

Flextronic Connectivity Guide



- ENG** **Connectivity guide**
Installation and operating instruction
- Flamconnect Gateway
 - Analog outputs
 - Digital (Discrete) outputs
 - Building Management System (BMS) Interface




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This document is intended as a supplement to the product Installation and Operating instructions. This instruction specifically supports the Flamcomat G4, in terms of safety, use and operation.

For installation instructions and further documentation in various languages, visit www.flamcogroup.com/manuals. Further production information can be requested from the relevant Flamco branch office..

Legend:

-  Home
-  Settings
-  General
-  Service info

1. Correct use

The Flextronic control unit must be used in accordance with this manual. The declaration of conformity in the original documentation still applies.

2. Product description

The Flextronic is a universal control unit for Flamco automats.

It has a wide range of communication options that can be activated in the Flextronic accessories menu:

1. Ethernet port for BMS integration, communicating in either the Modbus or Bacnet protocol.
2. USB port for saving the operational log or performing a Firmware update.
3. Canbus ports (paired for daisy chain) for the interconnection of multiple Flamco automats.
4. RS-485 ports (paired for daisy chain) for the Flamco Remote Service Gateway connection(Flamconnect) or alternatively for the BMS integration via Modbus or Bacnet.
5. Wireless interface (2.400...2.485 GHz) for pairing with a smartphone or a tablet.
6. Analog voltage output signals for remote indication of vessel level and system pressure (0-10V).
7. Digital (Discrete) output signals (250VAC, 5A max., potential free). Custom errors and warnings can be configured to the three ports in the Flextronic Alarms menu.

Unindicated ports are intended for specific Automat accessories or other operational purposes. They are not to be used for customer interface or communications.

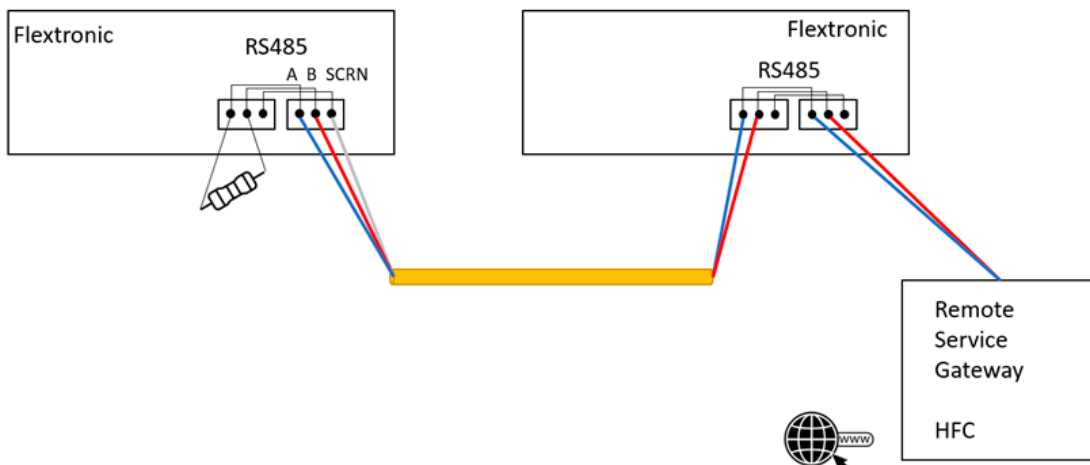
2.1 Wiring details



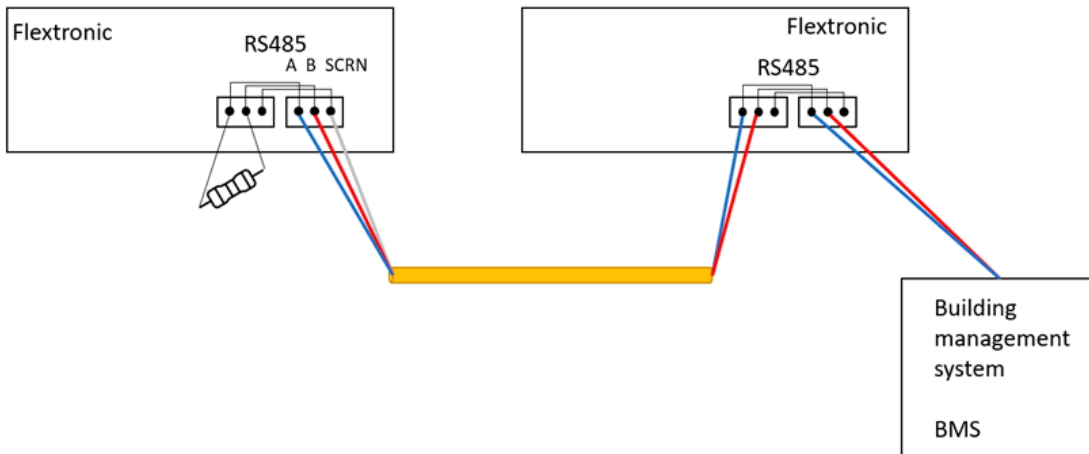
The installation, data processing and commissioning must be performed by trained, qualified and competent personnel. The appropriate national standards, regulations and rules must be followed. For installation instructions and further documentation in various languages, visit www.flamcogroup.com/manuals

- Additional cables are not included or supplied by Flamco.
- Flamco recommends the use of twisted single pair shielded cable.
- The termination resistor has a value of 120 Ohm.
- The maximum permissible length of cables is 500 m.

2.2 Flamconnect Gateway



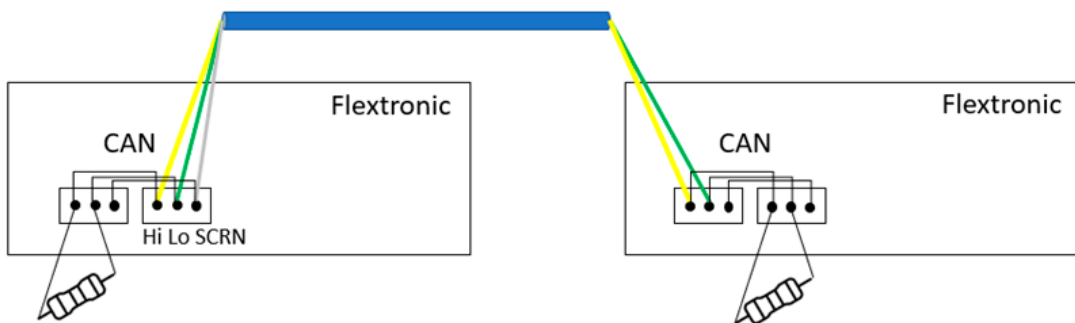
2.3 BMS Connectivity Modbus & Bacnet



Communication as both Modbus and Bacnet is not possible on the RS-485 BUS at the same time. If both protocols are required, one of the protocols must run over the Ethernet connection (IP).

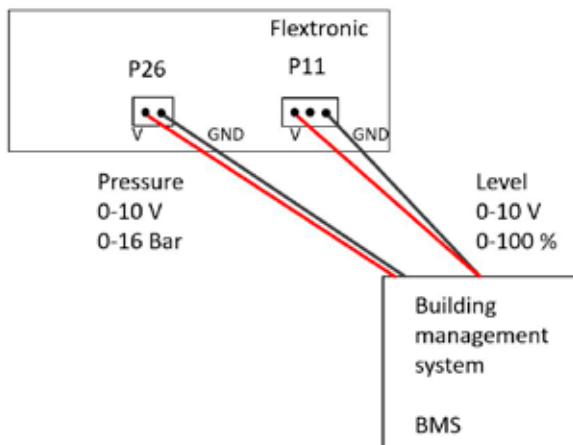
When using the Flamconnect Remote Service Gateway, the RS485 port is dedicated to this feature. If Modbus or Bacnet is also required then this may only be achieved using the Ethernet connection (IP).

2.4 Interconnected Flamco Automats

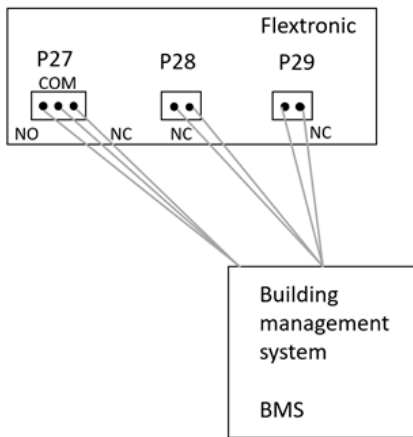


2.5 Analog output signals (customer)

To acquire the voltage analog signal of the system pressure and the vessel level.



2.6 Digital (Discrete) output signals



To acquire the status of the automat. The custom fault can be assigned to every output. Output P29 is a boiler interlock signal of the >110 °C mode, it is not available for alarming in this mode.

3. Wireless Configuration and settings



Configuration is possible using the Flamconnect App.

To pair: enter the Passcode. It can be found on the QR-code label on the automat or displayed on the screen.



	<p>System Info</p>	<p>To observe the automat and the controller information</p>	
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The configuration of the customer interfaces and the communication protocols is accessible in the controller menu.

	Accessoires	To activate the advanced automat accessories	
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3.1 Communication Interface settings

Ethernet:

IP address 192.168.100.150
 IP mask 255.255.255.0
 IP gateway 192.168.100.1

RS-485:

Flextronic is slave.
 Device ID selectable
 Baud rate 19200
 Parity 8-n-1


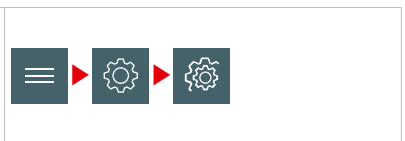


It is possible to assign only one protocol at a time to the same interface. When the Remote Service Gateway is connected, the Modbus and Bacnet are not available over RS-485. Please use Ethernet port for BMS integration instead.

3.2 Digital (Discrete) output programming

It is possible to assign custom fault(s) (errors and warnings) to the potential free digital (discrete) outputs. If more than one fault is assigned to the same output, the output becomes active if any of the assigned faults is active for that output.

Configuring of the faults is available in the Flextronic menu:

	Alarms	To assign the alarm message(s) to the relevant potential free output(s)	
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4. Modbus mapping table Flamcomat

Register	Access	Name	Type	Unit	Range
0x0001	R	Current working pressure	UINT16	cbar	0..16000
0x0002	R	Current vessel level	UINT16	%	0...100
0x0003	R	Outputs state (1-on)	UINT16		Bit0: Motor 1 active Bit1: Motor 2 active Bit2: Valve 1 active Bit3: Valve 2 active Bit4: Valve 3 active Bit8: Degassing On (Enabled) Bit9: Degassing mode (0-normal, 1-turbo)
0x0004	R	Error table 1 (1-error active)	UINT16		Bit0: Single pump maximum run time error Bit1: Redundant pumps maximum run time error Bit2: Load dependant pumps maximum run time error Bit3: Single pump current error Bit4: Pump A current error (double pump configuration) Bit5: Pump B current error (double pump configuration) Bit6: Pumps A and B current error (double pump c configuration) Bit7: Pump C current error Bit8: Self-learning valve correction error Bit9: Self-learning pump correction error Bit10: Pressure sensor current exceeded Bit11: Pressure sensor no current Bit12: Load cell current exceeded Bit13: Load cell no current Bit14: Pump A power consumption too high Bit15: Pump B power consumption too high
0x0005	R	Error table 2 (1-error active)	UINT16		Bit0: Pump C power consumption too high Bit1: Maximum run time M1 exceeded Bit2: Maximum run time M2 exceeded Bit3: Maximum supplation threaded water amount exceeded Bit4: Pump running, no decrease of water level in vessel Bit5: Valve open, no increase of water level in vessel Bit6: Maximum run time V1 exceeded Bit7: Maximum run time V2 exceeded Bit8: To run quick fill Bit9: To run system fill Bit10: System run in auto mode Bit11: Quick system filling active, V to stop Bit12: System filling active, V to stop Bit13: Manual mode active, press V to start automat Bit14: Diaphragm rupture Bit15: Spare
0x0006	R	Error table 3 (1-error active)	UINT16		Bit0: Water level increase in vessel without Flamcomat activity Bit1: Water level decrease in vessel without Flamcomat activity Bit2: Maintenance 1 is due Bit3: Initial fill failed Bit4: Maximum refill time exceeded Bit5: Maximum drain time exceeded Bit6: No refill flow Bit7: Amount refill water too much Bit8: Spare Bit9: Spare Bit10: Vessel drain runtime Bit11: Initial fill active Bit12: Manual initial fill active Bit13: System fill timer expired Bit14: Quick fill timer expired Bit15: Maintenance 2 is due

Register	Access	Name	Type	Unit	Range
0x0007	R	Error table 4 (1-error active)	UINT16		Bit0: Maintenance 3 is due Bit1: Maintenance 4 is due Bit2: Spare Bit3: Spare Bit4: Spare Bit5: Spare Bit6: Spare Bit7: Spare Bit8: Spare Bit9: Spare Bit10: Spare Bit11: Spare Bit12: Spare Bit13: Spare Bit14: Spare Bit15: Spare
0x0008	R	Operational hours total	UINT16	hours	
0x0009	R	Availability (0 - No, 1 - Yes)	UINT16		Bit 0: Motor 1 pressure increase Bit 1: Motor 2 pressure increase Bit 2: Valve 1 pressure reduction Bit 3: Valve 2 pressure reduction Bit 4: Valve 3; Motor 3 refeeding Bit 8: Minimum pressure limiter Bit 9: Diaphragm rupture sensor Bit 10: Maximum temperature sensor
0x000A	R	Pressure setpoint	UINT16	cbar	0..16000
0x000B	R	Minimum water level (absolute)	UINT16	%	
0x000C	R	Level refeeding On (absolute)	UINT16	%	
0x000D	R	Level refeeding Off (absolute)	UINT16	%	
0x000E	R	Minimum level alarm limit	UINT16	%	
0x000F	R	Maximum level alarm limit	UINT16	%	
0x0010	R	Nominal volume of vessel	UINT16	l	
0x0011	R	Operational mode	UINT16		0 - single mode, 1 - redundant mode, 2 - load-dependent
0x0012	R	Total refill liters	UINT16	l	
0x0013	R	Total refill minutes	UINT16	minute	

5. Bacnet mapping table Flamcomat

Object identifier	Access	Object Name	Type	Unit	Range
OBJECT_ANALOG_VALUE:0	R	Current working pressure	UINT16	cbar	0..16000
OBJECT_ANALOG_VALUE:1	R	Current vessel level	UINT16	%	0...100
OBJECT_ANALOG_VALUE:2	R	Outputs state (1-on)	UINT16		Bit0: Motor 1 active Bit1: Motor 2 active Bit2: Valve 1 active Bit3: Valve 2 active Bit4: Valve 3 active Bit8: Degassing On (Enabled) Bit9: Degassing mode (0-normal, 1-turbo)

Object identifier	Access	Object Name	Type	Unit	Range
OBJECT_ANALOG_VALUE:3	R	Error table 1 (1-error active)	UINT16		Bit0: Single pump maximum run time error Bit1: Redundant pumps maximum run time error Bit2: Load dependent pumps maximum run time error Bit3: Single pump current error Bit4: Pump A current error (double pump configuration) Bit5: Pump B current error (double pump configuration) Bit6: Pumps A and B current error (double pump c configuration) Bit7: Pump C current error Bit8: Self-learning valve correction error Bit9: Self-learning pump correction error Bit10: Pressure sensor current exceeded Bit11: Pressure sensor no current Bit12: Load cell current exceeded Bit13: Load cell no current Bit14: Pump A power consumption too high Bit15: Pump B power consumption too high
OBJECT_ANALOG_VALUE:4	R	Error table 2 (1-error active)	UINT16		Bit0: Pump C power consumption too high Bit1: Maximum run time M1 exceeded Bit2: Maximum run time M2 exceeded Bit3: Maximum supplation threaded water amount exceeded Bit4: Pump running, no decrease of water level in vessel Bit5: Valve open, no increase of water level in vessel Bit6: Maximum run time V1 exceeded Bit7: Maximum run time V2 exceeded Bit8: To run quick fill Bit9: To run system fill Bit10: System run in auto mode Bit11: Quick system filling active, V to stop Bit12: System filling active, V to stop Bit13: Manual mode active, press V to start automat Bit14: Diaphragm rupture Bit15: Spare
OBJECT_ANALOG_VALUE:5	R	Error table 3 (1-error active)	UINT16		Bit0: Water level increase in vessel without Flamcomat activity Bit1: Water level decrease in vessel without Flamcomat activity Bit2: Maintenance 1 is due Bit3: Initial fill failed Bit4: Maximum refill time exceeded Bit5: Maximum drain time exceeded Bit6: No refill flow Bit7: Amount refill water too much Bit8: Spare Bit9: Spare Bit10: Vessel drain runtime Bit11: Initial fill active Bit12: Manual initial fill active Bit13: System fill timer expired Bit14: Quick fill timer expired Bit15: Maintenance 2 is due
OBJECT_ANALOG_VALUE:6	R	Error table 4 (1-error active)	UINT16		Bit0: Maintenance 3 is due Bit1: Maintenance 4 is due Bit2: Spare Bit3: Spare Bit4: Spare Bit5: Spare Bit6: Spare Bit7: Spare Bit8: Spare Bit9: Spare Bit10: Spare Bit11: Spare Bit12: Spare Bit13: Spare Bit14: Spare Bit15: Spare
OBJECT_ANALOG_VALUE:7	R	Operational hours total	UINT16	hours	

Object identifier	Access	Object Name	Type	Unit	Range
OBJECT_ANALOG_VALUE:8	R	Availability (0 - No, 1 - Yes)	UINT16		Bit 0: Motor 1 pressure increase Bit 1: Motor 2 pressure increase Bit 2: Valve 1 pressure reduction Bit 3: Valve 2 pressure reduction Bit 4: Valve 3; Motor 3 refeeding Bit 8: Minimum pressure limiter Bit 9: Diaphragm rupture sensor Bit 10: Maximum temperature sensor
OBJECT_ANALOG_VALUE:9	R	Pressure setpoint	UINT16	cbar	0..16000
OBJECT_ANALOG_VALUE:10	R	Minimum water level (absolute)	UINT16	%	
OBJECT_ANALOG_VALUE:11	R	Level refeeding On (absolute)	UINT16	%	
OBJECT_ANALOG_VALUE:12	R	Level refeeding Off (absolute)	UINT16	%	
OBJECT_ANALOG_VALUE:13	R	Minimum level alarm limit	UINT16	%	
OBJECT_ANALOG_VALUE:14	R	Maximum level alarm limit	UINT16	%	
OBJECT_ANALOG_VALUE:15	R	Nominal volume of vessel	UINT16	l	
OBJECT_ANALOG_VALUE:16	R	Operational mode	UINT16		0 - single mode, 1 - redundant mode, 2 - load-dependent
OBJECT_ANALOG_VALUE:17	R	Total refill liters	UINT16	l	
OBJECT_ANALOG_VALUE:18	R	Total refill minutes	UINT16	minute	

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