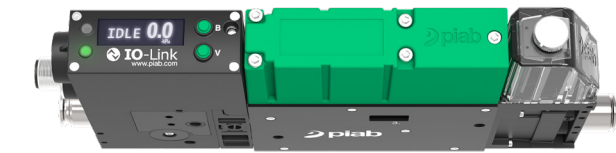


piCOMPACT®23 SMART IO-link device description

Operation

Implementation

Parameter	Note
Baud rate	38.4k (COM2)
Min cycle time	5 ms
PD	7 byte
IO-Link Revision	1.1



Identity

Address dec [HEX]	Parameter	Length	Read / Write	Default	Comment	Data type
7 [0x7]	Vendor ID	2 byte	R	796	-	uint16
9 [0x9]	Device ID	3 byte	R	314	-	StringT
16 [0x10]	Vendor name	4 byte	R	Piab	-	StringT
17 [0x11]	Vendor text	12 byte	R	www.piab.com	-	StringT
18 [0x12]	Product name	17 byte	R	piCOMPACT23 SMART	-	StringT
19 [0x12]	Product ID	2 byte	R	-	IOlink standard definition	-
20 [0x14]	Product text	(2) byte	R	-	IOlink standard definition	-
21 [0x15]	Serial number	11 byte	R	[Serial no]	See info in pump unit	StringT
22 [0x16]	Hardware revision	3 byte	R	[HW rev]	See info in pump unit	StringT
23 [0x17]	Firmware revision	5 byte	R	[FW rev]	See info in pump unit	StringT
24 [0x18]	Application Specific Tag	32 byte	R/W	*****	Tag location or tag function defined by user	StringT
180 [0xB4]	Product ordering CODE	64 byte	R	[code]	-	StringT
181 [0xB5]	Production date	10 byte	R	[date]	-	StringT

PROCESS DATA IN (from pump unit)

	OCTET 0								OCTET 1								OCTET 2								OCTET 3								OCTET 4									
Bit	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0		
String*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Example string OCTET output/input

PROCESS DATA OUT (to pump unit)

Bit	OCTET 0								OCTET 1							
	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
String*	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

Process data

		Process data	Parameter	Bit	Bit offset	Read / Write	Comment	Data type	IO-link standard definition	Data range
PROCESS DATA IN (from pump unit)	OCTET 0		Vacuum level	0-7	32-39	R	Measured vacuum level	uint8	unit: kPa / inHg	-100 to 100 / -28 to 28
	OCTET 1		PP - Part Present vacuum level achieved	0	24	R	Vacuum Level achieved	Boolean T	-	0..1
			ES - Energy Saving vacuum level achieved	1	25	R	Vacuum Level achieved	Boolean T	-	0..1
			LW - Leakage Warning	2	26	R	Vacuum leakage detected	Boolean T	-	0..1
			BOC - Blow-Off Complete	3	27	R	Blow-Off sequence completed	Boolean T	-	0..1
			AFC - Automated Function Complete	4	28	R	Pressure sensor calibration or Vacuum system self-check completed	Boolean T	-	0..1
			-	5-7	29-31	R	Not used	-	-	-
PROCESS DATA OUT (to pump unit)	OCTET 2-3		System voltage	0-7	8-23	R	Measured voltage level	uint16	unit: milliVolt [mV]	0-32767
	OCTET 4		System temperature	0-7	0-7	R	Measured temperature level	uint8	unit: deg Celsius	0-255
	OCTET 0		Vacuum on	0	8	W	0 = Vacuum off 1 = Vacuum on	BooleanT	-	0..1
			Blow-Off on	1	9	W	0 = Blow-Off off 1 = Blow-Off on	BooleanT	-	0..1
			Disable ES	2	10	W	0 = ES as configured 1 = ES disabled	BooleanT	-	0..1
			Disable Automatic BO	3	11	W	0 = Enable Automatic BO (ATBO / IBO) 1 = Disable Automatic BO (ATBO / IBO)	BooleanT	-	0..1
			Disable ACM	4	12	W	0 = ACM as configured 1 = ACM disabled	BooleanT	-	0..1
			-	5-6	13-14	W	Not used	-	-	-
	OCTET 1		Vacuum on complement bit	7	15	W	0 = Complement Low 1 = Complement High	BooleanT	-	0..1
			Activate system self-check	0	0	W	0 = Disable 1 = Run system self-check once	BooleanT	-	0..1
			Activate pressure sensor calibration	1	1	W	0 = Disable 1 = Run pressure sensor calibration once	BooleanT	-	0..1
			Reset self-check parameters	2	2	W	0 = No reset 1 = Reset self-check parameters and counters	BooleanT	-	0..1
			-	3-7	3-7	W	Not used	-	-	-

Observation-Process Data input

Address dec [HEX]	Parameter	Sub Index	Read / Write
40 [0x28]	Process Data input - PP - Part Present setpoint	1	R
	Process Data input - ES - Energy Saving setpoint	2	R
	Process Data input - LW - Leakage Warning	3	R
	Process Data input - BOC - Blow-Off Complete	4	R
	Process Data input - AFC - Automated Function Complete	5	R
	Process Data input - Vacuum level	6	R
	Process Data input - System voltage	7	R
	Process Data input - System temperature	8	R

Observation-Process Data output

Address dec [HEX]	Parameter	Sub Index	Read / Write
41 [0x29]	Process Data output - Vacuum on	0	R
	Process Data output - Blow-Off on	1	R
	Process Data output - Disable ES	2	R
	Process Data output - Disable Automatic BO	3	R
	Process Data output - Disable ACM	4	R
	Process Data output - Vacuum on complement bit	7	R
	Process Data output - Activate system self-check	8	R
	Process Data output - Activate pressure sensor calibration	9	R
	Process Data output - Reset self-check parameters	10	R

Monitoring, configuration and parameterization

Counter/Other

Address dec [HEX]	Parameter	Length	Read / Write	Default [dec]	Comment	Data type	IO-link standard definition	Data range
100 [0x64]	Vacuum cycle counter	4 byte	R	0	Total No. of cycles	uint32	-	0 .. 4294967295
101 [0x65]	Vacuum cycle counter since last self-check	4 byte	R	-	No. of cycles since last self-check was performed	uint32	-	0 .. 4294967295
102 [0x66]	Under voltage detection counter	2 byte	R	-	No of times below minimum system voltage	uint16	-	0-65535

Supervision

Address dec [HEX]	Parameter	Length	Read / Write	Default [dec]	Comment	Data type	IO-link standard definition	Data range
130 [0x82]	SVL - System Voltage Log	32 byte	R	-	System voltage duration [hrs] in voltage ranges	uint16	unit: hrs/voltage range	0-65535
131 [0x83]	MVD - Maximum Voltage Detected	2 byte	R	-	Maximum system voltage detected	uint16	unit: milliVolt [mV]	0-32767
132 [0x84]	Miniumum voltage detected	2 byte	R	-	Minimum system voltage detected since power-on	uint16	unit: milliVolt [mV]	0-32767
133 [0x85]	System Voltage	2 byte	R	-	System voltage as reported in process data	uint16	unit: milliVolt [mV]	0-32767
140 [0x8C]	STMA - Short Term Maximum Acceleration	1 byte	R	-	Maximum acceleration short term [G x10]	uint 8	unit: G x10	0-255
141 [0x8D]	LTMA - Life Term Maximum Acceleration	1 byte	R	-	Maximum acceleration life term [G x10]	uint 8	unit: G x10	0-255
150 [0x96]	STL - System Temperature Log	26 byte	R	-	Temperature duration in temperature ranges	uint16	unit: hrs/temp range	0-65535
151 [0x97]	MTD- Maximum Temperature Detected	1 byte	R	-	Maximum temperature measured by the system	uint8	unit: deg Celsius [°C]	0-255
152 [0x98]	System Temperature	1 byte	R	-	System temperature as reported in process data	uint8	unit: deg Celsius [°C]	0-255
160 [0xA0]	FTTH - First Time To Hit	2 byte	R	-	Time from vacuum_on to hitting the object	uint16	unit: milliSeconds [ms]	0-65535
161 [0xA1]	TTH - Time To Hit	2 byte	R	-	Time from vacuum_on to hitting the object	uint16	unit: milliSeconds [ms]	0-65535
171 [0xAB]	FFVL - Fresh Free-running Vacuum Level	1 byte	R	-	Vacuum level in an unloaded system after service	uint8		0-100
172 [0xAC]	FVL - Free-running Vacuum Level	1 byte	R	-	Vacuum level in an unloaded system at last self-check	uint8		0-100

Configuration

Address dec [HEX]	Parameter	Length	Read / Write	Default [dec]	Comment	Data type	IO-link standard definition	Data range
64 [0x40]	Energy saving type	1 byte	R/W	0	0 = Off - ES disabled 1 = On - ES on setpoint 2 = On - ES with ALD 3 = On - ES on setpoint - ALD backup	uint8	-	0 .. 3
65 [0x41]	Blow-Off type	1 byte	R/W	0	0 = Off - External control 1 = On - ATBO 2 = On - IBO	uint8	-	0 .. 2
73 [0x49]	Vacuum control type, base input	1 byte	R/W	True	False = NPN True = PNP	BooleanT	-	True / False
74 [0x4A]	S1 feedback signal type, base output	1 byte	R/W	True	False = NPN True = PNP	BooleanT	-	True / False
75 [0x4B]	System pressure unit	1 byte	R/W	False	False = -kPa True = -inHg	BooleanT	-	True / False
76 [0x4C]	SAC - Self Adhesion Control	1 byte	R/W	False	False = Off - SAC disabled True = On - SAC activated	BooleanT	-	True / False
81 [0x51]	Enable complement bit	1 byte	R/W	False	False = Do not use True = Enable complement bit	BooleanT	-	True / False
89 [0x59]	Blow-Off control type	1 byte	R/W	False	False = Same as base [address 73] True = Inverted from base [address 73]	BooleanT	-	True / False
90 [0x5A]	S2 feedback signal type	1 byte	R/W	False	False = Same as base [address 74] True = Inverted from base [address 74]	BooleanT	-	True / False
91 [0x5B]	C2 control type	1 byte	R/W	False	False = Same as base [address 73] True = Inverted from base [address 73]	BooleanT	-	True / False

S1 and S2, feedback Signal 1 and 2 where in Std-IO S1 normally is used as the Part Present signal and the deeper S2 as the Energy Saving trigger or Leakage Warning signal etc. See PDI OCTET 1 Bit 0-4.
C2, Control function 2 where in Std-IO is used to disable the mode functions ES, Automatic BO and ACM. See PDO OCTET 0 Bit 2-4.

Parametrization

Address dec [HEX]	Parameter	Length	Read / Write	Default [dec]	Comment	Data type	IO-link standard definition	Data range
66 [0x42]	Part present vacuum level setpoint	2 byte	R/W	40	Normally used as Part present level	uint8	unit: see address 75	0 .. 100
67 [0x43]	Part present hysteresis	2 byte	R/W	2		uint8	unit: see address 75	0 .. 100
68 [0x44]	Energy saving vacuum level setpoint	2 byte	R/W	75	Normally used as Energy Saving trigger level	uint8	unit: see address 75	0 .. 100
69 [0x45]	Energy saving hysteresis	2 byte	R/W	8		uint8	unit: see address 75	0 .. 100
70 [0x46]	ATBO duration	2 byte	R/W	250	Time set for ATBO	uint16	unit: milliSeconds [ms]	0 .. 10 000
77 [0x4D]	ALD hysteresis	1 byte	R/W	0	ALD tuning	uint8	-	0 .. 10
78 [0x4E]	SAC hysteresis	1 byte	R/W	5	SAC tuning	uint8	-	5 .. 150
79 [0x4F]	SAC duration	2 byte	R/W	50	Time set for SAC	uint16	unit: milliSeconds [ms]	10 .. 1000
80 [0x50]	IBO sensitivity	1 byte	R/W	1	0 = Small vacuum system 1 = Medium vacuum system 2 = Large vacuum system 3 = Large vacuum system - large pressure drops	uint8	-	0 .. 3
92 [0x5C]	ACM timeout	1 byte	R/W	3	Time for all recovery actuations	uint8	unit: Seconds [s]	0 .. 100
93 [0x5D]	ACM recovery actuations	1 byte	R/W	3	No. of allowed recovery actuations	uint8	-	0 .. 100