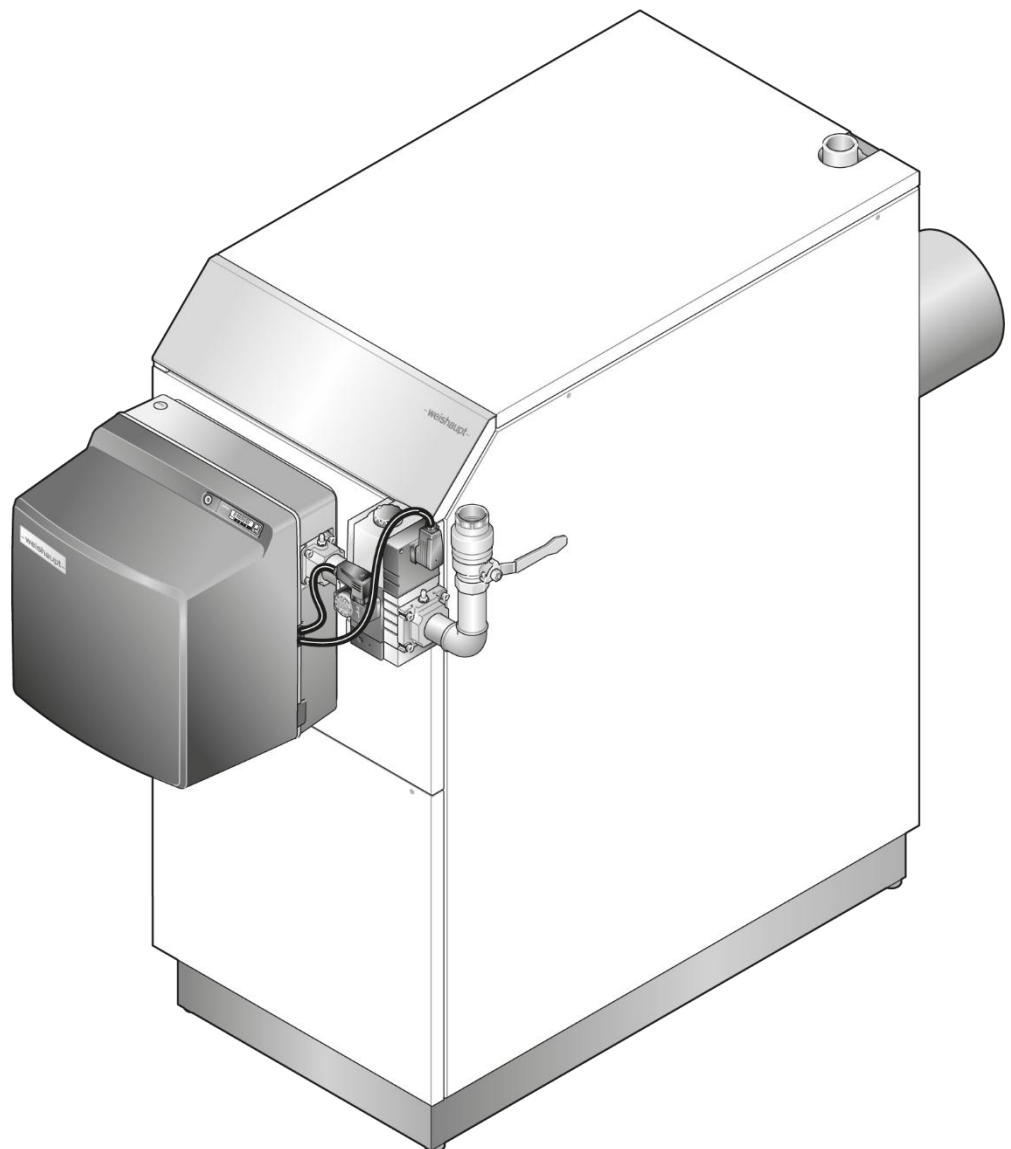


–weishaupt–

manual

Data points list



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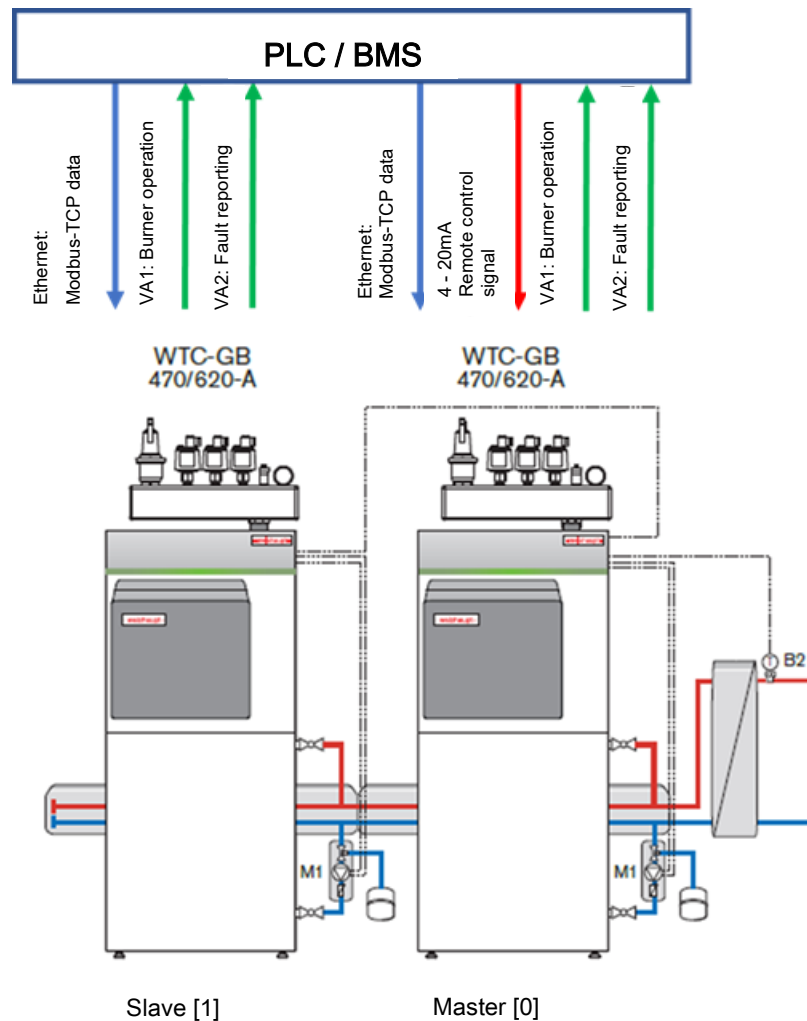
1 Modbus-TCP interface with a PLC

1 Modbus-TCP interface with a PLC

These instructions describe step by step how to connect the WTC GB470/620-A to the PLC or building management system. The aim is to retrieve WTC GB470/620-A data from the PLC / BMS so they can be used for visualisation.

Setting parameters or specifying flow setpoint temperatures via Modbus-TCP is **not** intended.

Example:



Specifications:

- Remote control signal is via 4 to 20mA. The signal is connected to terminal AE1 / GND (for cascading, the signal must be connected to the master).
- Temperature remote control of the WTC / cascade between 8 to 80°C is possible. The cascade regulates the requested temperature at the system separation (alternatively a hydraulic separator; both control systems use the B2 sensor).
- Temperature or heating requirements **cannot** be specified via Modbus-TCP.
- The cascade control is managed by the boiler control system. The EC controllers are connected via the RJ11 cable.

1 Modbus-TCP interface with a **PLC**

- Pump control is managed by the boiler control system using its EC controller. This ensures that the monitoring functions and safety mechanisms for heat exchangers are protected.
- Outputs VA1 and VA2 can be used to indicate burner operation and fault notifications.
- The Modbus-TCP data can be accessed from any controller for BMS visualisation: temperatures, pump performance, and performance of the WTC.

2 Setting up network connection

2 Setting up network connection

In menu User -> Settings, the following settings must be configured (see manual for WTC-GB 470-A and WTC-GB 620-A gas condensing boilers, section 6.8.10):

- ▶ Network connection of controller (WTC-GB).
- ▶ Modbus-TCP configuration, e.g. which network device (PLC / BMS) is authorised to communicate with the controller (WTC-GB) and access data points.

2.1 Network settings of controllers

 Network	Settings for manual network configuration. Displayed only if access to the WEM portal is enabled. Network connection: ▪ automatic DHCP (factory setting) ▪ manual setting Manual settings: ▪ IP address ▪ Network mask ▪ Standard gateway ▪ DNS server
---	---

Note: The WTC-GB470/620-A is often used in buildings or industrial plants. In most cases, a manual IP address is entered.

Configure IP address:

- ▶ Assign a unique IP address to the EC controller on the network.
- ▶ Ensure that the network mask and the standard gateway settings are correct.

2.2 Modbus-TCP configuration

 Modbus TCP	Access to the condensing boiler controller with Modbus bus protocol. When accessing the controller via Modbus-TCP, the condensing boiler must not be integrated into a (home) network. The Modbus-TCP client must communicate with the condensing boiler directly so no other network users can access the unencrypted Modbus interface. Access: ▪ Off (factory setting): Access is deactivated. ▪ Service: Access is possible for 60 minutes. ▪ On: Access is permanently available. Network: IP address of the network device that is allowed to access the controller via Modbus. Network mask: Network mask of the network device that is allowed to access the controller via Modbus.
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The EC controller must be notified which network device (PLC/BMS) is authorised to access the Modbus-TCP data points from the EC controller. Here are the following settings required.

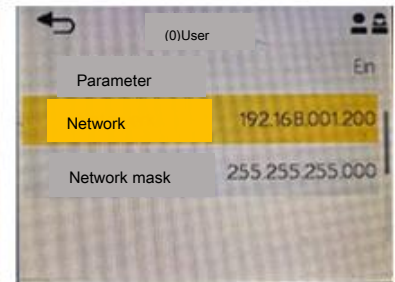
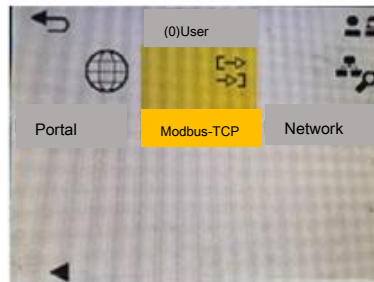
Configuring Modbus-TCP:

- ▶ Configure Modbus-TCP access to ON.
- ▶ The IP address and network mask of the PLC / BMS that is authorised to access the controller must be configured on the EC controller.

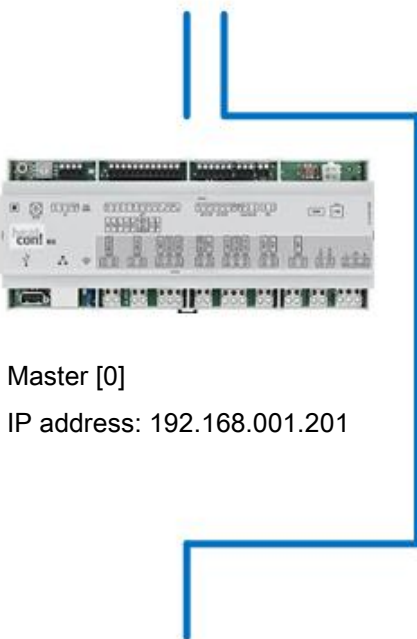
2.3 Network connection example

PLC / BMS IP address: 192.168.001.200

Master [0]: PLC IP address: 192.168.001.200



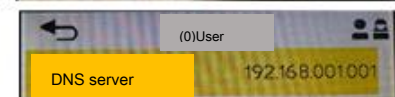
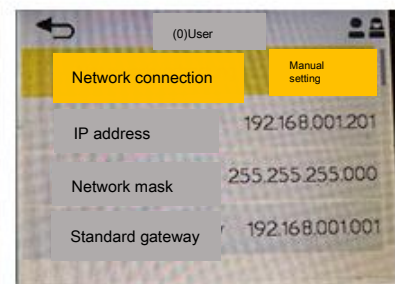
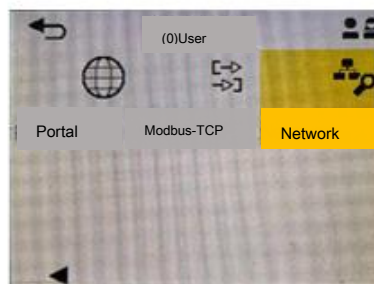
Note: When Modbus-TCP is enabled on the Master [0], it is automatically enabled on the Slave [1]! This also applies to the network connection if it is changed from automatic to manual.



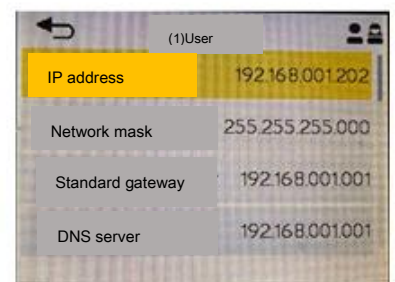
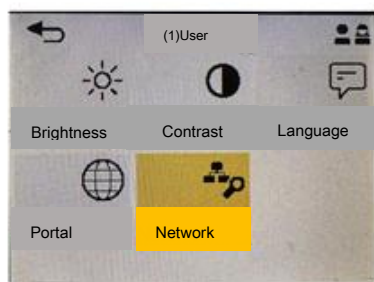
Master [0]

IP address: 192.168.001.201

Master [0]: Manual IP address: 192.168.001.201



Slave [1]: Manual IP address: 192.168.001.202



Slave [1]

IP address: 192.168.001.202

Note: The Modbus-TCP tab is hidden in the background, as it is already activated.

3 Modbus-TCP data points

For Modbus communication, the **Modbus input registers** must be used.

Data value	Modbus (uint16_t)	Format	Data type	Value	Function
Operational status	33 101	Format operational status display	unsigned short	0	undefined
				1	Relay test
				2	Emergency stop
				3	Diagnosis
				4	Manual operation
				5	Manual operation heating
				15	Cyclic interlock
				16	Standby mode
				18	Frost protection
				19	Heating mode
				20	Hot water mode
				21	Legionella protection
				25	Summer mode
				27	Holiday
				28	Screed
				29	Locked
Fault report	33 102	Format error free	unsigned short	35	SETBACK
				36 - 65535	undefined
				0	Fault active
Capacity demand	33 103	Format capacity value	unsigned short	1	Operation fault free
				2 - 65535	undefined
Flow temperature B7	33 104	Format sensor	signed short	0 - 100	0 - 100 % Load
Return flow temperature B9	33 105	Format sensor		-32768	no sensor
Flue gas temperature B4	33 106	Format sensor		-32767	Sensor disconnection
Setpoint temperature	33 107	Format sensor		-32766	Sensor short circuit
Heat exchanger B5	33 110	Format sensor		-32758	Sensor digital status OFF
De-couple/Sys actual value	33 113	Format sensor		-32757	Sensor digital status ON
Setpoint temperature	33 108	Format setpoint	signed short	-500 - 5000	Temperature range -50.0 - 500.0°C
De-couple/Sys setpoint	33 112	Format setpoint		-32768	no setpoint demand active
External demand	33 115	Format setpoint		1	no setpoint demand active
Modulation level	33 109	Format modulation	unsigned short	50 - 5000	Temperature range 5.0 - 500.0°C
Water pressure	33 111	Format water pressure	unsigned short	0 - 100	Modulation range 0 - 100%
Pump speed	33 114	Format pump rating	unsigned short	0 - 100	Water pressure 0.0 - 10.0 bar
Operating hours	33 116	Format operating hours	unsigned short	20 - 100	20 - 100%
Switching cycles	33 117	Format switching cycles	unsigned short	0 - 65535	Meter reading 0 - 65535 h
				0 - 65535	Starts 0 - 65535

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