

---

PLC AUTOMATION

## AC500 as IoT Gateway

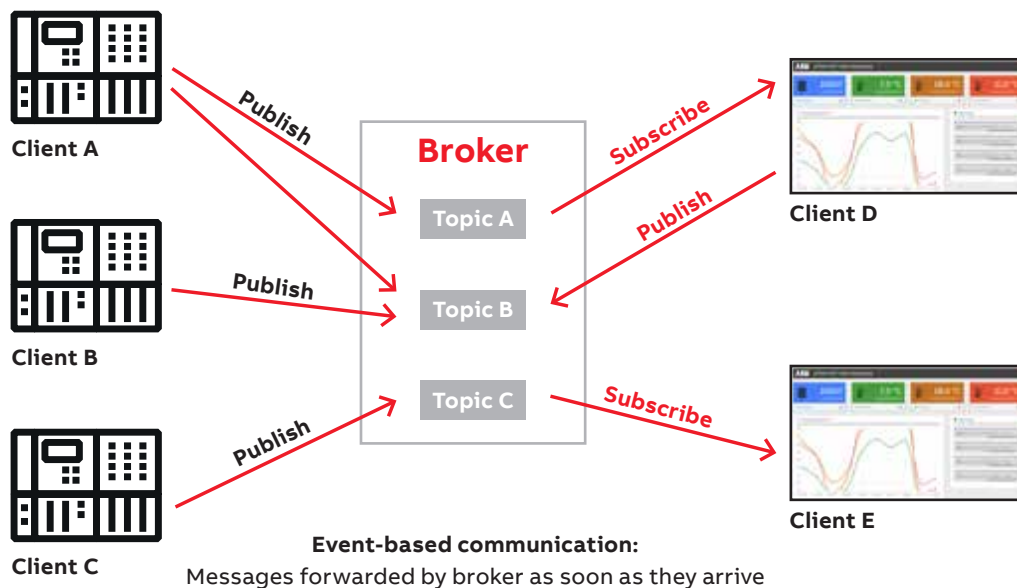
Smart cloud connectivity via MQTT



# MQTT – the lightweight IoT protocol

Message Queuing Telemetry Transport (MQTT) is a TCP/IP messaging protocol mainly used for lightweight communication to the cloud. It is based on a client/broker architecture which allows easy data distribution across various clients (e.g. devices, web services).

Client / broker architecture



## Benefits:

- Supported by many IoT platforms / applications
- Low bandwidth usage
- Low battery consumption
- Easy integration of many devices

## Typically used for:

- Condition monitoring
- Resource-constraint networks
- Cost-efficient data transfer

## How it works

Clients like controllers communicate with a broker situated in the cloud. They publish data event-based using topics. Other clients like SCADA-systems or monitoring applications can subscribe to these topics and receive messages immediately after publishing.

This event-based communication makes MQTT especially suitable for condition monitoring or messaging applications. Also, resource consumption is kept low as polling by the client is not necessary.

Furthermore, data is submitted with a small header and in simple JavaScript Object Notation (JSON) format. Both can be processed easily and involve small overhead. It enables low-bandwidth communication which keeps costs of data transfer at a minimum.

# Scalable cloud connectivity

## Benefits of AC500

### Platform-independent

With our generic libraries, the choice of the cloud platform is up to you!

### Fieldbus-compatible

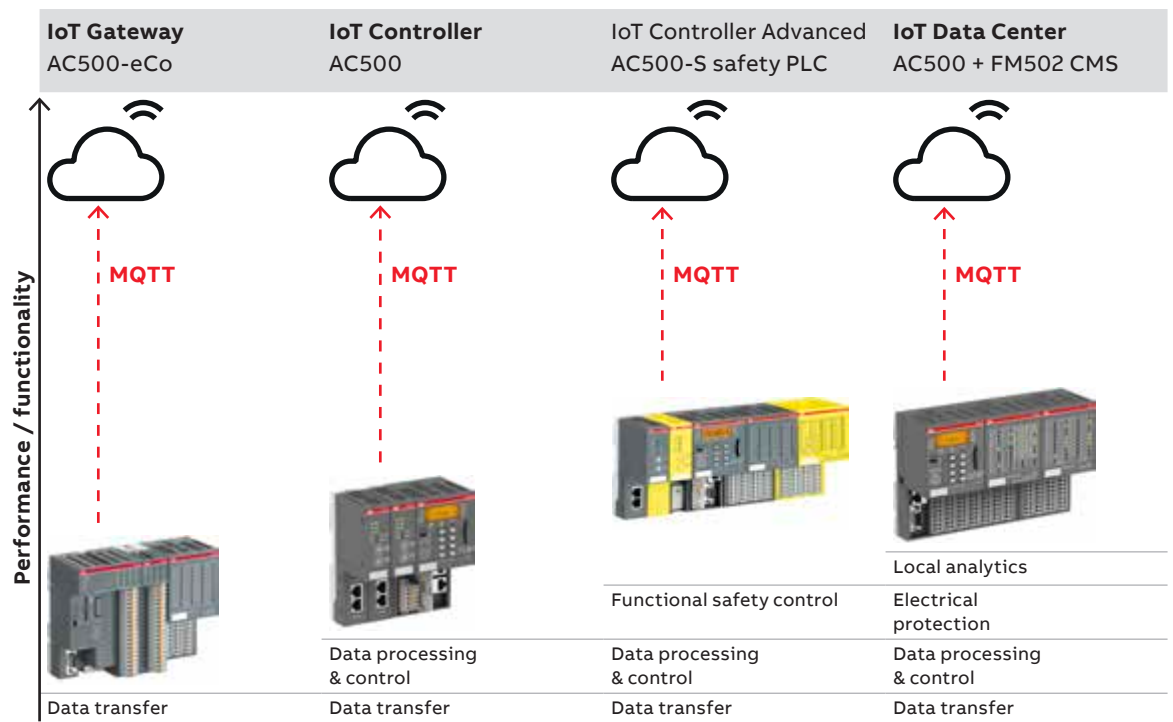
Full fieldbus-compatibility of the AC500 makes it easy for you to connect your whole network to

the cloud. Thus, there is no need for additional gateways.

### Flexible & scalable

All AC500 modules are compatible and can be changed easily or extended.

The system can therefore evolve with your cloud!



Benefits			
Economical	Higher performance	Process control with functional safety	Permanent asset protection
Minimal programming required	Handling of complex pre-analyses		Cost-efficient monitoring through intelligent data handling
	Control in parallel possible		Advanced pre-analyses
Suitable for			
Simple data transfer in small systems	Data transfer for larger applications	Applications with functional safety requirements	Critical assets requiring permanent protection & monitoring

# AC500 & MQTT

## Multiple areas of use

### IoT gateway

#### Application

Small applications with simple I/Os and direct data transfer (e.g. energy monitoring of radio towers)

#### Benefits

- Cost-efficient
- Resource-friendly
- Low implementation effort



TELECOMMUNICATION

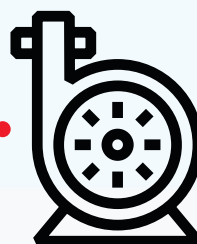
### IoT data center

#### Application

Critical assets that need permanent protection & monitoring (e.g. vibration monitoring for pumps)

#### Benefits

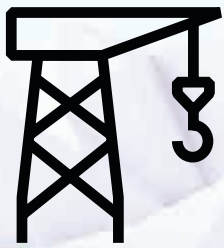
- Permanent asset protection
- Increased resilience to internet outages
- Cost efficient monitoring



WATER

## Cost efficient solution

- Scalable & platform-independent cloud connectivity
- Adaptable functionality through interchangeable modules
- Smart data handling on edge-level for cost-efficient cloud-solutions



CRANES

### IoT Controller Advanced Application

Applications with functional safety requirements which need additional functionality (e.g. functional safety control for cranes).

#### Benefits

- Ensured safety for machines and staff



MARINE

### IoT controller

#### Application

Demanding applications with a larger system architecture and complex data handling (e.g. remote data logging for drives/winch control)

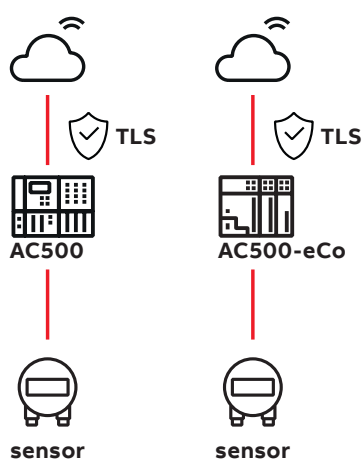
#### Benefits

- Easy cloud connection of whole system
- Active control of transferred data
- Advanced control functionalities

# Security options



## Connection of single controller



### Security level optimized for remote units

AC500 works as edge-gateway and is directly connected to the cloud. Security is established through TLS encryption.

#### Benefits:

- No additional gateway required
- Low latency

#### Application:

Small systems with non-critical data transfer.



## Connection of secured network

### Security level advanced

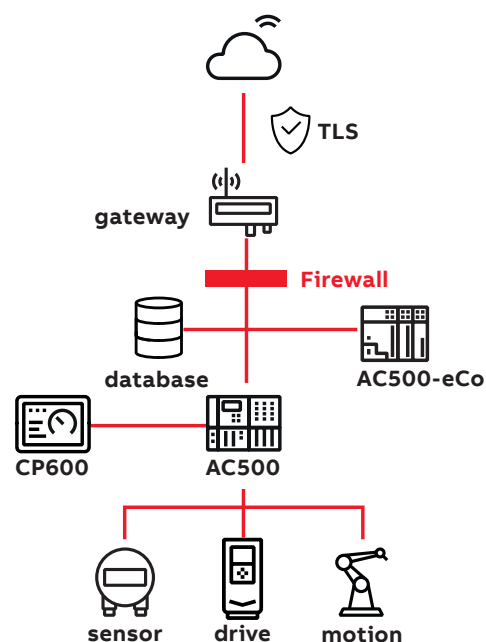
Connection of the whole AC500 network to the cloud using a separate gateway. Enhanced security is provided through additional firewall and/or VPN.

#### Benefits:

- Advanced level of security
- Easy integration of many edge devices

#### Application:

Large systems with many devices which need higher protection.



# AC500 PLC platform product ranges



## Engineering suite

- ABB Automation Builder is the integrated software suite for machine builders and system integrators requiring state-of-the-art productive machine and system automation.
- Combining the tools required for configuring, programming, debugging and maintaining automation projects from one common intuitive interface, Automation Builder addresses the largest single cost element of most of today's industrial automation projects - software.



## Programmable Logic Controllers PLCs

- The AC500-eCo, AC500, AC500-XC and AC500-S scalable PLC ranges provide solutions for small, medium and high-end applications.
- Our AC500 PLC platform offers different performance levels and is the ideal choice for high availability, extreme environments, condition monitoring, motion control or safety solutions.
- Our AC500 PLC platform offers interoperability and compatibility in hardware and software from compact PLCs up to high end and safety PLCs.



## Control panels

- CP600-eCo, CP600 and CP600-Pro control panels offer a wide range of features and functionalities for maximum operability.
- ABB control panels are distinguished by their robustness and easy usability, providing all the relevant information from production plants and machines at one single touch.



---

**ABB Automation Products GmbH**

Eppelheimer Straße 82  
D-69123 Heidelberg / Germany

Tel.: +49 62 21 701 1444

Fax: +49 62 21 701 1382



[www.abb.com/plc](http://www.abb.com/plc)



[www.abb.com/automationbuilder](http://www.abb.com/automationbuilder)

**Additional information**

We reserve the right to make technical changes or modify the contents of this document without prior notice. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

© Copyright 2019 ABB. All rights reserved.  
Specifications subject to change without notice.