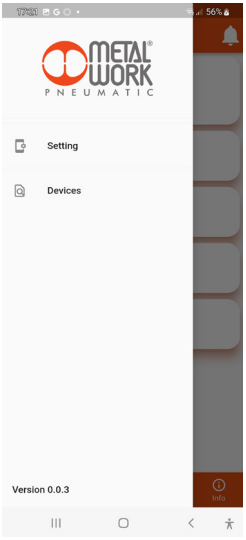
Per rimuovere dall'elenco i dispositivi non collegati premere sull'icona **Cestino**.

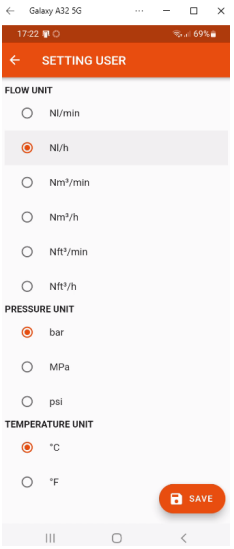
2.3 DASHBOARD

Nella pagina **Dashboard** vengono visualizzati in tempo reale i dati delle misurazioni.
Le unità di misura sono impostabili nel menù **Setting**, indipendentemente da quelle impostate su FLUX.

La barra superiore visualizza il nome del dispositivo a cui si è collegati.
La barra inferiore visualizza il menu delle funzioni.

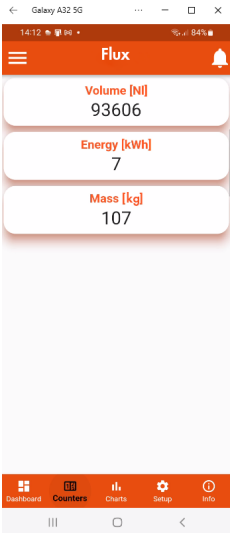






2.4 COUNTERS

La pagina **Counters** visualizza i valori di Volume, Energia e Massa, consumati dall'ultimo reset effettuato su FLUX.



2.5 CHARTS

La pagina **Charts** visualizza i grafici dei valori salvati di portata e pressione.

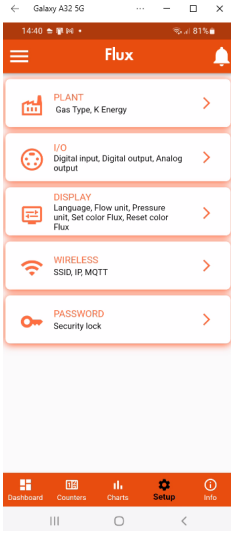
Ad ogni connessione vengono richiesti i dati di pressione e portata salvati da FLUX.
I dati vengono salvati ad intervalli di 2 minuti si riferiscono alle ultime 24 ore di lavoro.

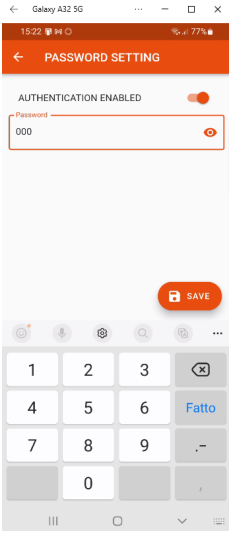
2.6 SETUP

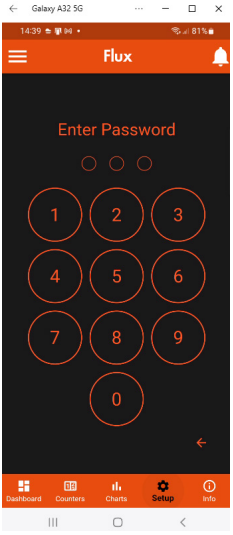
Nella pagina **Setup** è possibile impostare i parametri di funzionamento ed i parametri per la connessione Wireless.

Per attivare le modifiche è necessario salvarle prima di uscire dalla pagina.

L'accesso al menù **Setup** è protetto dalla Password impostata nel FLUX 1-2.
Dopo l'accesso è possibile modificarla nel campo Password.
Nel caso di smarrimento della password contattare la fabbrica, per ottenere un codice di sblocco.

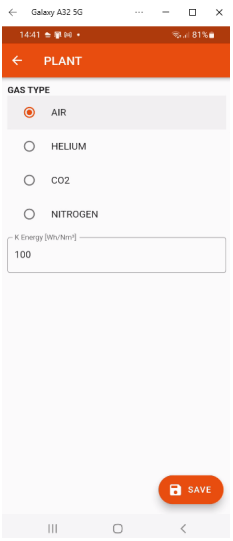






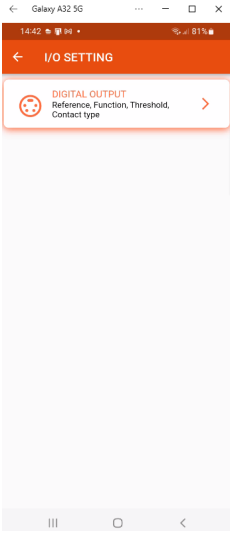
2.6.1 PLANT

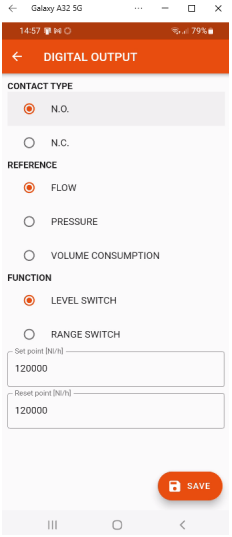
Consente di impostare il tipo di Gas utilizzato e il coefficiente per il calcolo dell'energia consumata.

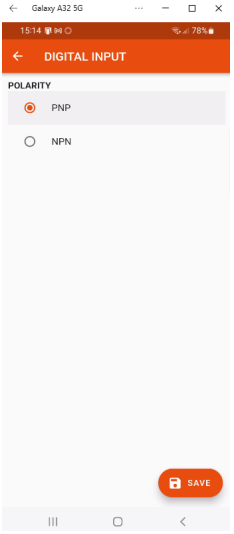


2.6.2 I/O

Consente di impostare i parametri di funzionamento dell'ingresso digitale e dell'uscita digitale.

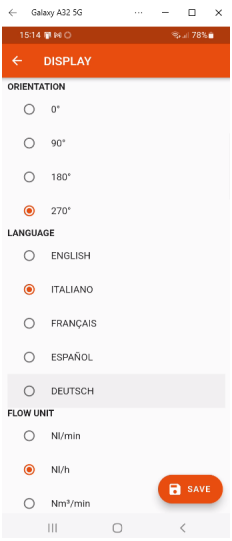


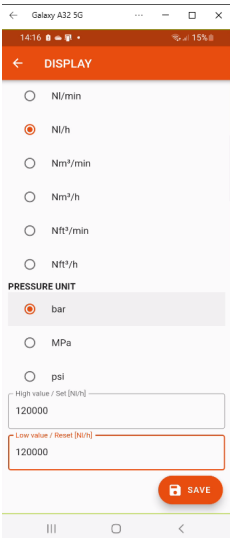




2.6.3 DISPLAY

Consente di impostare:
- l'orientamento del Display;
- la lingua;
- l'unità di misura della portata;
- l'unità di misura della pressione;
- i valori di cambio colore della visualizzazione della portata.



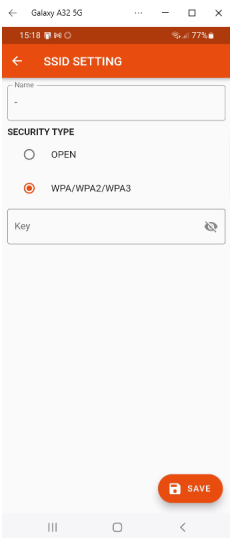


2.6.4 WIRELESS

Consente di impostare i parametri di connessione alla rete wireless:
- Enable con selezione del server.
  Per il server METALWORK i parametri sono già impostati.
  Per il server Custom è necessaria l'impostazione dei seguenti parametri: SSID
  IP address
  MQTT
- INFO visualizza i MAC address, la versione software.
- Il campo LOCATION consente di impostare il nome del dispositivo, sono consentiti 11 caratteri.

2.6.4.1 SSID

- Name: inserire il nome della rete alla quale collegarsi
- Security type: selezionare se la rete è protetta oppure aperta
- Key: impostare la password di rete



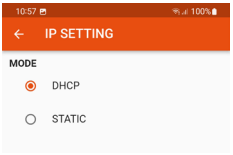
2.6.4.2 IP

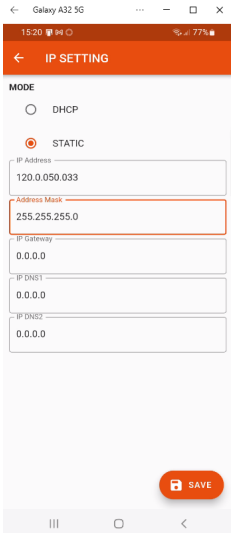
- **DHCP**: l'indirizzo IP viene assegnato dal server DHCP
- **STATIC**: l'indirizzo IP viene assegnato permanentemente

IP address, impostare l'indirizzo IP del dispositivo nella stessa classe di rete del Gateway di collegamento.

Address mask, impostare la maschera in funzione dell'intervallo di indirizzi IP all'interno della sottorete.

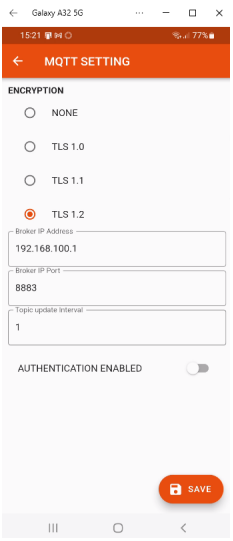
IP DNS 1 e 2, impostare l'indirizzo del server DNS, visibile nelle proprietà della rete Wi-Fi in uso.





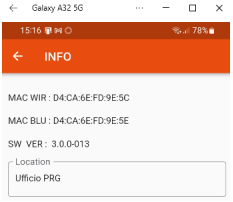
2.6.5 MQTT

Consente di impostare i parametri per il collegamento ad un Broker MQTT
- Tipo di crittografia utilizzata
- Indirizzo IP del Broker
- Porta Utilizzata dal Broker – 8883
- Intervallo di aggiornamento
- Abilitazione dell'autenticazione



2.6.6 INFO WIRELESS

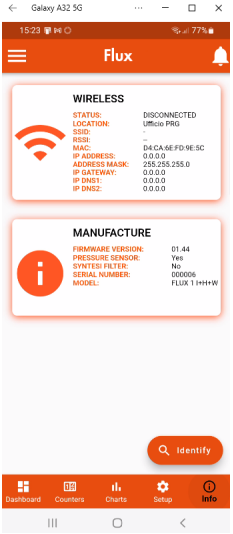
- **MAC WIR**: MAC address per il protocollo Wireless
- **MAC BLU**: MAC address per la connessione via FluxUp
- **SW VER**: versione software del software di comunicazione radio
- **Location**



2.7 INFO

La pagina Info visualizza le informazioni del dispositivo:
- lo stato della rete, i parametri della rete (indirizzo IP, GATEWAY, DNS1, DNS2);
- la versione del firmware;
- la presenza del sensore di pressione;
- se integrato con il filtro Syntesi;
- il numero seriale;
- il modello, con taglia e funzioni.

Inoltre, in caso di presenza di più FLUX, è possibile Identificare il FLUX connesso usando il pulsante **Identify**: in questo modo FLUX effettuerà un lampeggio del led sinistro verde per 5 secondi.

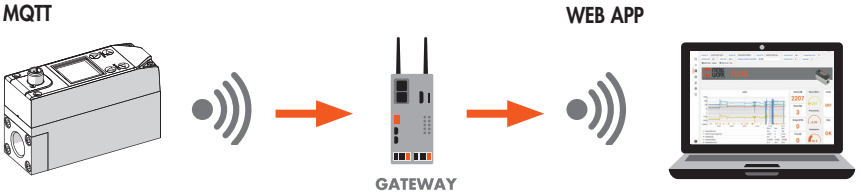


3. COLLEGAMENTO WIRELESS

La versione Wireless di FLUX 1 e 2, consente la connessione ad una rete Ethernet Wi-Fi, tramite un Access point oppure un Gateway, per monitorare ed acquisire tutte le grandezze misurate del gas in esame.

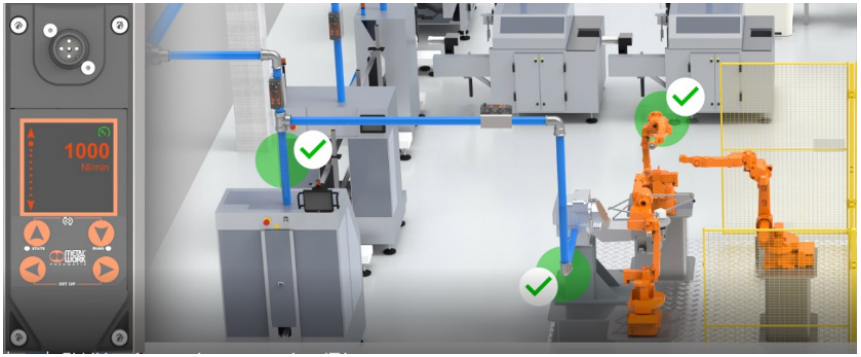
STRUTTURA DEL COLLEGAMENTO CON GATEWAY METAL WORK

Il Gateway Metal Work si occupa della raccolta dati, della formattazione e dell'analisi, presentandoli in una pagina Web visualizzabile tramite browser. I dati sono residenti e archiviati nel Gateway, quindi sempre visualizzabili da qualsiasi utente accreditato.



STRUTTURA DEL COLLEGAMENTO TRAMITE UN ACCESS POINT AD UN BROKER MQTT

La raccolta dei dati dal campo consente di effettuare una diagnosi predittiva dell'impianto:
- permette di mantenere sempre sotto controllo i parametri operativi e di ottimizzare il funzionamento delle macchine e dell'impianto pneumatico;
- consente di individuare le perdite al fine di evitare gli sprechi energetici.



Il software può essere implementato con funzioni di analisi che consentono:
- il controllo dell'efficienza macchine;
- andamento dei consumi e previsione a lungo termine (valutazione miglioramento impianto).

CARATTERISTICHE DELLA CONNESSIONE WIRELESS

Gateway
SSID_SECURITY nessuna o WPA/WPA2/WPA3
SSID_NAME max 31 caratteri
SSID_KEY max 62 caratteri
IP statico / dhcp

Broker MQTT
ENCRYPTION nessuna, TLS 1.0, 1.1, 1.2 (require_certificate = false)
BROKER IP ADDRESS
BROKER IP PORT 1883,8883
Autenticazione utente (opzionale):
AUTH_NAME max 8 caratteri
AUTH_KEY max 8 caratteri

Struttura dei dati in formato MQTT (struttura pacchetti dati JSON)
TOPIC: MW-FLUX/AABBCCDDEEFF/DATA

Dove AABBCCDDEEFF è il MAC-ADDRESS del dispositivo.

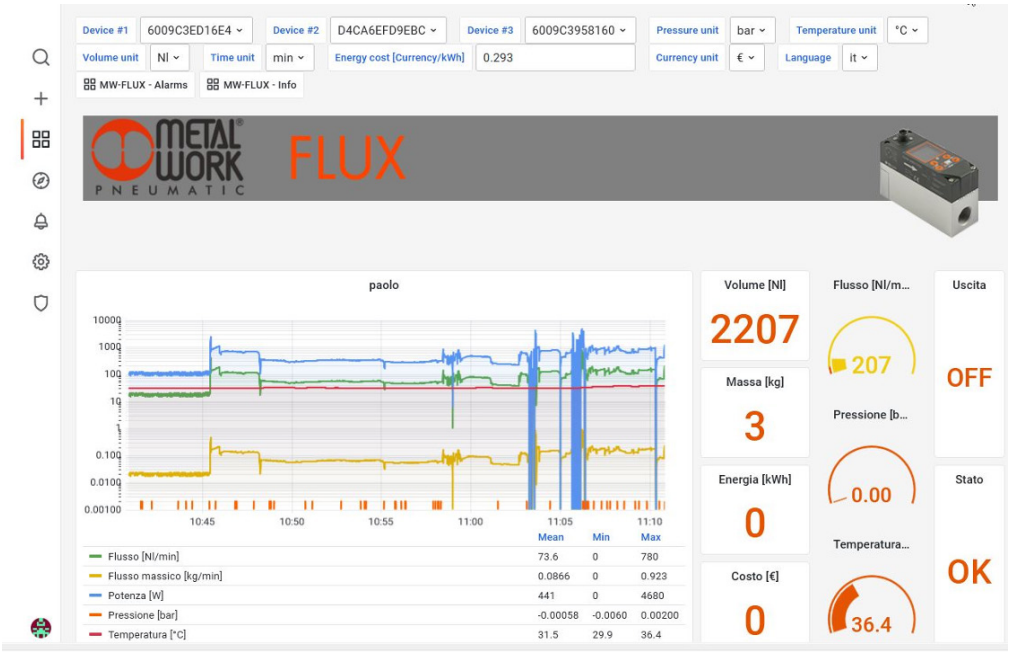
Vengono inviati due modelli di dati:
1. Instant values (iv) viene inviato ogni secondo con i dati attuali del dispositivo.
iv: object of type values
f: Flow (Nl/min)
w: Power (W)
mf: Mass flow (g/min)
p: Pressure (mbar)
t: Temperature (dC)
V: Volume (Nl)
E: Energy (kWh)
M: Mass (kg)
o: Digital Output
a: Alarms

Esempio:
{"iv":{"f":1500,"w":00450,"mf":32200,"p":05000,"t":232,"V":999999999,"E":999999999,"M":999999999,"o":0,"a":65535}}

2. Info (i) viene inviato all'accensione e ad ogni modifica
i: object of type info
tg: taglia
sn: serial number
sv: sw version
wv: wireless version
mod: model version
l: localization
pp: presence of pressure sensor
pf: presence of Syntesi filter
gas: type of gas (air, CO_2, He, N)
ke: electricity conversion (Wh/Nm^3)

Esempio:
{"i":{"tg":"FLUX 1", sn":1,"sv":"01.00","wv":"4.0.0006"," mod":"A+H+W","l":"PRODUCTION01","pp":1," pf":0,"gas": "co2","ke":999}}

Esempio Dashboard



4. CERTIFICAZIONI

Questo dispositivo contiene:
FCC ID: **XPYNINAW106**
IC: **8595A-NINAW106**

Il modulo serie NINA-W15 è certificato nei seguenti Paesi/regioni:

- Europe (RED)
- USA (FCC)
- Canada (IC)
- Japan (MIC)
- Taiwan (NCC)
- South Korea (KCC)
- Brazil (ANATEL)
- Australia and New Zeeland (ACMA)
- South Africa (ICASA)

European Union regulatory compliance	**Radio Equipment Directive (RED) 2014/53/EU** NINA-W15 series modules comply with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/EU.
USA – Canada FCC/IC compliance	This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s).
Japan radio equipment compliance Giteki mark, R and the NINA-W156 MIC certification number	R **203-JN1166**
NCC Taiwan compliance	**Contains Transmitter Module** 內含發射器模組:: **CCAI21Y1009AT3**
KCC South Korea compliance	**R-C-ULX-NINA-W106**
Brazil compliance	ANATEL 05099-21-01056 "Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário."
Australia and New Zealand regulatory compliance	NINA-W151, NINA-W152 and NINA-W156 modules are compliant with the standards made by the Australian Communications and Media Authority (ACMA).
South Africa regulatory compliance	ICASA TA-2021/3334 APPROVED
Bluetooth Declaration ID D062365	

Marchi commerciali:

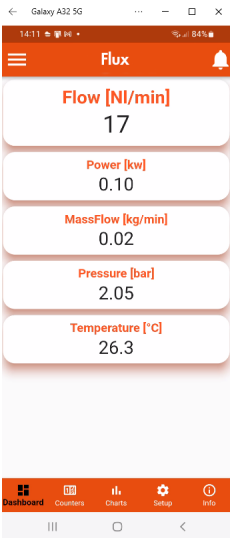
- Bluetooth® è un marchio commerciale registrato in tutto il mondo di Bluetooth SIG, Inc.
- Wi-Fi® é un marchio commerciale registrato di Wi-Fi Alliance.
- Tutti gli altri marchi e copyright sono proprietà dei rispettivi proprietari.

NOTE

NOTE

The Metal Work FluxUp App can be used for connection via Bluetooth to Metal Work flow meters in the FLUX 1 and 2 series with a wireless interface, from Android smartphone and iOS.

With the Metal Work FluxUp App, you can view all data recorded by the FLUX and set all operating parameters in real time.



1. INSTALLATION

1.1 ANDROID DEVICES

Download the app from the Play Store and install it on your smartphone.
The minimum supported version is Android 6.0 MarshMallow (II) for communication with the FLUX, the device requires Bluetooth LE.

1.2 iOS DEVICES

Download the app from the Apple Store and install it on your smartphone.
The minimum supported version is iOS 11 for communication with the FLUX - the device requires Bluetooth LE.

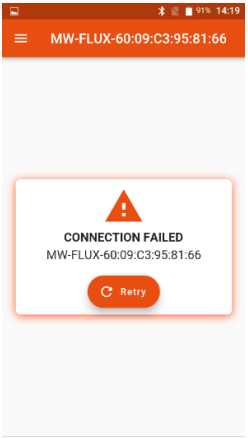
2. APPLICATION

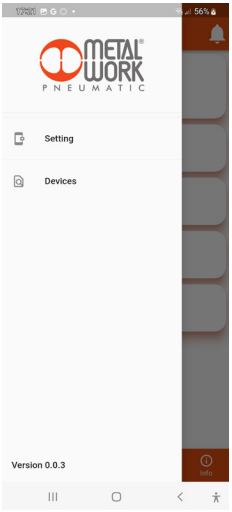
2.1 INTRODUCTION

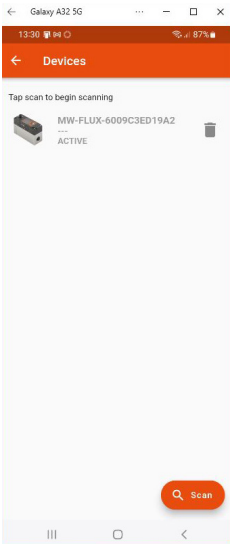
This App allows you to:
- scan nearby devices FLUX 1 and 2;
- connect and view device information in real time;
- set wireless network parameters;
- save and view saved data for offline viewing.

2.2 OPERATION

Run the App and scan the devices the first time it is started. Afterwards, each time it is started, the App will attempt to reconnect to the last connected device. If the device is available, in case of an error, press the **Retry** button to connect again. To rescan, open the top left menu and select '**Devices**', All previously associated devices will be displayed.

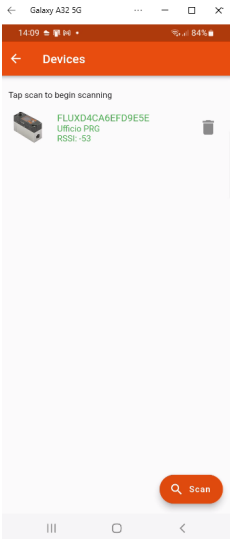






Press the **Scan** button to start searching for new devices.
The devices recognised will be displayed in green.
The RSSI value indicates the signal strength, the higher the negative value, the stronger the signal.
Press on the device to make the connection.

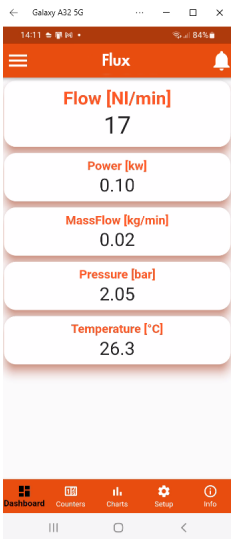
To remove non-connected devices from the list, press the **Bin** icon.

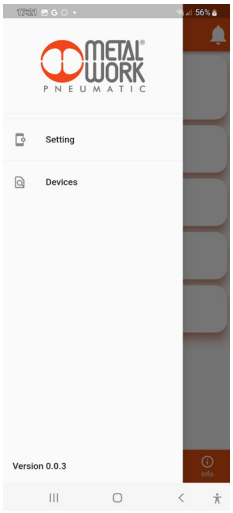


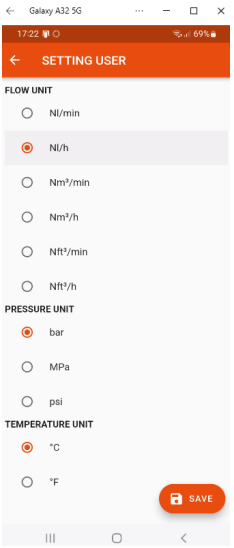
2.3 DASHBOARD

The **dashboard** page displays measurement data in real time.
The units of measurement can be entered in the **Setting** menu, irrespective of the units set on the FLUX.

The top bar displays the name of the device being connected.
The bottom bar displays the function menu.

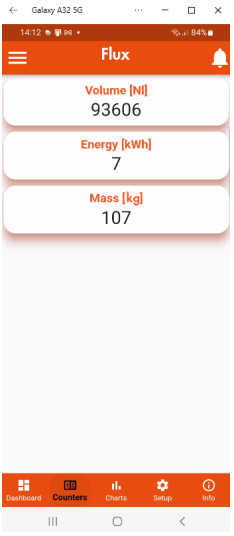






2.4 COUNTERS

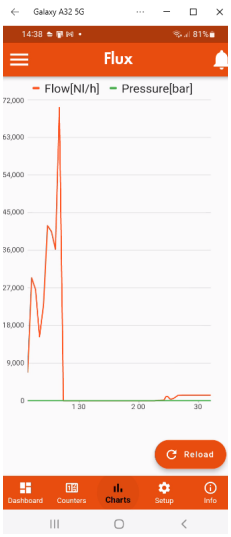
The **Counters** page displays the values of Volume, Energy and Mass consumed since the last reset on the FLUX.



2.5 CHARTS

The **Charts** page displays the graphs of saved flow rate and pressure values.

Each time a connection is made, the pressure and flow rate data saved by the FLUX are requested.
The data are saved at intervals of 2 minutes and refer to the last 24 hours of operation.

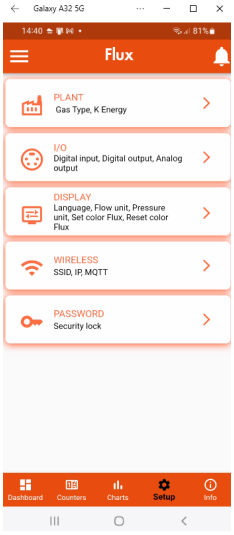


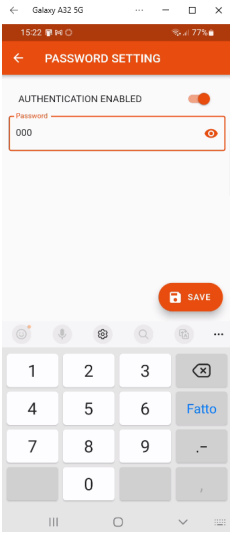
2.6 SETUP

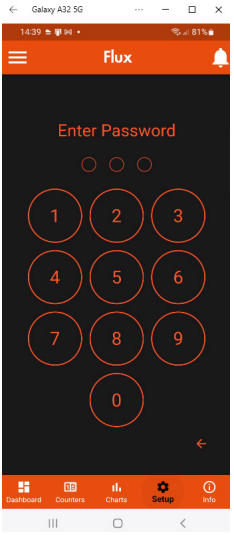
In the **Setup** page, you can set the operating parameters and the wireless connection parameters.

To enable the changes made, you need to save them before exiting the page.

The access to the **Setup** menu is protected by the password set in FLUX 1-2.
After the access can be modified in the field Password.
If you forget the password, contact the manufacturer to obtain a password reset code.

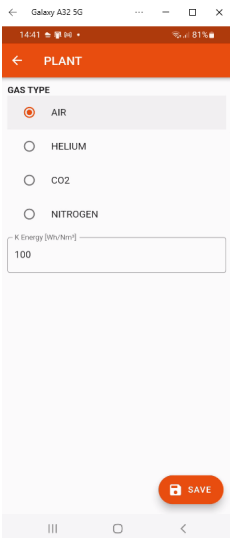






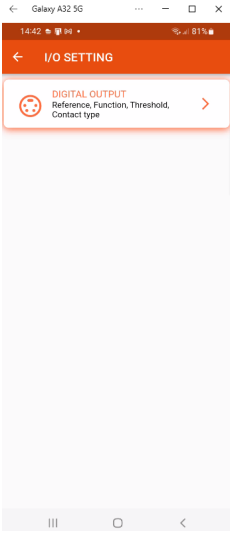
2.6.1 PLANT

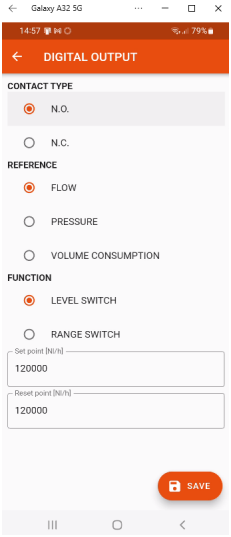
Used to set the type of gas used and the coefficient for calculating the energy consumed.

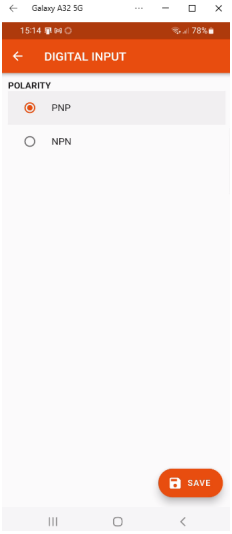


2.6.2 I/O

Used to set the operating parameters of the digital input and output.

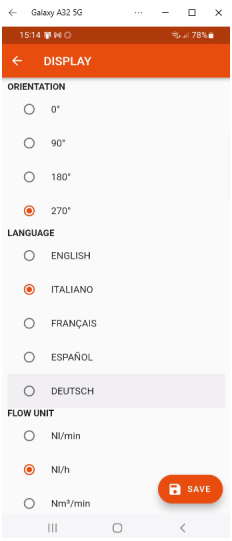


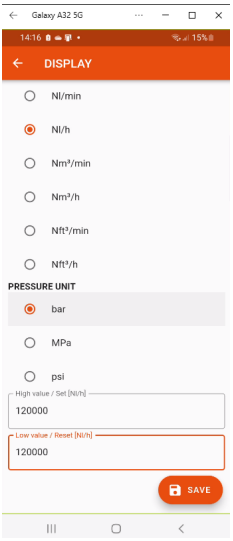




2.6.3 DISPLAY

Can be used to set:
- display orientation;
- language;
- flow rate measuring unit;
- pressure measuring unit;
- flow rate display colour change values.





2.6.4 WIRELESS

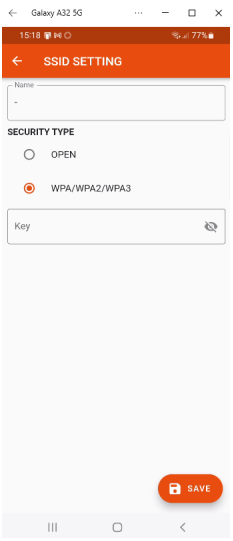
Can be used to set wireless network connection parameters:
- Enable via server selection

For the METALWORK server, the parameters are already set.
For the Custom server, the following parameters must be set: SSID
IP address
MQTT

- INFO displays the MAC addresses, the software version
- The LOCATION field can be used to set the device name, 11 characters are allowed.

2.6.4.1 SSID

- Name: enter the name of the network you wish to connect to
- Security type: select whether the network is protected or open
- Key: select whether the network password is to be protected or open



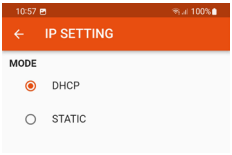
2.6.4.2 IP

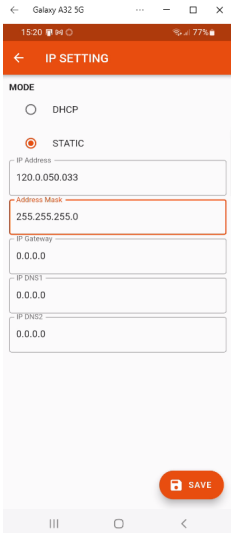
- **DHCP**: the IP address is assigned by the DHCP server
- **STATIC**: the IP address is assigned permanently

IP address, set the IP address of the device in the same network class as the link Gateway.

Address mask, Set the mask according to the IP address range in the given subnetwork.

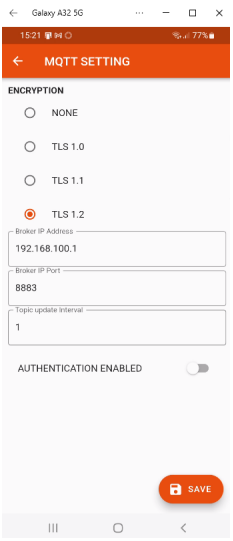
IP DNS 1 and 2, Set the DNS server address, visible in the properties of the Wi-Fi network in use.





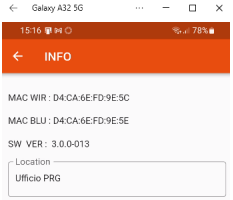
2.6.5 MQTT

Can be used to set the parameters for connection to an MQTT Broker
- Type of encryption used
- Broker IP Address
- Port Used by the Broker – 8883
- Update interval
- Enabling activation



2.6.6 INFO WIRELESS

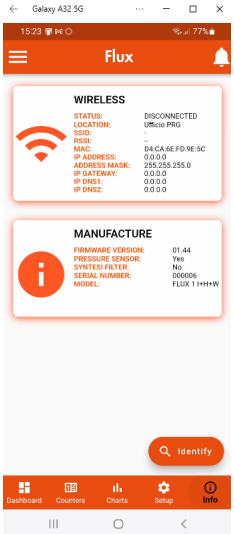
- **MAC WIR**: MAC address for the Wireless protocol
- **MAC BLU**: MAC address for connection via the FluxUp
- **SW VER**: software version of the radio communication software
- **Location**



2.7 INFO

The info page displays device information:
- network status, network parameters (IP address, GATEWAY, DNS1, DNS2);
- firmware version;
- the presence of the pressure sensor;
- if integrated with the Syntesi filter;
- serial number;
- model, with size and functions.

Moreover, if more than one FLUX is present, it is possible to Identify the connected FLUX using the **Identify** button: the FLUX left green LED will then flash for 5 seconds.

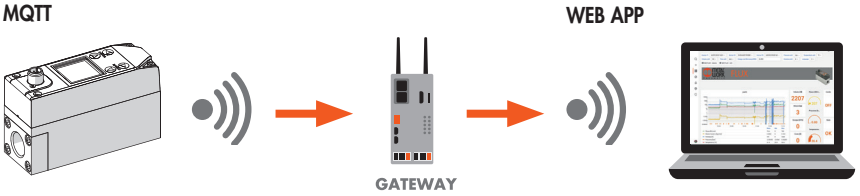


3. WIRELESS CONNECTION

With the Wireless version of FLUX 1 and 2, you can establish a connection to a Wi-Fi Ethernet network via an access point or gateway to monitor and collect all the measured gas values.

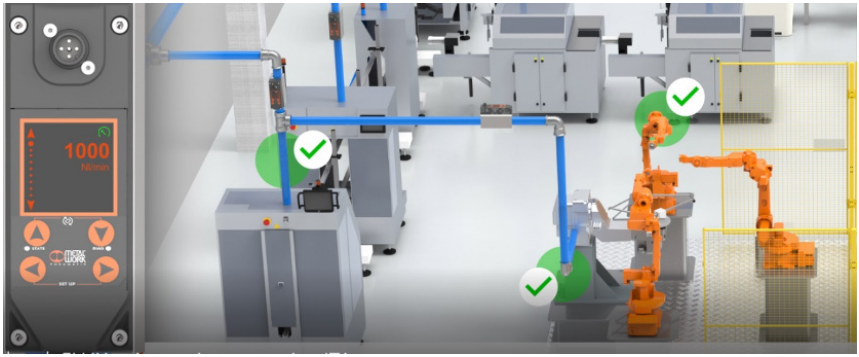
LINK STRUCTURE WITH THE METAL WORK GATEWAY

The Metal Work Gateway handles the collection, formatting and analysis of data, displaying them in a browser-viewable web page. The data is resident and stored in the Gateway, thus always viewable by any authorised user.



CONNECTION TO A MQTT BROKER VIA AN ACCESS POINT

Gathering data from the field makes it possible to:
- carry out a predictive diagnosis of the system;
- monitor the operating parameters at all times and optimize the operation of the machines and the pneumatic system;
- detect any leaks and prevent energy wastage.



The software can be implemented with analysis functions that provide:
- machine efficiency monitoring;
- consumption trends and long-term forecasting (plant improvement evaluation).

WIRELESS CONNECTION FEATURES

Gateway
SSID_SECURITY nessuna o WPA/WPA2/WPA3
SSID_NAME max. 31 characters
SSID_KEY max. 62 characters
IP static / DHCP

Broker MQTT
ENCRYPTION none, TLS 1.0, 1.1, 1.2 (require certificate = false)
BROKER IP ADDRESS
BROKER IP PORT 1883,8883
User authentication (optional):
AUTH_NAME max. 8 characters
AUTH_KEY max. 8 characters

Data structure in MQTT format (JSON data packet structure)
TOPIC: MW-FLUX/AABBCCDDEEFF/DATE

Where AABBCCDDEEFF is the MAC-ADDRESS of the device.

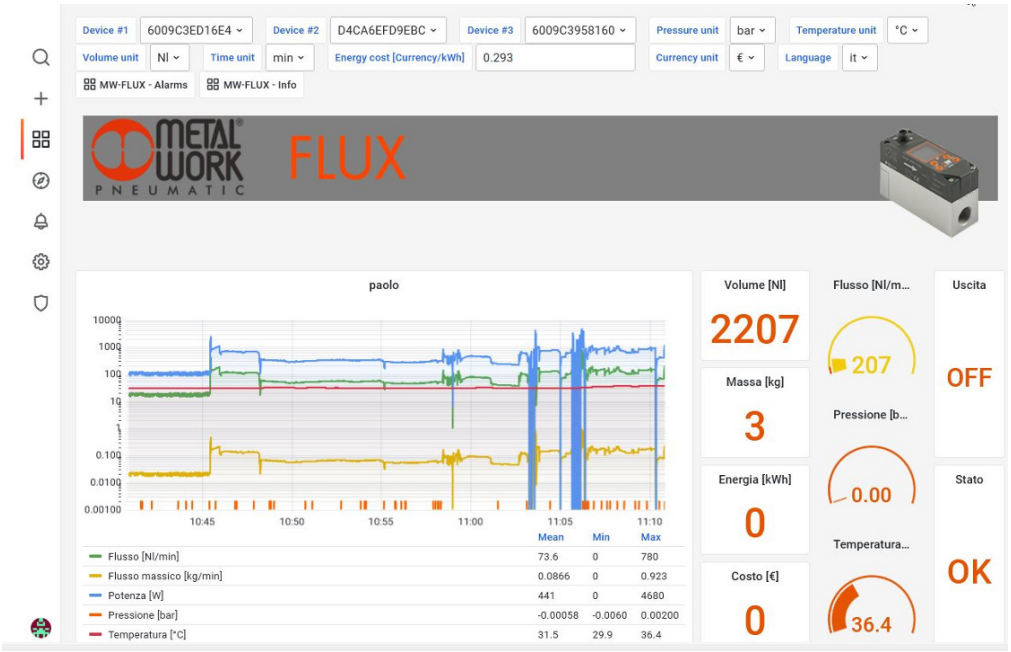
Two data models are sent:
1. Instant values (iv) is sent every second with the current device data.
iv: object of type values
f: Flow (Nl/min)
w: Power (W)
mf: Mass flow (g/min)
p: Pressure (mbar)
t: Temperature (dC)
V: Volume (Nl)
E: Energy (kWh)
M: Mass (kg)
o: Digital Output
a: Alarms

Example:
{"iv":{"f":1500,"w":00450,"mf":32200,"p":05000,"t":232,"V":999999999,"E":999999999,"M":999999999,"o":0,"a":65535}}

2. Info (i) is sent upon switch-on and each change.
i: object of type info
tg: taglia
sn: serial number
sv: sw version
wv: wireless version
mod: model version
l: localization
pp: presence of pressure sensor
pf: presence of Syntesi filter
gas: type of gas (air, CO_2, He, N)
ke: electricity conversion (Wh/Nm^3)

Example:
{"i":{"tg":"FLUX 1", sn":1,"sv":"01.00","wv":"4.0.0006"," mod":"A+H+W","l":"PRODUCTION01","pp":1," pf":0,"gas": "co2","ke":999}}

Example: Dashboard



4. QUALIFICATION AND APPROVALS

This device contains
FCC ID: **XPYNINAW106**
IC: **8595A-NINAW106**

The NINA-W15 module series is certified for use in the following countries/regions:

- Europe (RED)
- USA (FCC)
- Canada (IC)
- Japan (MIC)
- Taiwan (NCC)
- South Korea (KCC)
- Brazil (ANATEL)
- Australia and New Zeeland (ACMA)
- South Africa (ICASA)

European Union regulatory compliance	**Radio Equipment Directive (RED) 2014/53/EU** NINA-W15 series modules comply with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/EU.
USA – Canada FCC/IC compliance	This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s).
Japan radio equipment compliance Giteki mark, R and the NINA-W156 MIC certification number	R 203-JN1166
NCC Taiwan compliance	**Contains Transmitter Module** 內含發射器模組:: CCAI21Y1009AT3
KCC South Korea compliance	R-C-ULX-NINA-W106
Brazil compliance	ANATEL 05099-21-01056 "Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário."
Australia and New Zealand regulatory compliance	NINA-W151, NINA-W152 and NINA-W156 modules are compliant with the standards made by the Australian Communications and Media Authority (ACMA).
South Africa regulatory compliance	ICASA TA-2021/3334 APPROVED
Bluetooth Declaration ID D062365	

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- Wi-Fi® is a registered trademark of the Wi-Fi Alliance.
- All other trademarks and copyrights are the property of their respective owners.

NOTES