WAGO PFC controller Instructions

USING ANYVIZ ON WAGO PLCS

GETTING STARTED

The WAGO PFC series supports all connection options offered by the AnyViz Cloud. This allows WAGO users to choose the communication method that suits best for the automation project. The different options are compared and described here.

	Cloud Adapter on Linux	Cloud Adapter on Docker	Cloud Adapter in CODESYS runtime	MQTT
Implement data exchange in the PLC program				✔
Directly access all variables			✔	
Access variables via OPC-UA or Modbus	✔	✔		
Connect additional PLCs, meters or field devices	✔	✔		
Use AnyViz VPN	✔	✔		
Local buffering of data in case of connection failure	✔	✔	✔	
Remote access to local file system			✔	
HTML pass through	✔	✔	✔	
VNC pass through	✔	✔		
Camera pass through	✔	✔		

CLOUD ADAPTER ON LINUX

The Universal Cloud Adapter is a lightweight application which can run directory on the Linux system of the WAGO PFC controller. To install the cloud adapter, you need to connect to the PLC via SSH and execute the following command:

```
wget -qO - http://install.anyviz.io | sh
```

Note that you need root privileges for the installation. You can either log in directly as the root user or switch to the administrative shell using the `su` command.

After successful installation, the web interface of the Universal Cloud Adapter is available under port 8888 (e.g., http://ip_of_PLC:8888). If the web interface is not accessible, check the firewall settings in the WBM.

TIP: WATCH THIS YOU TUBE VIDEO FOR A DEMO

For onboarding the Cloud Adapter to your AnyViz project, see our getting started guide.

For more information about the Universal Cloud Adapter, see the documentation.

Mirasoft GmbH & Co. KG
Steingraben 13
97788 Neuendorf

Tel.: +49 (0)9351 9793 320
E-Mail: support@anyviz.de
Web: www.anyviz.de

Configure Firewall

In order for the Cloud Adapter web interface to be accessible, an exception must be added when the firewall is enabled. To do this, go to Security / Firewall / User filter in the WBM and add the following rule:

User filter	
Policy	Accept
Destination Port	8888
Protocol	TCP/UDP
Input Interface	Any

Configure OPC-UA connection

The easiest way to access the variables of the PLC program is to create an OPC-UA connection. To do this, switch to Connections in the web interface of the Cloud Adapter and add an OPC-UA connection as follows:

OPC-UA	Modbus TCP	+ New connection		
Name	OPC-UA		CONNECTION STATUS	
Server url	opc.tcp://localhost		Connected	●
User name	admin		Symbols	110
Password	•••••		Certificate	OPC-UA client certificate

Submit   Remove

Make sure that the service is activated in the WBM under Fieldbus / OPC-UA / Configuration and that the PLC program has a symbol configuration.

OPC UA Server Configuration	
Service enabled	✅
Ctrl Configuration name	WAGO 750-8100 PFC100 CS 2ETH ECO
Log level	Error
Unlimited anonymous access	☐

CLOUD ADAPTER ON DOCKER

For users who prefer Docker, the Cloud Adapter is also available as a container. The container can be started via the following command:

```
docker run -d -p 8888:8888 wagoautomation/anyviz
```

In order for the cloud adapter configuration to be persisted outside the container and to enable AnyViz VPN, the following command is recommended.

```
docker run -d -it \
  --net=host \
  --cap-add=NET_ADMIN \
  --device /dev/net/tun:/dev/net/tun \
  --restart=always \
  --name=anyviz \
  -v /etc/anyviz:/etc/anyviz \
  wagoautomation/anyviz
```

For more information, see Docker Hub.

CLOUD ADAPTER IN CODESYS RUNTIME

A function block for connecting to the AnyViz Cloud is available for CODESYS V3-based PLCs. This has the advantage that the Cloud Adapter is delivered directly with the PLC program and no changes to the Linux system are required.

Installation instructions

1. Download the library from https://download.anyviz.de/CloudAdapter_v2.compiled-library-v3.
2. Open the library repository and install the previously downloaded library.

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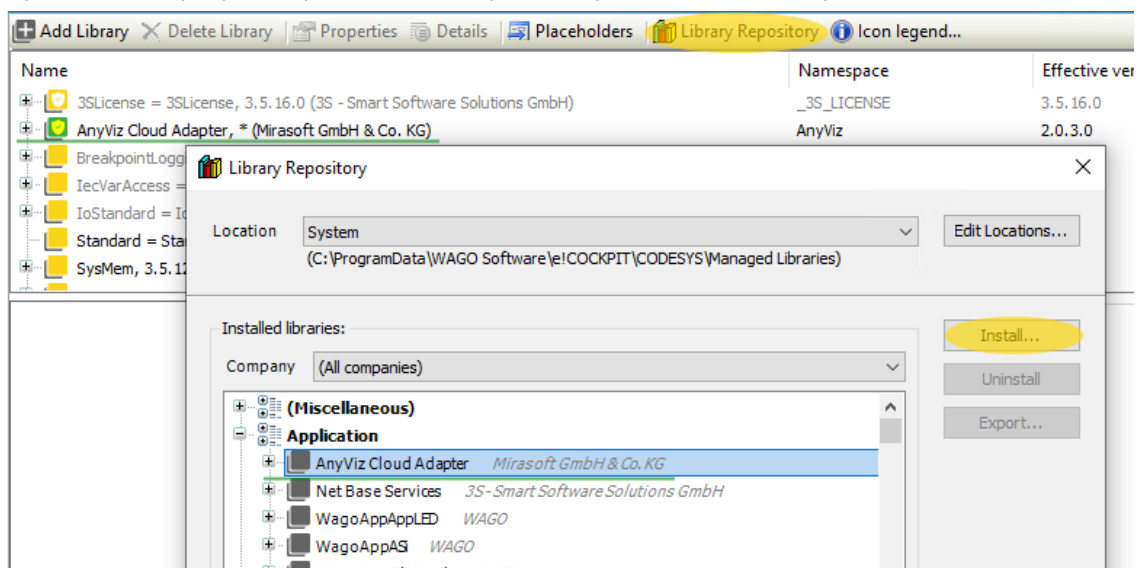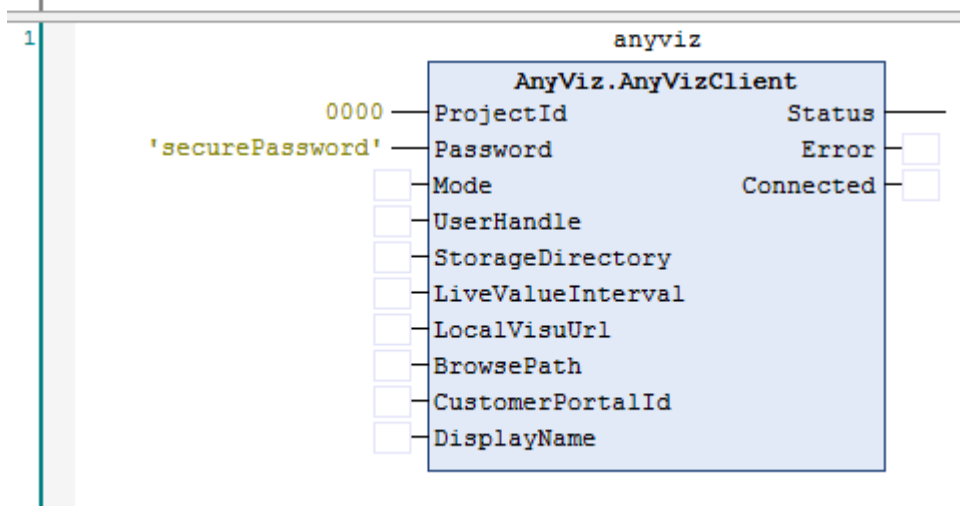
3. Instantiate the AnyViz function block and enter the AnyViz project number and a secure onboarding password as follows:

```
1  PROGRAM PRG_AnyViz
2  VAR
3      anyviz      : AnyViz.AnyVizClient;
4  END_VAR
5
```

```
                                    anyviz
                            AnyViz.AnyVizClient
        0000 ── ProjectId                    Status ──
'securePassword' ── Password                 Error ──
                  ─ Mode                    Connected ──
                  ─ UserHandle
                  ─ StorageDirectory
                  ─ LiveValueInterval
                  ─ LocalVisuUrl
                  ─ BrowsePath
                  ─ CustomerPortalId
                  ─ DisplayName
```

4. Create a symbol configuration and activate all variables that should be available in AnyViz.

After the PLC program is started, a new Cloud Adapter appears in your AnyViz project. Confirm the onboarding password. Afterwards, all variables of the symbol configuration are available in the AnyViz portal.

TIP: WATCH THIS YOU TUBE VIDEO FOR A DEMO

Recommendations:
- Keep the symbol configuration as small as possible to save data volume and initialization time.
- Run the AnyViz function block in a background task with lowest priority (15) and type "Freewheeling" for best performance and lowest impact of the main PLC program.

Configuration

Priority (1..15): 15

Type
Freewheeling

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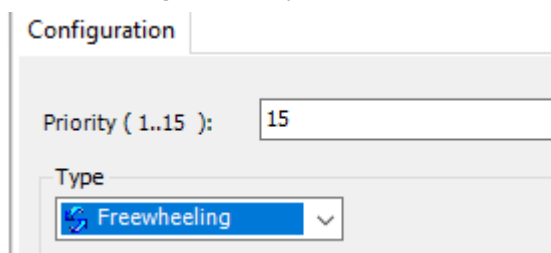
MQTT

With the MQTT protocol you can determine yourself when which values are exchanged. However, you have to do without the comfort of the cloud adapters. First, set up a connection. The value "User" corresponds to the AnyViz project number and as "Password" you enter an onboarding password that you then confirm in the portal. The "Client ID" can be assigned as desired.

Configuration	^
Enabled	✅
Cloud platform	MQTT AnyCloud ⌄
Hostname	portal.anyviz.io
Port number	8883
Client ID	DemoPLC
Clean session	✅
TLS	✅
Last Will	☐
User	110
Password	••••••••
CA file	/etc/ssl/certs/ca-certificates.crt
Certification file	
Key file	
Data protocol	Native MQTT ⌄

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Then use the ***WagoAppCloud*** library to publish and/or subscribe the values like this example:

```
1    PROGRAM PLC_MQTT
2    VAR
3        trigger                 : BOOL;
4        publishTimer            : TON := (PT := T#5S);
5        mqttPublish_TestReal    : FbPublishMQTT_2(1) := (sTopic := 'Test/Real');
6        dataArray               : ARRAY[0..3] OF BYTE;
7    END_VAR
8
```

```
1    publishTimer(IN := TRUE);
2    IF publishTimer.Q THEN
3        trigger := TRUE;
4        publishTimer(IN := FALSE);
5    END_IF
6
7    MemCopy(ADR(dataArray), ADR(GVL.TestReal), SIZEOF(GVL.TestReal));
8    mqttPublish_TestReal(dwSize := SIZEOF(GVL.TestReal), aData := dataArray, xTrigger := trigger);
9
```

For more details on using MQTT, see our MQTT documentation.

Considering the higher configuration effort and the limited functionality, we recommend the AnyViz Cloud Adapter over using MQTT.

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