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Control Head Type CTOP-S	
Vendor ID	1840 (0x0730)
Vendor Name	Inoxpa S.A.U.
Vendor Text	www.inoxpa.com
Vendor URL	www.inoxpa.com
Device ID	2 (0x000002)
DeviceFamily	Control Heads
	
Features	
Block Parameter	yes
Data Storage	yes
Profile Characteristic	0x0031 (Device Profile: Firmware Update), 0x4000 (Common Application Profile: Identification and Diagnosis)
Supported Access Locks	Parameter: no, Data Storage: no, Local Parameterization: yes, Local User Interface: yes
Communication	
IO-Link Revision	V1.1
Compatible with	V1.0
Transmission Rate	230400 bit/s (COM3)
Minimum Cycle Time	1 ms
SIO Mode Supported	no
M-Sequence Capability	PREOPERATE = TYPE_1_2 with 2 octets on-request data OPERATE = TYPE_2_V with 2 octets on-request data ISDU supported
Device Variant	
Control Head Type CTOP-S Class A 1EV	
Description	Control Head Type CTOP-S with 1 valve, IO-Link Class A
Product ID	CTOP-S 1EV IO-Link
Device Icon	
Device Symbol	
Connection Type	M12-4 connector
- pin 1	brown; L+
- pin 2	white; NC
- pin 3	(light) blue; L-
- pin 4	black; C/Q

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ProcessData id=PD\_DATA\_1EV

ProcessDataIn "Process input data" id=PD\_IN\_1EV

bit length: 32  
data type: 32-bit Record

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	0	Boolean						S0	
2	1	Boolean						S1	
5	8	16-bit Integer						Position	
6	24	4-bit UInteger	0 = Normal operation, 1 = Teach on-the-fly, 2 = Automatic teach, 3 = Manual operation, 4 = Error					Device actual operative mode	
7	30	Boolean						Error flag	
8	31	Boolean						Warning flag	

Octet 0

bit offset	31	30	29	28	27	26	25	24
subindex	8	7	/////	/////	6			
element bit					3	2	1	0

**Octet 1**

bit offset	23	22	21	20	19	18	17	16
subindex	5							
element bit	15	14	13	12	11	10	9	8

**Octet 2**

bit offset	15	14	13	12	11	10	9	8
subindex	5							
element bit	7	6	5	4	3	2	1	0

**Octet 3**

bit offset	7	6	5	4	3	2	1	0
subindex	/////	/////	/////	/////	/////	/////	2	1

ProcessDataOut "Process output data" id=PD\_OUT\_1EV

bit length: 8  
data type: 8-bit Record

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	0	Boolean						V1	

**Octet 0**

bit offset	7	6	5	4	3	2	1	0
subindex	/////	/////	/////	/////	/////	/////	/////	1

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Standard Variable "Direct Parameters - Page 1" index=0 id=V\_DirectParameters\_1

description: Comprises the required parameters defining the communication characteristics and identifiers for device validation.  
data type: 128-bit Record  
access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	120	8-bit UInteger			ro			Reserved	
2	112	8-bit UInteger			ro			Master Cycle Time	Communication: Current communication cycle duration used by the master. This value defines the process data cycle.
3	104	8-bit UInteger			ro			Min Cycle Time	Communication: Minimum communication cycle duration supported by the device. This value defines the lowest possible process data cycle.
4	96	8-bit UInteger			ro			M-Sequence Capability	Communication: Information on the structure and the supported features of the communication messages.
5	88	8-bit UInteger		17	ro			IO-Link Revision ID	Communication: Identifier for the currently used communication protocol revision.
6	80	8-bit UInteger			ro			Process Data Input Length	Communication: Information on width and features of the process input data (Process Data from Device to Master).
7	72	8-bit UInteger			ro			Process Data Output Length	Communication: Information on width of the process output data (Process Data from Master to Device).
8	64	8-bit UInteger			ro			Vendor ID 1	Identification: Highest octet of the Vendor ID. Combined with the parameter Vendor ID 2, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
9	56	8-bit UInteger			ro			Vendor ID 2	Identification: Lowest octet of the Vendor ID. Combined with the parameter Vendor ID 1, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
10	48	8-bit UInteger			ro			Device ID 1	Identification: Highest octet of the Device ID. Combined with the parameters Device ID 2 and 3, this parameter defines the 24-bit value of the vendor-specific Device ID.
11	40	8-bit UInteger			ro			Device ID 2	Identification: Middle octet of the Device ID. Combined with the parameters Device ID 1 and 3,

									this parameter defines the 24-bit value of the vendor-specific Device ID.
12	32	8-bit Unsigned			ro			Device ID 3	Identification: Lowest octet of the Device ID. Combined with the parameters Device ID 1 and 2, this parameter defines the 24-bit value of the vendor-specific Device ID.
13	24	8-bit Unsigned			ro			Reserved	
14	16	8-bit Unsigned			ro			Reserved	
15	8	8-bit Unsigned			ro			Reserved	
16	0	8-bit Unsigned			wo	X		System Command	Application: Command interface for devices without ISDU support. Validity and execution of commands are not confirmed.

octet	0	1	2	3	4	5	6	7
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64
subindex	1	2	3	4	5	6	7	8
element bit	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0

octet	8	9	10	11	12	13	14	15
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0
subindex	9	10	11	12	13	14	15	16
element bit	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0

## Standard Variable "System Command" index=2 id=V\_SystemCommand

description: Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function.

data type: 8-bit Unsigned

allowed values: 80 = Start unlocking sequence, 81 = Unlocking command 1, 82 = Unlocking command 2, 128 = Device Reset, 129 = Application Reset, 130 = Restore Factory Settings, 131 = Back-to-box, 160 = Start automatic teach, 161 = Start on the fly teach, 162 = Manual teach S0, 163 = Manual teach S1, 166 = Abort teach process, 167 = Teach reset, 168 = Localize device, 169 = Stop localize function

access rights: wo

modifies other variables

octet	0
bit offset	7 - 0
element bit	7 - 0

## Standard Variable "Device Access Locks" index=12 id=V\_DeviceAccessLocks

description: The access to the device parameters can be restricted by setting appropriate flags within this parameter.

data type: 16-bit Record (subindex access not supported)

access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	0	Boolean	false = Unlocked, true = Locked					Parameter Write Access	This lock prevents the write access to all read/write parameters of the device except for the parameter 'Device Access Locks'.
2	1	Boolean	false = Unlocked, true = Locked					Data Storage	This lock prevents the write access to the device parameters via the data storage mechanism.
3	2	Boolean	false = Unlocked, true = Locked	0				Local Parameterization	This lock prevents the device settings from being changed via local operating elements on the device.
4	3	Boolean	false = Unlocked, true = Locked	0				Local User Interface	This lock prevents the access to the device settings and display via a local user interface. The user interface is disabled.

### Octet 0

bit offset	15	14	13	12	11	10	9	8
subindex	/////	/////	/////	/////	/////	/////	/////	/////

### Octet 1

bit offset	7	6	5	4	3	2	1	0
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subindex	/////	/////	/////	/////	4	3	2	1
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## Standard Variable "Vendor Name" index=16 id=V\_VendorName

description: The vendor name that is assigned to a Vendor ID.

data type: 64-octet String UTF-8

default value: "Inoxpa S.A.U."

access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Standard Variable "Vendor Text" index=17 id=V\_VendorText

description: Additional information about the vendor.

data type: 64-octet String UTF-8

default value: "www.inoxpa.com"

access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

Standard Variable "Product Name" index=18 id=V\_ProductName

description: Complete product name.  
data type: 64-octet String UTF-8  
default value: "CTOP-S 1EV IO-Link"  
access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

Standard Variable "Product ID" index=19 id=V\_ProductID

description: Vendor-specific product or type identification (e.g., item number or model number).  
data type: 64-octet String UTF-8  
default value: "CTOP-S 1EV IO-Link"  
access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

Standard Variable "Product Text" index=20 id=V\_ProductText

description: Additional product information for the device.  
data type: 64-octet String UTF-8  
default value: "CTOP-S"  
access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

Standard Variable "Serial Number" index=21 id=V\_SerialNumber

description: Unique, vendor-specific identifier of the individual device.  
data type: 16-octet String UTF-8  
access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	8	9	10	11	12	13	14	15
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

Standard Variable "Hardware Revision" index=22 id=V\_HardwareRevision

description: Unique, vendor-specific identifier of the hardware revision of the individual device.  
data type: 64-octet String UTF-8  
access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
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bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128
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octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Standard Variable "Firmware Revision" index=23 id=V\_FirmwareRevision

description: Unique, vendor-specific identifier of the firmware revision of the individual device.

data type: 64-octet String UTF-8

access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448

octet	8	9	10	11	12	13	14	15
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384

octet	16	17	18	19	20	21	22	23
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320

octet	24	25	26	27	28	29	30	31
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256

octet	32	33	34	35	36	37	38	39
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	40	41	42	43	44	45	46	47
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	48	49	50	51	52	53	54	55
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	56	57	58	59	60	61	62	63
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Standard Variable "Application-specific Tag" index=24 id=V\_ApplicationSpecificTag

description: Possibility to mark a device with user- or application-specific information.

data type: 32-octet String UTF-8

default value: ""

access rights: rw

octet	0	1	2	3	4	5	6	7
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	8	9	10	11	12	13	14	15
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	16	17	18	19	20	21	22	23
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	24	25	26	27	28	29	30	31
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Standard Variable "Device Status" index=36 id=V\_DeviceStatus

description: Indicator for the current device condition and diagnosis state.

data type: 8-bit UInteger

allowed values: 0 = Device is OK, 1 = Maintenance required, 2 = Out of specification, 3 = Functional check, 4 = Failure

access rights: ro

dynamic

octet	0	
bit offset	7 - 0	
element bit	7 - 0	

## Standard Variable "Detailed Device Status" index=37 id=V\_DetailedDeviceStatus

description: List of all currently pending events in the device.

data type: Array[10] of 3-octet OctetString (subindex access not supported)

access rights: ro

dynamic

octet	0	1	2	3	4	5	6	7
bit offset	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192	191 - 184	183 - 176
subindex	1	1	1	2	2	2	3	3

octet	8	9	10	11	12	13	14	15
bit offset	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128	127 - 120	119 - 112
subindex	3	4	4	4	5	5	5	6

octet	16	17	18	19	20	21	22	23
bit offset	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64	63 - 56	55 - 48
subindex	6	6	7	7	7	8	8	8

octet	24	25	26	27	28	29	
bit offset	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0	
subindex	9	9	9	10	10	10	

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## Variable "Function Tag" index=25 id=V\_CP\_FunctionTag

description: Possibility to mark a device with function-specific information.

data type: 32-octet String UTF-8

default value: "\*\*\*\*\*"

access rights: rw

octet	0	1	2	3	4	5	6	7
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	8	9	10	11	12	13	14	15
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	16	17	18	19	20	21	22	23
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	24	25	26	27	28	29	30	31
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Variable "Location Tag" index=26 id=V\_CP\_LocationTag

description: Possibility to mark a device with location-specific information.

data type: 32-octet String UTF-8

default value: "\*\*\*\*\*"

access rights: rw

octet	0	1	2	3	4	5	6	7
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192

octet	8	9	10	11	12	13	14	15
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128

octet	16	17	18	19	20	21	22	23
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64



octet	24	25	26	27	28	29	30	31
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Variable "Inoxpa Device Description Object" index=8192 id=V\_2000

data type: 1280-bit Record

access rights: ro

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	1024	32-octet String US_ASCII			ro			Manufacture date	
2	768	32-octet String US_ASCII			ro			Factory firmware version	
3	512	32-octet String US_ASCII			ro			PCBA manufacture date	
4	256	32-octet String US_ASCII			ro			PCB version	
5	0	32-octet String US_ASCII			ro			PCBA version	

octet	0	1	2	3	4	5	6	7
bit offset	1279 - 1272	1271 - 1264	1263 - 1256	1255 - 1248	1247 - 1240	1239 - 1232	1231 - 1224	1223 - 1216
subindex	1	1	1	1	1	1	1	1

octet	8	9	10	11	12	13	14	15
bit offset	1215 - 1208	1207 - 1200	1199 - 1192	1191 - 1184	1183 - 1176	1175 - 1168	1167 - 1160	1159 - 1152
subindex	1	1	1	1	1	1	1	1

octet	16	17	18	19	20	21	22	23
bit offset	1151 - 1144	1143 - 1136	1135 - 1128	1127 - 1120	1119 - 1112	1111 - 1104	1103 - 1096	1095 - 1088
subindex	1	1	1	1	1	1	1	1

octet	24	25	26	27	28	29	30	31
bit offset	1087 - 1080	1079 - 1072	1071 - 1064	1063 - 1056	1055 - 1048	1047 - 1040	1039 - 1032	1031 - 1024
subindex	1	1	1	1	1	1	1	1

octet	32	33	34	35	36	37	38	39
bit offset	1023 - 1016	1015 - 1008	1007 - 1000	999 - 992	991 - 984	983 - 976	975 - 968	967 - 960
subindex	2	2	2	2	2	2	2	2

octet	40	41	42	43	44	45	46	47
bit offset	959 - 952	951 - 944	943 - 936	935 - 928	927 - 920	919 - 912	911 - 904	903 - 896
subindex	2	2	2	2	2	2	2	2

octet	48	49	50	51	52	53	54	55
bit offset	895 - 888	887 - 880	879 - 872	871 - 864	863 - 856	855 - 848	847 - 840	839 - 832
subindex	2	2	2	2	2	2	2	2

octet	56	57	58	59	60	61	62	63
bit offset	831 - 824	823 - 816	815 - 808	807 - 800	799 - 792	791 - 784	783 - 776	775 - 768
subindex	2	2	2	2	2	2	2	2

octet	64	65	66	67	68	69	70	71
bit offset	767 - 760	759 - 752	751 - 744	743 - 736	735 - 728	727 - 720	719 - 712	711 - 704
subindex	3	3	3	3	3	3	3	3

octet	72	73	74	75	76	77	78	79
bit offset	703 - 696	695 - 688	687 - 680	679 - 672	671 - 664	663 - 656	655 - 648	647 - 640
subindex	3	3	3	3	3	3	3	3

octet	80	81	82	83	84	85	86	87
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bit offset	639 - 632	631 - 624	623 - 616	615 - 608	607 - 600	599 - 592	591 - 584	583 - 576
subindex	3	3	3	3	3	3	3	3

octet	88	89	90	91	92	93	94	95
bit offset	575 - 568	567 - 560	559 - 552	551 - 544	543 - 536	535 - 528	527 - 520	519 - 512
subindex	3	3	3	3	3	3	3	3

octet	96	97	98	99	100	101	102	103
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448
subindex	4	4	4	4	4	4	4	4

octet	104	105	106	107	108	109	110	111
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384
subindex	4	4	4	4	4	4	4	4

octet	112	113	114	115	116	117	118	119
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320
subindex	4	4	4	4	4	4	4	4

octet	120	121	122	123	124	125	126	127
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256
subindex	4	4	4	4	4	4	4	4

octet	128	129	130	131	132	133	134	135
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192
subindex	5	5	5	5	5	5	5	5

octet	136	137	138	139	140	141	142	143
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128
subindex	5	5	5	5	5	5	5	5

octet	144	145	146	147	148	149	150	151
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64
subindex	5	5	5	5	5	5	5	5

octet	152	153	154	155	156	157	158	159
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0
subindex	5	5	5	5	5	5	5	5

## Variable "Device Information (User Configuration Object)" index=8448 id=V\_2100

data type: 768-bit Record  
access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	512	32-octet String US_ASCII			rw			Unique device name	
2	256	32-octet String US_ASCII			rw			Location	
3	0	32-octet String US_ASCII			rw			Description	

octet	0	1	2	3	4	5	6	7
bit offset	767 - 760	759 - 752	751 - 744	743 - 736	735 - 728	727 - 720	719 - 712	711 - 704
subindex	1	1	1	1	1	1	1	1

octet	8	9	10	11	12	13	14	15
bit offset	703 - 696	695 - 688	687 - 680	679 - 672	671 - 664	663 - 656	655 - 648	647 - 640
subindex	1	1	1	1	1	1	1	1

octet	16	17	18	19	20	21	22	23
bit offset	639 - 632	631 - 624	623 - 616	615 - 608	607 - 600	599 - 592	591 - 584	583 - 576

subindex	1	1	1	1	1	1	1	1
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octet	24	25	26	27	28	29	30	31
bit offset	575 - 568	567 - 560	559 - 552	551 - 544	543 - 536	535 - 528	527 - 520	519 - 512
subindex	1	1	1	1	1	1	1	1

octet	32	33	34	35	36	37	38	39
bit offset	511 - 504	503 - 496	495 - 488	487 - 480	479 - 472	471 - 464	463 - 456	455 - 448
subindex	2	2	2	2	2	2	2	2

octet	40	41	42	43	44	45	46	47
bit offset	447 - 440	439 - 432	431 - 424	423 - 416	415 - 408	407 - 400	399 - 392	391 - 384
subindex	2	2	2	2	2	2	2	2

octet	48	49	50	51	52	53	54	55
bit offset	383 - 376	375 - 368	367 - 360	359 - 352	351 - 344	343 - 336	335 - 328	327 - 320
subindex	2	2	2	2	2	2	2	2

octet	56	57	58	59	60	61	62	63
bit offset	319 - 312	311 - 304	303 - 296	295 - 288	287 - 280	279 - 272	271 - 264	263 - 256
subindex	2	2	2	2	2	2	2	2

octet	64	65	66	67	68	69	70	71
bit offset	255 - 248	247 - 240	239 - 232	231 - 224	223 - 216	215 - 208	207 - 200	199 - 192
subindex	3	3	3	3	3	3	3	3

octet	72	73	74	75	76	77	78	79
bit offset	191 - 184	183 - 176	175 - 168	167 - 160	159 - 152	151 - 144	143 - 136	135 - 128
subindex	3	3	3	3	3	3	3	3

octet	80	81	82	83	84	85	86	87
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64
subindex	3	3	3	3	3	3	3	3

octet	88	89	90	91	92	93	94	95
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0
subindex	3	3	3	3	3	3	3	3

## Variable "Device operative status" index=8704 id=V\_2200

data type: 176-bit Record

access rights: ro

dynamic

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	168	4-bit UInteger	0 = Normal operation, 1 = Teach on-the-fly, 2 = Automatic teach, 3 = Manual operation, 4 = Error		ro			Device actual operative mode	
2	152	16-bit Integer			ro			Device temperature	
3	120	32-bit UInteger			ro			Operation time since last boot	
4	104	16-bit Integer			ro			Max. temperature	
5	88	16-bit Integer			ro			Min. temperature	
6	56	32-bit UInteger			ro			Boot counter	
7	48	8-bit UInteger			ro			Bit-coded actual position	
8	32	16-bit UInteger			ro			Remaining teach on-the-fly time	

9	24	8-bit UInteger			ro			Bit-coded actual valve state	
10	16	8-bit UInteger			ro			Bit-coded actual input state	
11	0	16-bit UInteger			ro			Bit-coded error codes	

bit offset	175	174	173	172	171	170	169	168
subindex	//////	//////	//////	//////	1			
element bit					3	2	1	0

bit offset	167	166	165	164	163	162	161	160
subindex	2							
element bit	15	14	13	12	11	10	9	8

bit offset	159	158	157	156	155	154	153	152
subindex	2							
element bit	7	6	5	4	3	2	1	0

bit offset	151	150	149	148	147	146	145	144
subindex	3							
element bit	31	30	29	28	27	26	25	24

bit offset	143	142	141	140	139	138	137	136
subindex	3							
element bit	23	22	21	20	19	18	17	16

bit offset	135	134	133	132	131	130	129	128
subindex	3							
element bit	15	14	13	12	11	10	9	8

bit offset	127	126	125	124	123	122	121	120
subindex	3							
element bit	7	6	5	4	3	2	1	0

bit offset	119	118	117	116	115	114	113	112
subindex	4							
element bit	15	14	13	12	11	10	9	8

bit offset	111	110	109	108	107	106	105	104
subindex	4							
element bit	7	6	5	4	3	2	1	0

bit offset	103	102	101	100	99	98	97	96
subindex	5							
element bit	15	14	13	12	11	10	9	8

bit offset	95	94	93	92	91	90	89	88
subindex	5							
element bit	7	6	5	4	3	2	1	0

bit offset	87	86	85	84	83	82	81	80
subindex	6							
element bit	31	30	29	28	27	26	25	24

bit offset	79	78	77	76	75	74	73	72
subindex	6							
element bit	23	22	21	20	19	18	17	16

bit offset	71	70	69	68	67	66	65	64
subindex	6							
element bit	15	14	13	12	11	10	9	8

[illegible]

element bit	7	6	5	4	3	2	1	0
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**Octet 15**

bit offset	55	54	53	52	51	50	49	48
subindex	7							
element bit	7	6	5	4	3	2	1	0

**Octet 16**

bit offset	47	46	45	44	43	42	41	40
subindex	8							
element bit	15	14	13	12	11	10	9	8

**Octet 17**

bit offset	39	38	37	36	35	34	33	32
subindex	8							
element bit	7	6	5	4	3	2	1	0

**Octet 18**

bit offset	31	30	29	28	27	26	25	24
subindex	9							
element bit	7	6	5	4	3	2	1	0

**Octet 19**

bit offset	23	22	21	20	19	18	17	16
subindex	10							
element bit	7	6	5	4	3	2	1	0

**Octet 20**

bit offset	15	14	13	12	11	10	9	8
subindex	11							
element bit	15	14	13	12	11	10	9	8

**Octet 21**

bit offset	7	6	5	4	3	2	1	0
subindex	11							
element bit	7	6	5	4	3	2	1	0

### Variable "Control head settings" index=8960 id=V\_2300

data type: 16-bit Record  
access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	8	8-bit UInteger	0 = 0 - Safety Position, 1 = 1 - Maintain Position (Last position)		rw			Set point error (Safety Mode)	
2	0	8-bit UInteger	0..1		rw			Valves Safety Position	

octet	0	1	
bit offset	15 - 8	7 - 0	
subindex	1	2	
element bit	7 - 0	7 - 0	

### Variable "LED settings" index=9216 id=V\_2400

data type: 40-bit Record  
access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	32	8-bit UInteger	0 = Off, 1 = Red, 2 = Orange, 3 = Yellow, 4 = Green, 5 = Cyan, 6 = Blue, 7 = Purple, 8 = Pink, 9 = White		rw			Color Position None	
2	24	8-bit UInteger	0 = Position signal, 1 = Fixed color, 2 = LEDs off		rw			LED Mode	
3	16	8-bit UInteger	0 = Off, 1 = Red, 2 = Orange, 3 = Yellow, 4 = Green, 5 = Cyan, 6 = Blue, 7 = Purple, 8 = Pink, 9 = White		rw			Color for fixed mode	
4	8	8-bit UInteger	0 = Off, 1 = Red, 2 = Orange, 3 = Yellow, 4 = Green, 5 = Cyan, 6 = Blue, 7 = Purple, 8 = Pink, 9 = White		rw			Color Position S0	

5	0	8-bit UInteger	0 = Off, 1 = Red, 2 = Orange, 3 = Yellow, 4 = Green, 5 = Cyan, 6 = Blue, 7 = Purple, 8 = Pink, 9 = White		rw			Color Position S1	
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octet	0	1	2	3	4	
bit offset	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0	
subindex	1	2	3	4	5	
element bit	7 - 0	7 - 0	7 - 0	7 - 0	7 - 0	

## Variable "Position measuring system" index=9472 id=V\_2500

data type: 64-bit Record  
access rights: ro  
dynamic

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	56	8-bit UInteger		0	ro			Bit-coded expected external sensor signals	
2	48	8-bit UInteger		0	ro			Bit-coded teach positions	
3	40	8-bit UInteger	0 = Teach completed, 1 = Automatic teach S0 in progress, 2 = Automatic teach S1 in progress, 3 = Automatic teach S2 in progress, 4 = Automatic teach S3 in progress, 5 = On the fly teach in progress, 6 = Manual teach in progress, 7..255	0	ro			Teach state	
4	32	8-bit UInteger	0 = Missing teach positions or no positions teached, 1 = Teach complete and good, 2 = Automatic teach in progress, 3 = On-the-fly teach in progress, 4 = Overlapping teach positions, 5..255	0	ro			Teach status	
5	16	16-bit Integer		0	ro			Expected position measurement for S0	
6	0	16-bit Integer		0	ro			Expected position measurement for S1	

octet	0	1	2	3	4	5	6	7
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0
subindex	1	2	3	4	5	5	6	6
element bit	7 - 0	7 - 0	7 - 0	7 - 0	15 - 8	7 - 0	15 - 8	7 - 0

## Variable "Life Data" index=9728 id=V\_2600

data type: 128-bit Record  
access rights: ro  
dynamic

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	96	32-bit UInteger		0	ro			Operation Time Total	
2	64	32-bit UInteger		0	ro			Operation Time Resettable	
3	32	32-bit UInteger		0	ro			Cycles V1 Total	
4	0	32-bit UInteger		0	ro			Cycles V1 Resettable	

octet	0	1	2	3	4	5	6	7
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64
subindex	1	1	1	1	2	2	2	2
element bit	31 - 24	23 - 16	15 - 8	7 - 0	31 - 24	23 - 16	15 - 8	7 - 0

octet	8	9	10	11	12	13	14	15
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

subindex	3	3	3	3	4	4	4	4
element bit	31 - 24	23 - 16	15 - 8	7 - 0	31 - 24	23 - 16	15 - 8	7 - 0

## Variable "Device operation temperature limits" index=9984 id=V\_2700

data type: 80-bit Record

access rights: rw

subindex	bit offset	data type	allowed values	default value	acc. restr.	mod. other var.	excl. from DS	name	description
1	64	16-bit Integer	-200..200		rw			Error high	
2	48	16-bit Integer	-200..200		rw			Error low	
3	32	16-bit Integer	-200..200		rw			Warning high	
4	16	16-bit Integer	-200..200		rw			Warning low	
5	0	16-bit UInteger	1..20		rw			Hysteresis	

octet	0	1	2	3	4	5	6	7
bit offset	79 - 72	71 - 64	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16
subindex	1	1	2	2	3	3	4	4
element bit	15 - 8	7 - 0	15 - 8	7 - 0	15 - 8	7 - 0	15 - 8	7 - 0

octet	8	9	
bit offset	15 - 8	7 - 0	
subindex	5	5	
element bit	15 - 8	7 - 0	

## Variable "Firmware password" index=17341 id=V\_FW-Password

data type: 16-octet String UTF-8

access rights: wo

octet	0	1	2	3	4	5	6	7
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	8	9	10	11	12	13	14	15
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Variable "Hardware Identification Key" index=17342 id=V\_HW\_ID\_Key

data type: 16-octet String UTF-8

access rights: ro

octet	0	1	2	3	4	5	6	7
bit offset	127 - 120	119 - 112	111 - 104	103 - 96	95 - 88	87 - 80	79 - 72	71 - 64

octet	8	9	10	11	12	13	14	15
bit offset	63 - 56	55 - 48	47 - 40	39 - 32	31 - 24	23 - 16	15 - 8	7 - 0

## Variable "Bootmode status" index=17343 id=V\_BootmodeStatus

data type: 8-bit UInteger

allowed values: 0 = Bootloader is inactive, 1 = Bootloader is active

access rights: ro

octet	0	
bit offset	7 - 0	
element bit	7 - 0	

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V\_2000  
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V\_DeviceAccessLocks.Local User Interface

#### System commands

V\_SystemCommand, Button:=128  
Description=A warm start is triggered and the device will be set to an initial state. The communication will be interrupted by the device and then reinitiated by the master.

V\_SystemCommand, Button:=129  
Description=The parameter of the technology-specific application are set to default values. Identification parameter remain unchanged. An upload to the data storage of the master will be executed, if activated in the port configuration of the master.

V\_SystemCommand, Button:=130  
Description=The parameter of the device are reset to factory settings. Note: A download of the data storage may be executed on the next power cycle and overwrite the factory default settings!

V\_SystemCommand, Button:=131  
Description=The parameter of the device are set to factory default values and communication will be inhibited until the next power cycle.  
Note: Directly detach the device from the master port!

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V_SystemCommand, Button:=160 Description=Start automatic teach
V_SystemCommand, Button:=161 Description=Start on the fly teach
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V_SystemCommand, Button:=163 Description=Manual teach S1
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