

## ***Flextronic savienojamības pamācība***



- LVI Savienojamības pamācība**  
**Uzstādīšanas un ekspluatācijas norādījumi**
- Flamconnect vārteja
  - Analogās izejas
  - Digitālās (diskrētās) izejas
  - Ēkas vadības sistēmas (ĒVS) interfeiss





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Šis dokuments ir paredzēts kā palīgmateriāli produkta uzstādīšanas un ekspluatācijas norādījumiem. Šie norādījumi jo īpaši attiecas uz Flamcomat G4 drošību, lietošanu un ekspluatāciju.

Lai iegūtu uzstādīšanas norādījumus un papildu dokumentāciju dažādās valodās, apmeklējiet vietni [www.flamcogroup.com/manuals](http://www.flamcogroup.com/manuals). Papildu informāciju par ražošanu var pieprasīt attiecīgajā Flamco filiālē.

#### Eksplikācija:

-  Sākums
-  Iestatījumi
-  Vispārēji
-  Apkopes informācija

## 1. Pareiza lietošana

Flextronic vadības iekārta ir jāizmanto atbilstoši šai rokasgrāmatai. Oriģinālajā dokumentācijā iekļautā atbilstības deklarācija saglabājas spēkā.

## 2. Produkta apraksts

Flextronic ir universāla vadības iekārta, kas paredzēta Flamco automātiem.

Tai ir plašas komunikāciju iespējas, ko var aktivizēt Flextronic piederumu izvēlnē:

1. Ethernet ports ĒVS integrācijai, komunikācijai Modbus vai Bacnet protokolā.
2. USB ports ekspluatācijas žurnāla saglabāšanai vai aparātprogrammatūras atjaunināšanai.
3. Canbus porti (savienoti pārī ziedlapķēdes lietošanai) vairāku Flamco automātu savstarpējai savienošanai.
4. RS-485 porti (savienoti pārī ziedlapķēdes lietošanai) Flamco tālvadības apkalpošanas vārtejas savienojumam (Flamconnect) vai arī ĒVS integrācijai, izmantojot Modbus vai Bacnet.
5. Bezvadu interfeiss (2,400–2,485 GHz) savienošanai pārī ar viedtālruni vai planšetdatoru.
6. Analogās sprieguma izejas signāli attālai norādei par tvertnes uzpildes līmeni un sistēmas spiedienu (0–10 V).
7. Digitālās (diskrētās) izejas signāli (250 V maiņstrāva, maks. 5 A, bez potenciāla). Pielāgotas kļūdas un brīdinājumus var konfigurēt trīs portiem Flextronic trauksmju izvēlnē.

Nenorādītie porti ir paredzēti noteiktie automātu piederumiem vai citiem ekspluatācijas nolūkiem. Tos nedrīkst izmantot klienta interfeisam vai komunikācijai.

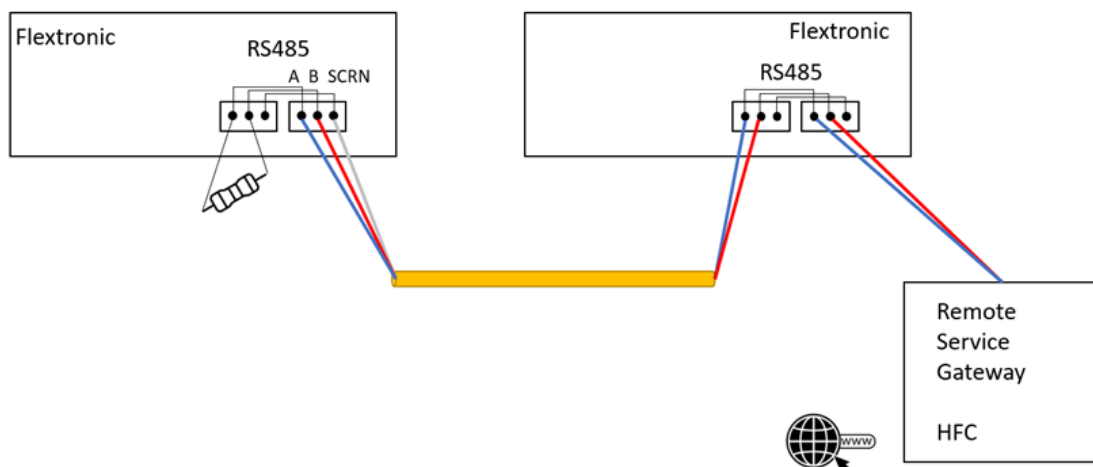
## 2.1. Informācija par vadojumu



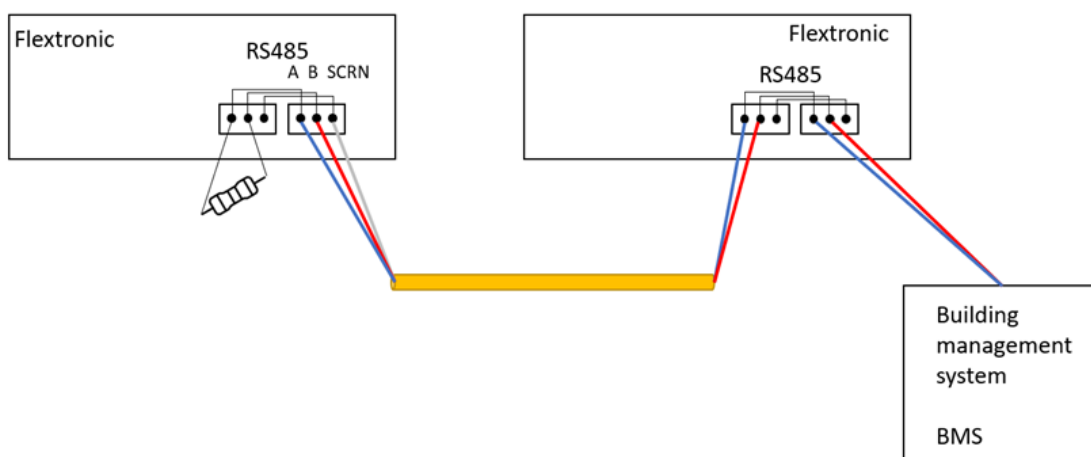
Uzstādīšana, datu apstrāde un nodošana ekspluatācijā ir jāveic apmācītam, kvalificētam un kompetentam personālam. Jāievēro attiecīgie valstī esošie standarti, normatīvie akti un noteikumi. Lai iegūtu instalēšanas instrukcijas un papildu dokumentāciju dažādās valodās, apmeklējiet [www.flamcogroup.com/manuals](http://www.flamcogroup.com/manuals).

- Flamco neiekļauj un nenodrošina papildu kabeļus.
- Flamco iesaka izmantot vīta viena pāra ekranētu kabeli.
- Galarezistora vērtība ir 120 omi.
- Maksimālais pieļaujamais kabeļu garums ir 500 m.

## 2.2. Flamconnect vārteja

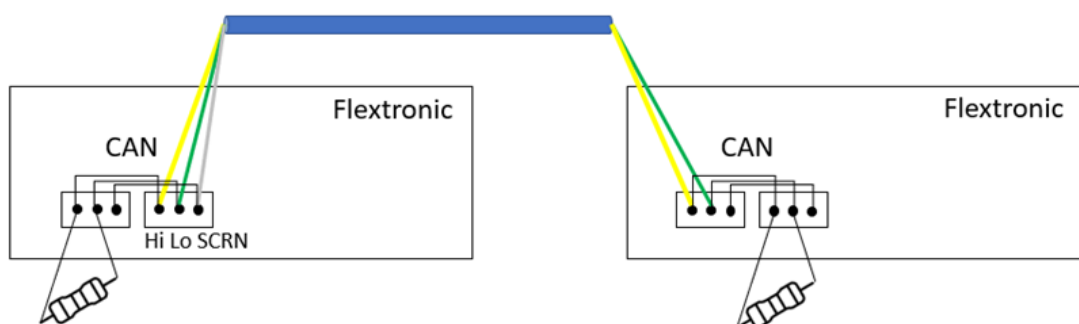


## 2.3. ĒVS savienojamība Modbus un Bacnet



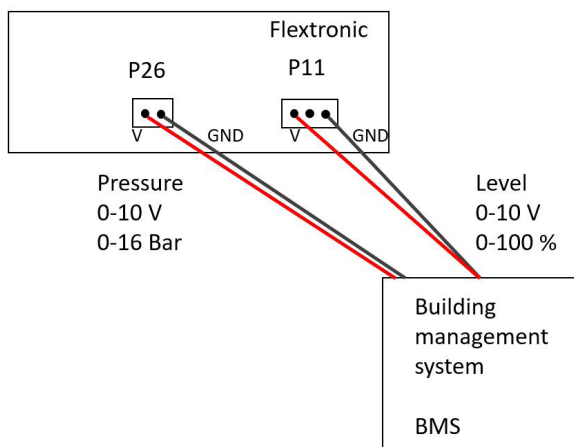
Komunikācija vienlaikus gan Modbus, gan Bacnet nav iespējama, izmantojot RS-485 kopni. Ja nepieciešams izmantot abus protokolus, viens protokols jāizmanto, lietojot Ethernet savienojumu (IP). Izmantojot Flamconnect tālvadības apkalpošanas vārteju, šīs funkcija lietošanai tiek atvēlēts RS-485 ports. Ja nepieciešams izmantot arī Modbus vai Bacnet, tad to var panākt, vienīgi izmantojot Ethernet savienojumu (IP).

## 2.4. Savstarpēji savienoti Flamco automāti



## 2.5. Analogās izejas signāli (klients)

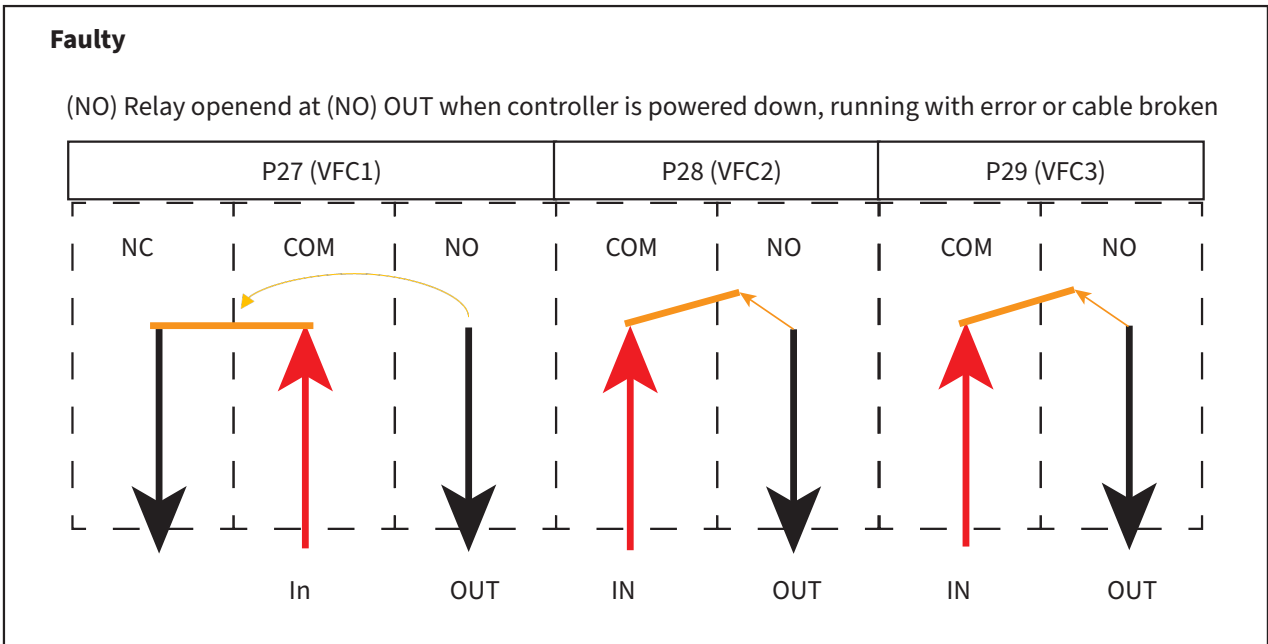
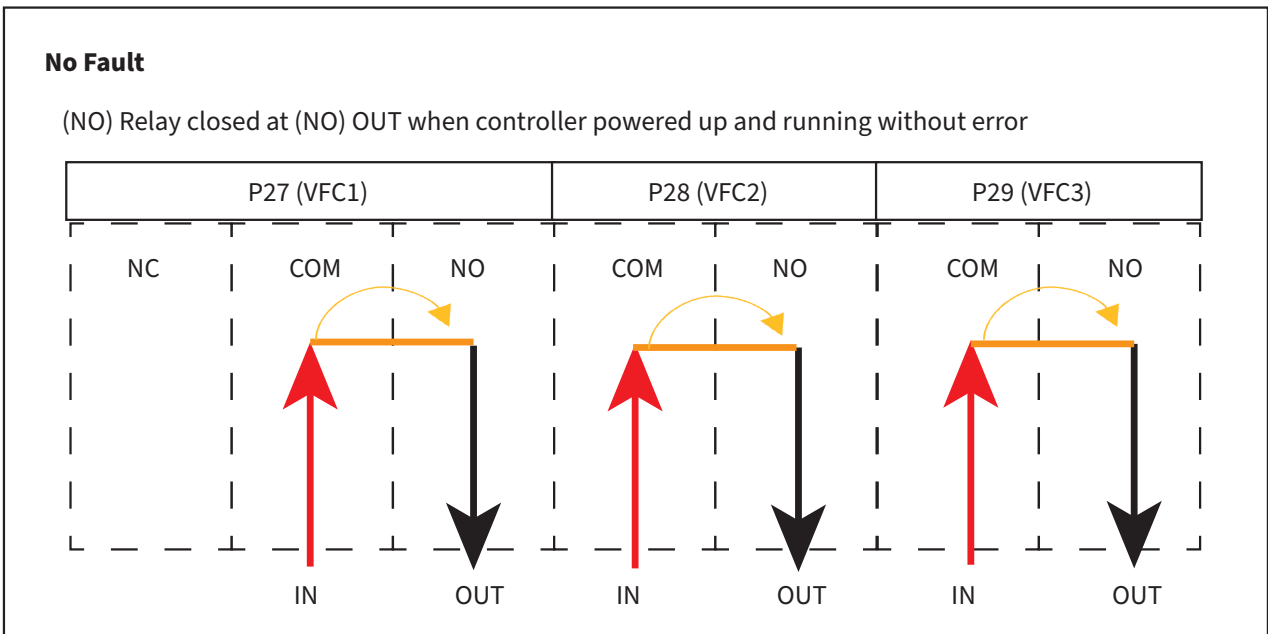
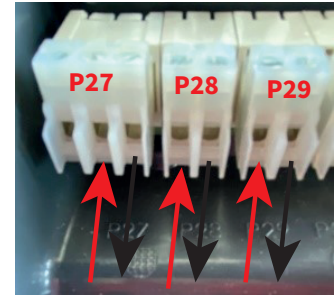
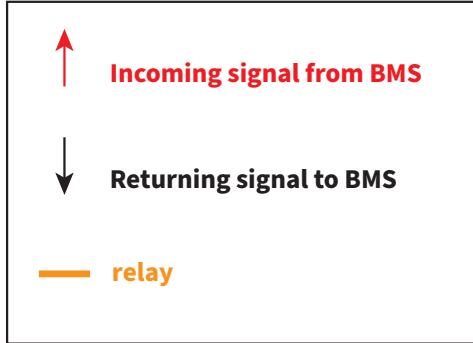
Ļauj iegūt sistēmas spiediena un tvertnes uzpildes līmeņa sprieguma analogo signālu.



## 2.6. Digitālās (diskrētās) izejas signāli

**GUI settings:**  
Invert polarity: off

**Specifications of VFC:**  
5A @ 240VAC (non-inductive)





Ļauj iegūt automāta statusu. Pielāgoto kļūmi var piešķirt ikvienai izejai.  
Izeja P29 ir katla bloķēšanas signāls >110 °C režīmā, tā nav pieejama trauksmei šajā režīmā.

### 3. Bezvadu konfigurācija un iestatījumi



Konfigurāciju ir iespējams veikt, izmantojot lietotni Flamconnect.

Savienošanai pāri: ievadiet ieejas kodu. Tas ir pieejams uz automāta QR koda marķējuma vai tiek attēlots ekrānā.



	Sistēmas informācija	Ļauj skatīt informāciju par automātu un regulatoru	
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Klienta interfeisu un komunikāciju protokolu konfigurācija ir pieejama regulatora izvēlnē.

	Piederumi	Ļauj aktivizēt papildu automāta piederumus	
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### 3.1. Komunikāciju interfeisa iestatījumi

#### Ethernet:

IP adrese 192.168.100.150  
 IP maska 255.255.255.0  
 IP vārteja 192.168.100.1

#### RS-485:

Flextronic ir sekotājierīce.

Ierīces ID atlasāms  
 Ātrums bodos 19 200  
 Pārība 8-n-1





Vienam interfeisam vienlaikus var piešķirt tikai vienu protokolu. Kad Tālvadības apkalpošanas vārteja ir savienota, Modbus un Bacnet, izmantojot RS-485, nav pieejami. Lūdzu, ĒVS integrācijai to vietā izmantojiet Ethernet portu.

### 3.2. Digitālās (diskrētās) izejas programmēšana

Pielāgoto(-es) kļūmi(-es) (kļūdas un brīdinājumus) var salāgot ar bezpotenciāla digitālajām (diskrētajām) izejām. Ja vienai izejai ir piešķirta vairāk nekā viena kļūme, izeja kļūst aktīva, ja tiek aktivizēta jebkura no izejai piešķirtajām kļūmēm.

Kļūmes var konfigurēt Flextronic izvēlnē:

	<p>Trauksmes</p>	<p>Ļauj attiecīgajai(-ām) bezpotenciāla izejai(-ām) piešķirt trauksmes ziņojumu(-us)</p>	
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## 4. Modbus kartēšanas tabula

### 4.1 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		Bit 0: P35 M1 Active (pump/compressor) Bit 1: P36 M2 Active (pump/compressor) Bit 2: P33 V1 active (Valve 1) Bit 3: P34 V2 active (Valve 2) Bit 4: P31 V3 Active (Valve 3/ Refill pump) Bit 8: Degassing On (Enabled)* Bit 9: Degassing mode (0-normal, 1-turbo)*
0x0004	R	Error table 1 1-error active)	UINT16		Bit 0: Single pump/ compressor maximum run time error Bit 1: Redundant pumps/ compressor maximum run time error Bit 2: Load dependant pumps/ compressor maximum run time error Bit 3: Single pump/ compressor current error Bit 4: Pump A current error (double pump/ compressor configuration) Bit 5: Pump B current error (double pump/ compressor configuration) Bit 6: Pumps A and B current error (double pump/ compressor configuration) Bit 7: Pump C/ compressor current error Bit 8: Self-learning valve correction error Bit 9: Self-learning pump correction error Bit 10: Pressure sensor current exceeded Bit 11: Pressure sensor no current Bit 12: Load cell current exceeded Bit 13: Load cell no current Bit 14: Pump A/ compressor power consumption too high Bit 15: Pump B/ compressor power consumption too high
0x0005	R	Error table 2 1-error active)	UINT16		Bit 0: Pump C power consumption too high Bit 1: Maximum Runtime P35 M1 exeeded Bit 2: Maximum Runtime P36 M2 exeeded Bit 3: Maximum supplation threaded water amount exceeded Bit 4: Pump running, no decrease of water level in vessel* Bit 5: Valve open, no increase of water level in vessel* Bit 6: Maximum runtime P33 V1 exeeded Bit 7: Maximum runtime P34 V2 exeeded Bit 8: To run quick fill* Bit 9: To run system fill* Bit 10: System run in auto mode Bit 11: Quick system filling active, V to stop* Bit 12: System filling active, V to stop* Bit 13: Manual mode active, press V to start automat Bit 14: Diaphragm rupture Bit 15: Spare

Register	Access	Name	Type	Unit	Range
0x0006	R	Error table 3 (1-error active)	UINT16		Bit 0: Water level increase in vessel without Flamcomat activity* Bit 1: Water level decrease in vessel without Flamcomat activity* Bit 2: Maintenance 1 is due Bit 3: Initial fill failed Bit 4: Maximum refill time exceeded Bit 5: Maximum drain time exceeded* Bit 6: No refill flow Bit 7: Amount refill water too much Bit 8: Spare Bit 9: Spare Bit 10: Spare Bit 11: Initial fill active Bit 12: Manual initial fill active Bit 13: System fill timer expired Bit 14: Quick fill timer expired* Bit 15: Maintenance 2 is due
0x0007	R	Error table 4 (1-error active)	UINT16		Bit 0: Maintenance 3 is due Bit 1: Maintenance 4 is due Bit 2: Spare Bit 3: Spare Bit 4: Spare Bit 5: Spare Bit 6: Spare Bit 7: Spare Bit 8: Spare Bit 9: Spare Bit 10: Spare Bit 11: Spare Bit 12: Spare Bit 13: Spare Bit 14: Spare Bit 15: Spare
0x0008	R	Operational hours total	UINT16	hours	
0x0009	R	Availability (0 - No, 1 - Yes)	UINT16		Bit 0: P35 M1 pressure increase Bit 1: P36 M2 Pressure increase Bit 2: P33 V1 (pressure decrease/ compressor valve) Bit 3: P34 V2 (pressure decrease/ compressor valve) Bit 4: P31 V3 (filling pump/ valve) 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	

\* Not applicable for the Flamcomat MK-U G4

## 4.2 FlexFiller

Register	Access	Name	Type	Unit	Formatting
0x0000	R	SystemPressure	U16	mbar	Decimal
0x0001	R	SupplyPressure	U16	mbar	Decimal
0x0002	R	TankLevel	U16	%	Decimal
0x0003	R	VacuumPressure	U16	mbar	Decimal
0x000A	R	PressureSetpoint	U16	mbar	Decimal
0x000B	R	SafetyValveSetting	U16	mbar	Decimal
0x000C	R	Calculated_LowPressureAlarm	U16	mbar	Decimal
0x000D	R	Calculated_High PressureAlarm	U16	mbar	Decimal
0x000E	R	VesselVolume	U16	l	Decimal
0x0030	R	DigitalInput	U16	Binary	NA
0x0031	R	DigitalOutput	U16	Binary	Bit 0: P36 (Pump 2 / NC) Bit 1: P35 (Pump 1 / Direct drain valve) Bit 2: P34 (NC) Bit 3: P33 (NC) Bit 4: P32 (NC) Bit 5: P31 (Refill / Inlet valve) Bit 6: P29 (VFC 1) Bit 7: P28 (VFC 2) Bit 8: P27 (VFC 3)
0x0032	R	AccessoryPresenceMask	U16	Binary	NA
0x0033	R	AccessoryPresenceMask	U16	Binary	NA
0x0034	R	DaysToTheNextMaintenance1	U16	count	Decimal
0x0035	R	DaysToTheNextMaintenance2	U16	count	Decimal
0x0036	R	DaysToTheNextMaintenance3	U16	count	Decimal
0x0037	R	DaysToTheNextMaintenance4	U16	count	Decimal
0x0040	R	Errors_3	U16	Binary	NA (For Future Use)
0x0041	R	Errors_2	U16	Binary	NA (For Future Use)
0x0042	R	Errors_1	U16	Binary	NA (For Future Use)
0x0043	R	Errors_0	U16	Binary	Bit 0: ALR_SYSTEM_PRESSURE_LOW Bit 1: ALR_SYSTEM_PRESSURE_BELOW_MINIMUM Bit 2: ALR_SYSTEM_PRESSURE_SENSOR_OOB_LOW Bit 3: ALR_SYSTEM_PRESSURE_SENSOR_OOB_HIGH Bit 4: ALR_SYSTEM_PRESSURE_HIGH Bit 5: ALR_SYSTEM_FILL_TIMER_EXPIRED Bit 6: ALR_SAFETY_VALVE_ACTIVE Bit 7: ALR_VESSEL_PRECHARGE_LOST Bit 8: ALR_PUMP_1_OVER_CURRENT Bit 9: ALR_PUMP_2_OVER_CURRENT Bit 10: ALR_PUMP_1_NO_CURRENT Bit 11: ALR_PUMP_2_NO_CURRENT
0x0044	R	Warnings_0	U16	Binary	NA (For Future Use)
0x0045	R	Warnings_1	U16	Binary	Bit 0: WRN_SYPHON_FLUSH_DETECTED

0x0046	R	Warnings_2	U16	Binary	Bit 0: WRN_SYSTEM_FILL_ACTIVE Bit 1: WRN_SYSTEM_FILL_ON_HOLD Bit 2: WRN_ANTI_LEGIONELLA_RUNNING Bit 3: WRN_DEVICE_REBOOT Bit 4: WRN_TANK_LEVEL_SENSOR_OOB_LOW Bit 5: WRN_TANK_LEVEL_SENSOR_OOB_HIGH Bit 6: WRN_PUMP_DRY_RUN Bit 7: WRN_TANK_OVERFLOW Bit 8: WRN_MANUAL_SYSTEM_FILL Bit 9: WRN_PUMP_1_RUNTIME Bit 10: WRN_PUMP_2_RUNTIME Bit 11: WRN_ANTI_LEGIONELLA_RECOVERY Bit 12: WRN_VACUUM_PRESSURE_SENSOR_OOB_LOW Bit 13: WRN_VACUUM_PRESSURE_SENSOR_OOB_HIGH Bit 14: WRN_FILTER_FULL Bit 15: WRN_VACUUM_ERROR
0x0047	R	Warnings_3	U16	Binary	Bit 0: WRN_SYSTEM_PRESSURE_HIGH Bit 1: WRN_MAX_AMOUNT_TOPUP_WATER Bit 2: WRN_SYSTEM_PRESSURE_LOW Bit 3: WRN_NUMBER_OF_TOPUPS Bit 4: WRN_SUPPLY_PRESSURE_TOO_LOW Bit 5: WRN_SUPPLY_PRESSURE_TOO_HIGH Bit 6: WRN_SUPPLY_PRESSURE_SENSOR_OOB_LOW Bit 7: WRN_SUPPLY_PRESSURE_SENSOR_OOB_HIGH Bit 8: WRN_SYSTEM_FILL_SELF_LEARNING Bit 9: WRN_MANUAL_MODE Bit 10: WRN_MAXIMUM_TOPUP_TIME_EXCEEDED Bit 11: WRN_NO_TOPUP_FLOW Bit 12: WRN_MAINTENANCE_1_DUE Bit 13: WRN_MAINTENANCE_2_DUE Bit 14: WRN_MAINTENANCE_3_DUE Bit 15: WRN_MAINTENANCE_4_DUE
0x0050	R	OverallRuntime_H	U16	h	Decimal (Combine 0x0050&0x0051 to read the full U32 value)
0x0051	R	OverallRuntime_L	U16	h	Decimal (Combine 0x0050&0x0051 to read the full U32 value)
0x0052	R	TotalFilledVolume_H	U16	ml	Decimal (Combine 0x0052&0x0053 to read the full U32 value)
0x0053	R	TotalFilledVolume_L	U16	ml	Decimal (Combine 0x0052&0x0053 to read the full U32 value)
0x0054	R	TotalFillTime_H	U16	s	Decimal (Combine 0x0054&0x0055 to read the full U32 value)
0x0055	R	TotalFillTime_L	U16	s	Decimal (Combine 0x0054&0x0055 to read the full U32 value)
0x0056	R	ActivationsMv1_H	U16	count	Decimal (Combine 0x0056&0x0057 to read the full U32 value)
0x0057	R	ActivationsMv1_L	U16	count	Decimal (Combine 0x0056&0x0057 to read the full U32 value)
0x0058	R	ActivationsMv2_H	U16	count	Decimal (Combine 0x0058&0x0059 to read the full U32 value)
0x0059	R	ActivationsMv2_L	U16	count	Decimal (Combine 0x0058&0x0059 to read the full U32 value)
0x005A	R	RuntimeMv1_H	U16	s	Decimal (Combine 0x005A&0x005B to read the full U32 value)
0x005B	R	RuntimeMv1_L	U16	s	Decimal (Combine 0x005A&0x005B to read the full U32 value)
0x005C	R	RuntimeMv2_H	U16	s	Decimal (Combine 0x005C&0x005D to read the full U32 value)
0x005D	R	RuntimeMv2_L	U16	s	Decimal (Combine 0x005C&0x005D to read the full U32 value)
0x005E	R	ActivationsPump1_H	U16	count	Decimal (Combine 0x005E&0x005F to read the full U32 value)
0x005F	R	ActivationsPump1_L	U16	count	Decimal (Combine 0x005E&0x005F to read the full U32 value)
0x0060	R	ActivationsPump2_H	U16	count	Decimal (Combine 0x0060&0x0061 to read the full U32 value)
0x0061	R	ActivationsPump2_L	U16	count	Decimal (Combine 0x0060&0x0061 to read the full U32 value)
0x0062	R	ActivationsValve1_H	U16	count	Decimal (Combine 0x0062&0x0063 to read the full U32 value)
0x0063	R	ActivationsValve1_L	U16	count	Decimal (Combine 0x0062&0x0063 to read the full U32 value)
0x0064	R	RuntimePump1_H	U16	s	Decimal (Combine 0x0064&0x0065 to read the full U32 value)
0x0065	R	RuntimePump1_L	U16	s	Decimal (Combine 0x0064&0x0065 to read the full U32 value)

0x0066	R	RuntimePump2_H	U16	s	Decimal (Combine 0x0066&0x0067 to read the full U32 value)
0x0067	R	RuntimePump2_L	U16	s	Decimal (Combine 0x0066&0x0067 to read the full U32 value)
0x0068	R	RuntimeValve1_H	U16	s	Decimal (Combine 0x0068&0x0069 to read the full U32 value)
0x0069	R	RuntimeValve1_L	U16	s	Decimal (Combine 0x0068&0x0069 to read the full U32 value)
0x006A	R	NrOfNormalTopUps_H	U16	count	Decimal (Combine 0x006A&0x006B to read the full U32 value)
0x006B	R	NrOfNormalTopUps_L	U16	count	Decimal (Combine 0x006A&0x006B to read the full U32 value)
0x006C	R	NrOfEmergencyStops_H	U16	count	Decimal (Combine 0x006C&0x006D to read the full U32 value)
0x006D	R	NrOfEmergencyStops_L	U16	count	Decimal (Combine 0x006C&0x006D to read the full U32 value)
0x006E	R	SafetyValveActivations_H	U16	count	Decimal (Combine 0x006E&0x006F to read the full U32 value)
0x006F	R	SafetyValveActivations_L	U16	count	Decimal (Combine 0x006E&0x006F to read the full U32 value)
0x0070	R	ActivationsVfc1_H	U16	count	Decimal (Combine 0x0070&0x0071 to read the full U32 value)
0x0071	R	ActivationsVfc1_L	U16	count	Decimal (Combine 0x0070&0x0071 to read the full U32 value)
0x0072	R	ActivationsVfc2_H	U16	count	Decimal (Combine 0x0072&0x0073 to read the full U32 value)
0x0073	R	ActivationsVfc2_L	U16	count	Decimal (Combine 0x0072&0x0073 to read the full U32 value)
0x0074	R	ActivationsVfc3_H	U16	count	Decimal (Combine 0x0074&0x0075 to read the full U32 value)
0x0075	R	ActivationsVfc3_L	U16	count	Decimal (Combine 0x0074&0x0075 to read the full U32 value)

## 5. Bacnet kartēšanas tabula

### 5.1 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		Bit 0: P35 M1 active (pump/ compressor) Bit 1: P36 M2 active (pump/ compressor) Bit 2: P33 V1 active (valve 1) Bit 3: P34 V2 active (valve 2) Bit 4: P31 V3 active (valve 3) Bit 8: Degassing On (Enabled)* Bit 9: Degassing mode (0-normal, 1-turbo)*
OBJECT_ANALOG_VALUE:3	R	Error table 1 (1-error active)	UINT16		Bit 0: Single pump/ compressor maximum run time error Bit 1: Redundant pumps/ compressor maximum run time error Bit 2: Load dependent pumps/ compressor maximum run time error Bit 3: Single pump/compressor current error Bit 4: Pump A current error (double pump/ compressor configuration) Bit 5: Pump B current error (double pump/ compressor configuration) Bit 6: Pumps A and B/ compressor current error (double pump c configuration) Bit 7: Pump C/ compressor current error Bit 8: Self-learning valve correction error Bit 9: Self-learning pump/ compressor correction error Bit 10: Pressure sensor current exceeded Bit 11: Pressure sensor no current Bit 12: Load cell current exceeded Bit 13: Load cell no current Bit 14: Pump A/ compressor power consumption too high Bit 15: Pump B/ compressor power consumption too high
OBJECT_ANALOG_VALUE:4	R	Error table 2 (1-error active)	UINT16		Bit 0: Pump C/ compressor power consumption too high Bit 1: Maximum runtime P35 M1 exceeded Bit 2: Maximum runtime P36 M2 exceeded Bit 3: Maximum suplation threaded water amount exceeded Bit 4: Pump/ compressor running, no decrease of water level in vessel Bit 5: Valve open, no increase of water level in vessel Bit 6: Maximum runtime P33 V1 exceeded Bit 7: Maximum runtime P34 V2 exceeded Bit 8: To run quick fill* Bit 9: To run system fill* Bit 10: System run in auto mode Bit 11: Quick system filling active, V to stop* Bit 12: System filling active, V to stop* Bit 13: Manual mode active, press V to start automat Bit 14: Diaphragm rupture Bit 15: Spare

Object identifier	Access	Object Name	Type	Unit	Range
OBJECT_ANALOG_VALUE:5	R	Error table 3 (1-error active)	UINT16		Bit 0: Water level increase in vessel without Flamcomat activity* Bit 1: Water level decrease in vessel without Flamcomat activity* Bit 2: Maintenance 1 is due Bit 3: Initial fill failed Bit 4: Maximum refill time exceeded Bit 5: Maximum drain time exceeded* Bit 6: No refill flow Bit 7: Amount refill water too much Bit 8: Spare Bit 9: Spare Bit 10: Spare Bit 11: Initial fill active Bit 12: Manual initial fill active Bit 13: System fill timer expired* Bit 14: Quick fill timer expired* Bit 15: Maintenance 2 is due
OBJECT_ANALOG_VALUE:6	R	Error table 4 (1-error active)	UINT16		Bit 0: Maintenance 3 is due Bit 1: Maintenance 4 is due Bit 2: Spare Bit 3: Spare Bit 4: Spare Bit 5: Spare Bit 6: Spare Bit 7: Spare Bit 8: Spare Bit 9: Spare Bit 10: Spare Bit 11: Spare Bit 12: Spare Bit 13: Spare Bit 14: Spare Bit 15: Spare
OBJECT_ANALOG_VALUE:7	R	Operational hours total	UINT16	hours	
OBJECT_ANALOG_VALUE:8	R	Availability (0 - No, 1 - Yes)	UINT16		Bit 0: P35 M1 pressure increase Bit 1: P36 M2 Pressure increase Bit 2: P33 V1 (pressure decrease/ compressor valve) Bit 3: P34 V2 (pressure decrease/ compressor valve) Bit 4: P31 V3 (filling pump/ valve) 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	

\* Not applicable for the Flamcomat MK-U G4

## 5.2 FlexFiller

Object ID	Access	Oject name	Type	Unit	Formatting
OBJECT_ANALOG_VALUE:0	R	"alarms"	U64	Binary	Bit 0: ALR_SYSTEM_PRESSURE_LOW Bit 1: ALR_SYSTEM_PRESSURE_BELOW_MINIMUM Bit 2: ALR_SYSTEM_PRESSURE_BELOW_MINIMUM Bit 3: ALR_SYSTEM_PRESSURE_SENSOR_OOB_HIGH Bit 4: ALR_SYSTEM_PRESSURE_HIGH Bit 5: ALR_SYSTEM_FILL_TIMER_EXPIRED Bit 6: ALR_SAFETY_VALVE_ACTIVE Bit 7: ALR_VESSEL_PRECHARGE_LOST Bit 8: ALR_PUMP_1_OVER_CURRENT Bit 9: ALR_PUMP_2_OVER_CURRENT Bit 10: ALR_PUMP_1_NO_CURRENT Bit 11: ALR_PUMP_2_NO_CURRENT
OBJECT_ANALOG_VALUE:1	R	"warnings"	U64	Binary	Bit 0: WRN_SYSTEM_PRESSURE_HIGH Bit 1: WRN_MAX_AMOUNT_TOPUP_WATER Bit 2: WRN_SYSTEM_PRESSURE_LOW Bit 3: WRN_NUMBER_OF_TOPUPS Bit 4: WRN_SUPPLY_PRESSURE_TOO_LOW Bit 5: WRN_SUPPLY_PRESSURE_TOO_HIGH Bit 6: WRN_SUPPLY_PRESSURE_SENSOR_OOB_LOW Bit 7: WRN_SUPPLY_PRESSURE_SENSOR_OOB_HIGH Bit 8: WRN_SYSTEM_FILL_SELF_LEARNING Bit 9: WRN_MANUAL_MODE Bit 10: WRN_MAXIMUM_TOPUP_TIME_EXCEEDED Bit 11: WRN_NO_TOPUP_FLOW Bit 12: WRN_MAINTENANCE_1_DUE Bit 13: WRN_MAINTENANCE_2_DUE Bit 14: WRN_MAINTENANCE_3_DUE Bit 15: WRN_MAINTENANCE_4_DUE Bit 16: WRN_SYSTEM_FILL_ACTIVE Bit 17: WRN_SYSTEM_FILL_ON_HOLD Bit 18: WRN_ANTI_LEGIONELLA_RUNNING Bit 19: WRN_DEVICE_REBOOT Bit 20: WRN_TANK_LEVEL_SENSOR_OOB_LOW Bit 21: WRN_TANK_LEVEL_SENSOR_OOB_HIGH Bit 22: WRN_PUMP_DRY_RUN Bit 23: WRN_TANK_OVERFLOW Bit 24: WRN_MANUAL_SYSTEM_FILL Bit 25: WRN_PUMP_1_RUNTIME Bit 26: WRN_PUMP_2_RUNTIME Bit 27: WRN_ANTI_LEGIONELLA_RECOVERY Bit 28: WRN_VACUUM_PRESSURE_SENSOR_OOB_LOW Bit 29: WRN_VACUUM_PRESSURE_SENSOR_OOB_HIGH Bit 30: WRN_FILTER_FULL Bit 31: WRN_VACUUM_ERROR Bit 32: WRN_SYPHON_FLUSH_DETECTE
OBJECT_ANALOG_VALUE:2	R	"current system pressure"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:3	R	"current supply pressure"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:4	R	"current tank level"	U16	%	Decimal
OBJECT_ANALOG_VALUE:5	R	"current vacuum pressure"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:6	R	"pressure setpoint"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:7	R	"safety valve setting"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:8	R	"low pressure alarm limit"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:9	R	"high pressure alarm limit"	U16	mbar	Decimal
OBJECT_ANALOG_VALUE:10	R	"vessel volume"	U16	l	Decimal
OBJECT_ANALOG_VALUE:11	R	"digital input"	U16	Binary	NA



OBJECT_ANALOG_VALUE:12	R	"digital output"	U16	Binary	Bit 0: P36 (Pump 2 / NC) Bit 1: P35 (Pump 1/MV1 topup valve ) Bit 2: P34 (NC) Bit 3: P33 (NC) Bit 4: P32 (NC) Bit 5: P31 (Inlet valve/MV2 Drain Valve) Bit 6: P29 (VFC 1) Bit 7: P28 (VFC 2) Bit 8: P27 (VFC 3)
OBJECT_ANALOG_VALUE:13	R	"accessories"	U32	Binary	NA
OBJECT_ANALOG_VALUE:14	R	"days to next maintenance 1"	U16	count	Decimal
OBJECT_ANALOG_VALUE:15	R	"days to next maintenance 2"	U16	count	Decimal
OBJECT_ANALOG_VALUE:16	R	"days to next maintenance 3"	U16	count	Decimal
OBJECT_ANALOG_VALUE:17	R	"days to next maintenance 4"	U16	count	Decimal
OBJECT_ANALOG_VALUE:18	R	"overall runtime"	U32	h	Decimal
OBJECT_ANALOG_VALUE:19	R	"total filled volume"	U32	ml	Decimal
OBJECT_ANALOG_VALUE:20	R	"total fill time"	U32	s	Decimal
OBJECT_ANALOG_VALUE:21	R	"activations MV1"	U32	count	Decimal
OBJECT_ANALOG_VALUE:22	R	"activations MV2"	U32	count	Decimal
OBJECT_ANALOG_VALUE:23	R	"runtime MV1"	U32	s	Decimal
OBJECT_ANALOG_VALUE:24	R	"runtime MV2"	U32	s	Decimal
OBJECT_ANALOG_VALUE:25	R	"activations Pump1"	U32	count	Decimal
OBJECT_ANALOG_VALUE:26	R	"activations Pump2"	U32	count	Decimal
OBJECT_ANALOG_VALUE:27	R	"activations Valve1"	U32	count	Decimal
OBJECT_ANALOG_VALUE:28	R	"runtime Pump1"	U32	s	Decimal
OBJECT_ANALOG_VALUE:29	R	"runtime Pump2"	U32	s	Decimal
OBJECT_ANALOG_VALUE:30	R	"runtime Valve1"	U32	s	Decimal
OBJECT_ANALOG_VALUE:31	R	"nrOfNormalTopUps"	U32	count	Decimal
OBJECT_ANALOG_VALUE:32	R	"nrOfEmergencyStops"	U32	count	Decimal
OBJECT_ANALOG_VALUE:33	R	"safetyValveActivations"	U32	count	Decimal
OBJECT_ANALOG_VALUE:34	R	"activationsVfc1"	U32	count	Decimal
OBJECT_ANALOG_VALUE:35	R	"activationsVfc2"	U32	count	Decimal
OBJECT_ANALOG_VALUE:36	R	"activationsVfc3"	U32	count	Decimal

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