

# **Type 8793**

EthernetIP

Objects

Document version 2.00

Supplement to Operating Instructions

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# 1 History

Document version	Date	Changes
2.00	2022-07-19	Object Route function is disabled by default Changed wording Config Client → Backup File KOpen and KClose were interchanged Parameter in display unit zError added Fixed Description of NamurStatus (reserved bits 4-7)
1.06	2021-03-17	Remove object C7 0F 03 in Buerkert Device Description
1.05	2019-07-05	Added Description of Object Route Function Changed wording: SIM-Card → Config-Client
1.04	2018-09-18	Correct datatype and bytelength of string parameters
1.03	2018-06-26	Byte length of startTune and z_OPmode was wrong
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 input data are in class 0x64. Cyclic output in class 0x65

Class	Instance	Attribute	name	description	access type	Backup File
0x64	0x01	0x03	POS	Current valve position REAL32 in %	RO	
0x64	0x02	0x03	NamurStatus	Represents the device status <sup>1)</sup> UINT8	RO	
0x64	0x03	0x03	PV_UserUnit	Current process value REAL32 in display unit	RO	
0x65	0x01	0x03	CMD	Position set point REAL32 in %	RW	
0x65	0x02	0x03	PV	Process value used if PV source is bus REAL32 in display unit	RW	
0x65	0x03	0x03	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 (class 0xC7)

#### 3.2.1.1 Object Route Function

The function is disabled by default.

It can be enabled via the device menu.

Class	Instance	Attribute	name	description	access type	Backup File
0xC7	0x01	0x03	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	
0xC7	0x02	0x03	Data length (write access)	Data length of the write command in bytes, number of valid bytes is not specified for reading. UINT32	RW	
0xC7	0x03	0x03	Value UINT32	Here the value to be written is specified or the readout value is displayed. Data ≤ 4 bytes. UINT32	RW	
0xC7	0x04	0x03	Value String	Is used to read and write texts. Data > 4 bytes. STRING	RW	
0xC7	0x05	0x03	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	
0xC7	0x06	0x03	call/cancel	Execute command: 1 = execute 0 = finish UINT8	RW	

#### 3.2.1.2 Control Mode

Class	Instance	Attribute	name	description	access type	Backup File
0xC7	0x07	0x03	Control Mode		RW	

### 3.2.1.3 Buerkert Device Description Object

Class	Instance	Attribute	name	description	access type	Backup File
0xC7	0x08	0x03	Device Name	Unique device name Visible string	RO	
0xC7	0x09	0x03	Ident Number	Device ID No. UINT32	RO	
0xC7	0x0A	0x03	Manufacture Date	Visible string	RO	
0xC7	0x0B	0x03	Software Ident Number	Uint32 ID No. of firmware UINT32	RO	
0xC7	0x0C	0x03	Software Version	Version No. of firmware UINT32	RO	
0xC7	0x0D	0x03	Hardware Version	Version No. of hardware UINT32	RO	
0xC7	0x0E	0x03	Serial Number	Serial No. device UINT32	RO	

### 3.2.2 Position Controller Parameter (class 0xC6)

Class	Instance	Attribute	name	description	access type	Backup File
0xC6	0x01	0x03	DBDx	Deadband of the position controller in % REAL32	RW	X
0xC6	0x02	0x03	KPclose	Proportional gain for closing the valve SINT16	RW	X
0xC6	0x03	0x03	KPopen	Proportional gain for opening the valve SINT16	RW	X
0xC6	0x04	0x03	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
0xC6	0x05	0x03	CUTOFFmin	Lower CUTOFF level in % SINT16	RW	X
0xC6	0x06	0x03	CUTOFFmax	Upper CUTOFF level in % SINT16	RW	X
0xC6	0x07	0x03	POSmin	Lower position for X.LIMIT in % SINT16	RW	X
0xC6	0x08	0x03	POSmax	Upper position for X.LIMIT in % SINT16	RW	X
0xC6	0x09	0x03	XTIMEopen	Limited opening time of the valve in s (X.TIME) REAL32	RW	X
0xC6	0x0A	0x03	XTIMEclose	Limited closing time of the valve in s (X.TIME) REAL32	RW	X
0xC6	0x0B	0x03	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
0xC6	0x0C	0x03	mSAFEpos	Position used as safepos in % SINT16	RW	X
0xC6	0x0D	0x03	TUNEflags	0 if last tune was successful UINT8	RO	
0xC6	0x0E	0x03	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)	RW	X



				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		
0xC6	0x0F	0x03	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	
0xC6	0x10	0x03	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 UINT8	RO	
0xC6	0x11	0x03	CHARACTy1	freely programmable characteristic node 1 SINT16	RW	X
0xC6	0x12	0x03	CHARACTy2	freely programmable characteristic node 2 SINT16	RW	X
0xC6	0x13	0x03	CHARACTy3	freely programmable characteristic node 3 SINT16	RW	X
0xC6	0x14	0x03	CHARACTy4	freely programmable characteristic node 4 SINT16	RW	X
0xC6	0x15	0x03	CHARACTy5	freely programmable characteristic node 5 SINT16	RW	X
0xC6	0x16	0x03	CHARACTy6	freely programmable characteristic node 6 SINT16	RW	X
0xC6	0x17	0x03	CHARACTy7	freely programmable characteristic node 7 SINT16	RW	X
0xC6	0x18	0x03	CHARACTy8	freely programmable characteristic node 8 SINT16	RW	X
0xC6	0x19	0x03	CHARACTy9	freely programmable characteristic node 9 SINT16	RW	X
0xC6	0x1A	0x03	CHARACTy10	freely programmable characteristic node 10 SINT16	RW	X

0xC6	0x1B	0x03	CHARACTy11	freely programmable characteristic node 11 SINT16	RW	X
0xC6	0x1C	0x03	CHARACTy12	freely programmable characteristic node 12 SINT16	RW	X
0xC6	0x1D	0x03	CHARACTy13	freely programmable characteristic node 13 SINT16	RW	X
0xC6	0x1E	0x03	CHARACTy14	freely programmable characteristic node 14 SINT16	RW	X
0xC6	0x1F	0x03	CHARACTy15	freely programmable characteristic node 15 SINT16	RW	X
0xC6	0x20	0x03	CHARACTy16	freely programmable characteristic node 16 SINT16	RW	X
0xC6	0x21	0x03	CHARACTy17	freely programmable characteristic node 17 SINT16	RW	X
0xC6	0x22	0x03	CHARACTy18	freely programmable characteristic node 18 SINT16	RW	X
0xC6	0x23	0x03	CHARACTy19	freely programmable characteristic node 19 SINT16	RW	X
0xC6	0x24	0x03	CHARACTy20	freely programmable characteristic node 20 SINT16	RW	X
0xC6	0x25	0x03	CHARACTy21	freely programmable characteristic node 21 SINT16	RW	X
0xC6	0x26	0x03	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 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	RO	

### 3.2.3 Process Controller Parameter (class 0xC5)

Class	Instance	Attribute	name	description	access type	Backup File
0xC5	0x01	0x03	DBDp	Deadband of process controller in % (Scaled with PVmin and PVmax) REAL32	RW	X
0xC5	0x02	0x03	KP	Proportional gain of the process controller REAL32	RW	X
0xC5	0x03	0x03	TN	Integral action time of the process controller in s REAL32	RW	X
0xC5	0x04	0x03	TV	Derivative action time of the process controller in s REAL32	RW	X
0xC5	0x05	0x03	X_0	Operating point of the process controller, position in % REAL32	RW	X
0xC5	0x06	0x03	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
0xC5	0x07	0x03	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
0xC5	0x08	0x03	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
0xC5	0x09	0x03	SCALunit	Unit of process controller 0: l/s <sup>1</sup> 1: l/min <sup>1</sup> 2: l/h <sup>1</sup> 3: m <sup>3</sup> /min <sup>1</sup> 4: m <sup>3</sup> /h <sup>1</sup> 5: UG/s <sup>1</sup> 6: UG/min <sup>1</sup> 7: UG/h <sup>1</sup> 8: IG/s <sup>1</sup> 9: IG/min <sup>1</sup> 10: IG/h <sup>1</sup> 11: °C <sup>2</sup> 12: °F <sup>2</sup> 13: m/s	RW	X

<sup>1</sup> mPCONinp = 2 (Frequency) can only use values 0 - 10

<sup>2</sup> mPCONinp = 3 (PT100) can only use values 11 and 12

				14: bar 15: mbar 16: psi 17: % 18: mm 19: m 20: Liter 21 : NI/s 22 : NI/min 23 : NI/h 24: none SINT16		
0xC5	0x0A	0x03	SCALdp	Decimal point of process controller scaling (0-3) SINT16	RW	X
0xC5	0x0B	0x03	PVmin	Lower scaling point PV (display unit) REAL32	RW	X
0xC5	0x0C	0x03	PVmax	Upper scaling point PV (display unit) REAL32	RW	X
0xC5	0x0D	0x03	SPmin	Lower scaling point SP (display unit) REAL32	RW	X
0xC5	0x0E	0x03	SPmax	Upper scaling point SP (display unit) REAL32	RW	X
0xC5	0x0F	0x03	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
0xC5	0x10	0x03	mERRpinp_func	0: signal break detection of PV inactive 1: signal break detection of PV active SINT16	RW	X
0xC5	0x11	0x03	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
0xC5	0x12	0x03	mPCONact	Deactivate process controller via bueS/fieldbus 0: process controller inactive 1: process controller active UINT8	RW	

### 3.2.4 Config Parameter (class 0xB0)

Class	Instance	Attribute	name	description	access type	Backup File
0xB0	0x22	0x03	mDIRcmd	0: Rise (direct effective direction) 1: Fall (inverse effective direction) See User Manual for description of the function. SINT16	RW	X

## 4 Unit conversion

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