bürkert
FLUID CONTROL SYSTEMS

Type 8693

Profinet

Objects

Document version 2.00

Supplement to Operating Instructions

Contents

1 History

Document version	Date	Changes
2.00	2022-07-19	Object Route function is disabled by default Changed wording Config Client → Backup File KPopen and KPclose were interchanged Parameter in display unit zError added Fixed Description of NamurStatus (reserved bits 4-7)
1.03	2019-07-05	Added Description of Object Route Function Changed wording: SIM-Card → Config-Client
1.02	2018-02-01	Add Parameters to start Tunes from fieldbus
1.01	2017-12-21	Initial released version

2 Overview

Used datatypes:

UINT8	8 bit: unsigned integer
UINT16	16 bit: unsigned integer
UINT32	32 bit: unsigned integer
SINT16	16 bit: signed integer
REAL32	32 bit: float value IEEE 754
String	C-string

3 Objects

3.1 Cyclic data

Cyclic data are available on several slots / subslots.

Slot	Subslot	Index	name	description	access type	Backup File
0x01	**0x01**	**0x0001**	NamurStatus	*Represents the device status* [1)] *UINT8*	RO	
0x02	**0x01**	**0x0001**	CMD	*Position set point* *REAL32 in %*	RW	
0x02	**0x02**	**0x0001**	POS	*Current valve position* *REAL32 in %*	RO	
0x03	**0x01**	**0x0001**	PV_UserUnit	*Current process value* *REAL32 in display unit*	RO	
0x03	**0x02**	**0x0001**	PV	*Process value used if PV source is bus* *REAL32 in display unit*	RW	
0x03	**0x03**	**0x0001**	SP_UserUnit	*Process set point* *REAL32 in display unit*	RW	

1)

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
reserved				Namur state: 0 – normal 1 – diagnose active 2 – maintenance required 3 – out of specification 4 – warning 5 - error			

3.2 Acyclic data

3.2.1 Device Data (Index 0x00__)

3.2.1.1 Object Route Function

The function is disabled by default.
It can be enabled via the device menu.

Slot	Subslot	Index	name	description	access type	Backup File
0x00	**0x01**	**0x0001**	Index / Subindex / NodeID	Target object: Writing Index and Subindex of the object.Index and Subindex are stored in the device description/EDS. The NodeID is always 0. Index: 2 bytes (MSB), Subindex: 1 byte, Node ID: 1 byte (always 0). For write access + 0x00000080 UINT32	RW	
0x00	**0x01**	**0x0002**	Data length (write access)	Data length of the write command in bytes, number of valid bytes is not specified for reading. UINT32	RW	
0x00	**0x01**	**0x0003**	Value UINT32	Here the value to be written is specified or the readout value is displayed. Data ≤ 4 bytes. UINT32	RW	
0x00	**0x01**	**0x0004**	Value String	Is used to read and write texts. Data > 4 bytes. STRING	RW	
0x00	**0x01**	**0x0005**	result	Process result: 0 = Command successfully executed > 0 = Error occurred during execution (see “Table 6”) 0xFFFFFFFF: Read and write process not yet Concluded UINT32	RO	
0x00	**0x01**	**0x0006**	call/cancel	Execute command: 1 = execute 0 = finish UINT8	RW	

3.2.1.2 Control Mode

Slot	Subslot	Index	name	description	access type	Backup File
0x00	**0x01**	**0x0007**	Control Mode		RW	

3.2.1.3 Buerkert Device Description Object

Slot	Subslot	Index	name	description	access type	Backup File
0x00	**0x01**	**0x0008**	Device Name	*Unique device name* *Visible string*	RO	
0x00	**0x01**	**0x0009**	Ident Number	*Device ID No.* *UINT32*	RO	
0x00	**0x01**	**0x000A**	Manufacture Date	*Visible string*	RO	
0x00	**0x01**	**0x000B**	Software Ident Number	*ID No. of firmware* *UINT32*	RO	
0x00	**0x01**	**0x000C**	Software Version	*Version No. of firmware* *UINT32*	RO	
0x00	**0x01**	**0x000D**	Hardware Version	*Version No. of hardware* *UINT32*	RO	
0x00	**0x01**	**0x000E**	Serial Number	*Serial No. device* *UINT32*	RO	

3.2.2 Position Controller Parameter (Index 0x02__)

Slot	Subslot	Index	name	description	access type	Backup File
0x00	**0x01**	**0x0201**	DBDx	*Deadband of the position controller in %* *REAL32*	RW	X
0x00	**0x01**	**0x0202**	KPclose	*Proportional gain for closing the valve* *SINT16*	RW	X
0x00	**0x01**	**0x0203**	KPopen	*Proportional gain for opening the valve* *SINT16*	RW	X
0x00	**0x01**	**0x0204**	mCHARACT	*Charact curve selected* *0: No charact curve* *1:Charact Curve 1:25* *2:Charact Curve 1:33* *3:Charact Curve 1:50* *4:Charact Curve 25:1* *5:Charact Curve 33:1* *6:Charact Curve 50:1* *7:FREE (See CHARACTy for defining the values)* *See User Manual for description of the function.* *SINT16*	RW	X
0x00	**0x01**	**0x0205**	CUTOFFmin	*Lower CUTOFF level in %* *SINT16*	RW	X
0x00	**0x01**	**0x0206**	CUTOFFmax	*Upper CUTOFF level in %* *SINT16*	RW	X
0x00	**0x01**	**0x0207**	POSmin	*Lower position for X.LIMIT in %* *SINT16*	RW	X
0x00	**0x01**	**0x0208**	POSmax	*Upper position for X.LIMIT in %* *SINT16*	RW	X
0x00	**0x01**	**0x0209**	XTIMEopen	*Limited opening time of the valve in s (X.TIME)* *REAL32*	RW	X

0x00	**0x01**	**0x020A**	XTIMEclose	*Limited closing time of the valve in s (X.TIME)* *REAL32*	RW	X
0x00	**0x01**	**0x020B**	mDIRact	*0: direct effective direction (deaerated → 0 %; aerated 100 %)* *1: inverse effective direction (deaerated → 100 %; aerated 0 %)* *See User Manual for description of the function.* *SINT16*	RW	X
0x00	**0x01**	**0x020C**	mSAFEpos	*Position used as safepos in %* *SINT16*	RW	X
0x00	**0x01**	**0x020D**	TUNEflags	*0 if last tune was successful* *UINT8*	RO	
0x00	**0x01**	**0x020E**	Menu_Items	*Bitfield to Activate/Deactivate functions from ADD.FUNCTION menu* *Bit0 – Bit6: unused* *Bit7: CHARACT* *Bit8: CUTOFF* *Bit9: DIR.CMD* *Bit10: DIR.ACT* *Bit11: SPLTRNG* *Bit12: X.LIMIT* *Bit13: X.TIME* *Bit14: X.CONTROL* *Bit15: P.CONTROL (only 8693/8793)* *Bit16: SECURITY* *Bit17: SAFEPOS* *Bit18: SIG.ERROR* *Bit19: BINARY.IN* *Bit20: OUTPUT* *Bit21: CAL.USER* *Bit22: SET.FACTORY* *Bit23: SERVICE.BUES* *Bit24: EXTRAS* *Bit25: POS.SENSOR (only type 879X)* *Bit26: SERVICE* *Bit27: SIMULATION* *Bit28: DIAGNOSE* *Bit29: F.CONTROL (only with FMR option)* *UINT32*	RW	X
0x00	**0x01**	**0x020F**	startTune	*Start Tune via fieldbus* *2: X.Tune* *9: P.Q.Lin* *10 : P.Tune* *startTune is set back from device* *0:TUNE successfully started* *255:TUNE could not be started* *Tune has finished when zOPmode changed back to Auto or Manual mode. Get result of last tune by reading object TUNEflags* **since Release B.02.01* *UINT8*	RW	
0x00	**0x01**	**0x0210**	z_OPmode	*Get the current operating mode* *0: Auto* *1: Manual mode* *2: X.Tune* *9: P.Q.Lin* *10 : P.Tune* **since Release B.02.01*	RO	

				UINT8		
0x00	**0x01**	**0x0212**	CHARACTy1	*freely programmable characteristic node 1* *SINT16*	RW	X
0x00	**0x01**	**0x0213**	CHARACTy2	*freely programmable characteristic node 2* *SINT16*	RW	X
0x00	**0x01**	**0x0214**	CHARACTy3	*freely programmable characteristic node 3* *SINT16*	RW	X
0x00	**0x01**	**0x0215**	CHARACTy4	*freely programmable characteristic node 4* *SINT16*	RW	X
0x00	**0x01**	**0x0216**	CHARACTy5	*freely programmable characteristic node 5* *SINT16*	RW	X
0x00	**0x01**	**0x0217**	CHARACTy6	*freely programmable characteristic node 6* *SINT16*	RW	X
0x00	**0x01**	**0x0218**	CHARACTy7	*freely programmable characteristic node 7* *SINT16*	RW	X
0x00	**0x01**	**0x0219**	CHARACTy8	*freely programmable characteristic node 8* *SINT16*	RW	X
0x00	**0x01**	**0x021A**	CHARACTy9	*freely programmable characteristic node 9* *SINT16*	RW	X
0x00	**0x01**	**0x021B**	CHARACTy10	*freely programmable characteristic node 10* *SINT16*	RW	X
0x00	**0x01**	**0x021C**	CHARACTy11	*freely programmable characteristic node 11* *SINT16*	RW	X
0x00	**0x01**	**0x021D**	CHARACTy12	*freely programmable characteristic node 12* *SINT16*	RW	X
0x00	**0x01**	**0x021E**	CHARACTy13	*freely programmable characteristic node 13* *SINT16*	RW	X
0x00	**0x01**	**0x021F**	CHARACTy14	*freely programmable characteristic node 14* *SINT16*	RW	X
0x00	**0x01**	**0x0220**	CHARACTy15	*freely programmable characteristic node 15* *SINT16*	RW	X
0x00	**0x01**	**0x0221**	CHARACTy16	*freely programmable characteristic node 16* *SINT16*	RW	X
0x00	**0x01**	**0x0222**	CHARACTy17	*freely programmable characteristic node 17* *SINT16*	RW	X
0x00	**0x01**	**0x0223**	CHARACTy18	*freely programmable characteristic node 18* *SINT16*	RW	X
0x00	**0x01**	**0x0224**	CHARACTy19	*freely programmable characteristic node 19* *SINT16*	RW	X
0x00	**0x01**	**0x0225**	CHARACTy20	*freely programmable characteristic node 20* *SINT16*	RW	X
0x00	**0x01**	**0x0226**	CHARACTy21	*freely programmable characteristic node 21* *SINT16*	RW	X
0x00	**0x01**	**0x0211**	mDIRcmd	*0: Rise (direct effective direction)* *1: Fall (inverse effective direction)* *See User Manual for description of the function.* *SINT16*	RW	X
0x00	**0x01**	**0x0227**	zError	*Bit0 – Bit9: internal* *Bit10: cable break PV* *Bit11: cable break CMD* *Bit12: cable break SP* *Bit13: cable break PT100* *Bit 14: cable break P1* *Bit15: cable break P2* *Bit16: cable break MTMP* *Bit17 – Bit20: internal*	RO	

				Bit21: WMS signal error *Bit22: Puck signal too weak* *Bit23: CMD out of specification* *Bit24: SP out of specification* *Bit25: PV out of specification* *Bit26: MTMP out of specification* *UINT32*		

3.2.3 Process Controller Parameter (Index 0x03__, only Type 8693)

Slot	Subslot	Index	name	description	access type	Backup File
0x00	**0x01**	**0x0301**	DBDp	*Deadband of process controller in % (Scaled with PVmin and PVmax)* *REAL32*	RW	X
0x00	**0x01**	**0x0302**	KP	*Proportional gain of the process controller* *REAL32*	RW	X
0x00	**0x01**	**0x0303**	TN	*Integral action time of the process controller in s* *REAL32*	RW	X
0x00	**0x01**	**0x0304**	TV	*Derivative action time of the process controller in s* *REAL32*	RW	X
0x00	**0x01**	**0x0305**	X_0	*Operating point of the process controller, position in %* *REAL32*	RW	X
0x00	**0x01**	**0x0306**	mPCONsetp	*0: Input of the set-point value on the process level* *1: Default of the set-point value via fieldbus input* *SINT16*	RW	X
0x00	**0x01**	**0x0307**	mPCONinp	*Selecting the type of analog input for ProcessValue of the process controller* *1:4-20 mA* *2:Frequency* *3:PT100* *4:BueS/Fieldbus* *SINT16*	RW	X
0x00	**0x01**	**0x0308**	FTfgPV	*Predefined filter setting Values for the process value input* *0: Filter 0 (10 Hz)* *1: Filter 1 (5 Hz)* *2: Filter 2 (2 Hz)* *3: Filter 3 (1 Hz)* *4: Filter 4 (0,5 Hz)* *5: Filter 5 (0,2 Hz)* *6: Filter 6 (0,1 Hz)* *7: Filter 7 (0,07 Hz)* *8: Filter 8 (0,05 Hz)* *9: Filter 9 (0,03 Hz)* *SINT16*	RW	X
0x00	**0x01**	**0x0309**	SCALunit	*Unit of process controller* *0: l/s* [1] *1: l/min* [1] *2: l/h* [1] *3: m³/min* [1] *4: m³/h* [1] *5: UG/s* [1] *6: UG/min* [1] *7: UG/h* [1] *8: IG/s* [1] *9: IG/min* [1] *10: IG/h* [1] *11: °C* [2] *12: °F* [2] *13: m/s*	RW	X

[1] mPCONinp = 2 (Frequency) can only use values 0 - 10
[2] mPCONinp = 3 (PT100) can only use values 11 and 12

				14: bar *15: mbar* *16: psi* *17: %* *18: mm* *19: m* *20: Liter* *21 : Nl/s* *22 : Nl/min* *23 : Nl/h* *24: none* *SINT16*		
0x00	**0x01**	**0x030A**	SCALdp	*Decimal point of process controller scaling (0-3)* *SINT16*	RW	X
0x00	**0x01**	**0x030B**	PVmin	*Lower scaling point PV (display unit)* *REAL32*	RW	X
0x00	**0x01**	**0x030C**	PVmax	*Upper scaling point PV (display unit)* *REAL32*	RW	X
0x00	**0x01**	**0x030D**	SPmin	*Lower scaling point SP (display unit)* *REAL32*	RW	X
0x00	**0x01**	**0x030E**	SPmax	*Upper scaling point SP (display unit)* *REAL32*	RW	X
0x00	**0x01**	**0x030F**	mCUTOFFtype	*0: CUTOFF function is based on SP* *1: CUTOFF function is based on CMD* *See User Manual for description of the function.* *SINT16*	RW	X
0x00	**0x01**	**0x0310**	mERRpinp_func	*0: signal break detection of PV inactive* *1: signal break detection of PV active* *SINT16*	RW	X
0x00	**0x01**	**0x0311**	mSPOSpinp_func	*0: no safepos when PV signal break detected* *1: safepos when PV signal break detected* *Requires that mERRpinp_func is activated* *SINT16*	RW	X
0x00	**0x01**	**0x0312**	PCONact	*Deactivate process controller via bueS/fieldbus* *0: process controller inactive* *1: process controller active* *UINT8*	RW	

4 Unit conversion

Display Unit	bueS specific SI Unit	Scaling factor
l/s	l/min	1/60
l/min	l/min	1
l/h	l/min	60
m³/min	l/min	1/1000
m³/h	l/min	60/1000
UG/s	l/min	1/(3.7854 * 60)
UG/min	l/min	1/3.7854
UG/h	l/min	60/3.7854
IG/s	l/min	1/(4.5461 * 60)
IG/min	l/min	1/4.5461
IG/h	l/min	60/4.5461
°C	K	$T_{°C} = T_K - 273.15$ °
°F	K	$T_{°F} = T_K*1.8 -459.67$
m/s	m/s	1
bar	Pa	1/100000
mbar	Pa	1/100
psi	Pa	1.450377e-4
%	%	1
mm	m	1000
m	m	1
l	l	1
Nl/s	Nl/min	1/60
Nl/min	Nl/min	1
Nl/h	Nl/min	60