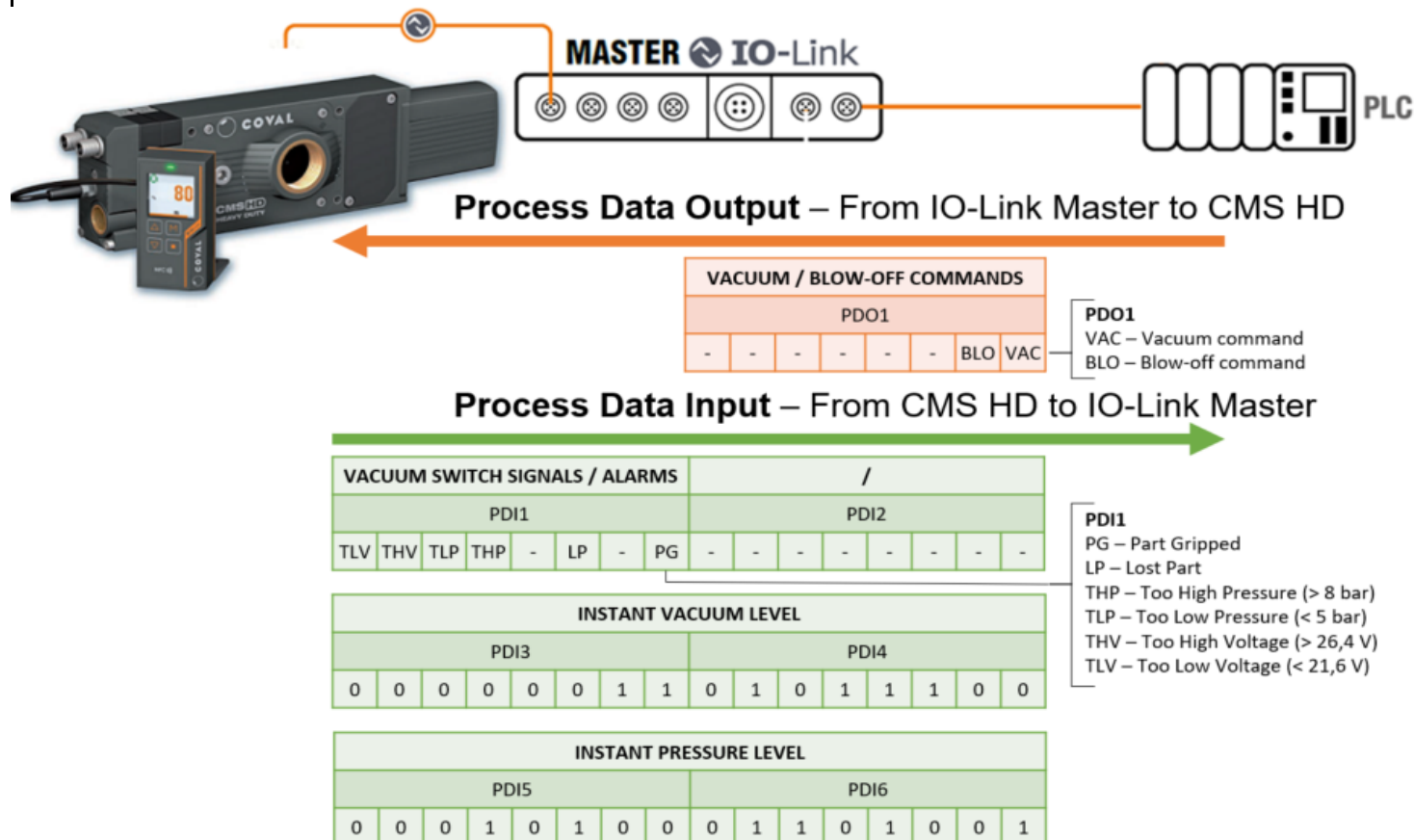


1) IO-Link communication

IO-Link revision	1.1	SIO Mode (Standard Input Output)	Yes
Baud rate	COM3 / 230,4 Kbit/s	Process Data Input (PDI)	6 bytes
Minimum cycle time	1 ms	Process Data Output (PDO)	1 byte

II) Cyclic data (PDI/PDO)



Process Data	Parameter	Bit	Length (byte)	R/W	Unit	Comment
PDI1	PG - Part gripped (L1)	0	BOOL	RO		Vacuum level greater than L1 then between L1 and L1-h1
	Not used	1	BOOL			Not used
	LP - Lost Part	2	BOOL	RO		Vacuum level lower than L1-h1 during part handling
	Not used	3	BOOL			Not used
	THP - Too High Pressure	4	BOOL	RO		Compressed air level greater than 8 bar
	TLP - Too Low Pressure	5	BOOL	RO		Compressed air level lower than 5 bar (dynamic)
	THV - Too High Voltage	6	BOOL	RO		Power supply voltage greater than 26,4 V
	TLV - Too Low Voltage	7	BOOL	RO		Power supply voltage lower than 21,6 V (dynamic)
PDI2	-	0-7	8xBOOL			Not used
PDI3 / PDI4	Instant vacuum level	0-15	2	RO	mbar	Instantaneous vacuum level (0 to -1013 mbar)
PDI5 / PDI6	Instant pressure level	0-15	2	RO	mbar	Instantaneous compressed air pressure level (0 to 10 000 mbar)
PDO1	VAC - Vacuum command	0	BOOL	RW		0 : vacuum OFF (NC vacuum control) : vacuum ON (NO vacuum control)
						1 : vacuum ON (NC vacuum control) : vacuum OFF (NO vacuum control)
	BLO - Blow-off command	1	BOOL	RW		0 : Blow-off OFF
						1 : Blow-off ON
	-	2-7	6xBOOL			Not used

III) Acyclic data

IDENTIFICATION

Index (dec)	Parameter	Length (byte)	R/W	Unit	Value			Comment
					min	Typ.	max	
7	Vendor ID	2	RO	-		0x04		0x0421 = COVAL SAS
8						0x21		
9	Device ID	3	RO	-		0x00		0x3001 = CMSHD Series
10						0x30		
11						0x01		
16	Vendor name	9	RO		COVAL SAS			
17	Vendor text	15	RO		Vacuum managers			
18	Product name	32	RO		CMSHD--X-----			Full reference
19	Product ID	10	RO		CMSHDCxx			Simplified reference
20	Product text	38	RO		Heavy Duty Vacuum Pump			
21	Serial number	8	RO		20420852461000000			
22	Hardware revision	3	RO		1.0			
23	Firmware revision	22	RO		io03.05.00_hmi03.05.00			



PROCESS SETTINGS

Index (dec)	Parameter	Length (byte)	R/W	Unit	Value			Comment
					min	Typ.	max	
64	Gripped product threshold L1	2	RW	mbar	10	400	999	Recommendations : h1 ≥ 10 L1 > h1
65	Gripping threshold hysteresis h1	2	RW	mbar	0	100	999	
72	Automatic blow-off	1	RW	-	0	0	1	0 : OFF / 1 : ON Automatic blowing for a period of 100 to 9999ms as soon as vacuum control is disabled.
73	Automatic blow-off duration	2	RW	msec	100	500	9999	
▼ Preset configurations ▼								
74	CONF1-L1	2	RW	mbar	10	400	999	
75	CONF1-h1	2	RW	mbar	0	100	999	
78	CONF2-L1	2	RW	mbar	10	500	999	
79	CONF2-h1	2	RW	mbar	0	0	999	
2	Configuration 1 selection	1	WO	-	162 / 0xA2			Enables the following settings: CONF1-L1/h1
2	Configuration 2 selection	1	WO	-	163 / 0xA3			Enables the following settings: CONF2-L1/h1



DEVICE SETTINGS

Index (dec)	Parameter	Length (byte)	R/W	Unit	Value			Comment
					min	Typ.	max	
90	I/O switching type	1	RW	-	0	0	1	0 : PNP / 1 : NPN
91	Switching output-1 (DO1)	1	RW	-	0	0	1	0 : NO / 1 : NC
92	Switching output-2 (DO2)	1	RW	-	0	0	1	0 : NO / 1 : NC
93	Specific wiring	1	RW	-	0	0	1	0 : OFF / 1 : ON (reverse DO1 ↔ DO2)



DIAGNOSTIC

Index (dec)	Parameter	Length (byte)	R/W	Unit	Value			Comment
					min	Typ.	max	
100	Custom device name	20	RW	-	CMSHD			Free field, 20 characters max.
101	HMI serial number	20	RO	-	20420852461000000			
▼ Vacuum network diagnostic feature ▼								
2	Start vacuum network diagnostic (initial check)	1	WO		164 / 0xA4			The vacuum network diagnostic feature aims to periodically measure the vacuum drop to compare it to the initial measurement done when commissioning the ejector. An alarm is triggered when the measured vacuum drop is greater or equal to Vacuum drop reference (index 103) + Allowed vacuum drop threshold (index 105). See detailed instructions in main user manual.
2	Start vacuum network diagnostic (periodic check)	1	WO		165 / 0xA5			
102	Last test result	1	RO	-	0	0	2	0 : Test not done / 1 : Test failed / 2 : Test OK
103	Vacuum drop reference	2	RO	mbar	0	0	999	Vacuum drop measured when commissioning the ejector (Initial check : Index 2 / 164d). Shall be ≤ 200 mbar to get "Test OK" result.
104	Last vacuum drop measured value	2	RO	mbar	0	0	999	
105	Allowed vacuum drop threshold	2	RW	mbar	10	100	200	Defines the allowed margin of vacuum drop before triggering the "Clogged vacuum network" alarm.
▼ Cycles counters ▼								
110	External vacuum commands counter	4	RO	-	0	0	1E+08	
112	Blow-off commands counter	4	RO	-	0	0	1E+08	
113	Grip counter	4	RO	-	0	0	1E+08	
114	Grip faults counter	4	RO	-	0	0	1E+08	
117	Power supply too high faults counter	4	RO	-	0	0	1E+08	
118	Power supply too low faults counter	4	RO	-	0	0	1E+08	
119	Vacuum and blow-off in the same time counter	4	RO	-	0	0	1E+08	
120	Pressure too high faults counter	4	RO	-	0	0	1E+08	
121	Pressure too low faults counter	4	RO	-	0	0	1E+08	
122	Blow-off faults counter	4	RO	-	0	0	1E+08	
▼ Sensors calibration ▼								
2	Vacuum sensor calibration	1	WO	-	160 / 0xA0			
2	Pressure sensor calibration	1	WO	-	161 / 0xA1			
▼ Factory settings ▼								
2	Reset Process settings	1	WO	-	166 / 0xA6			
2	Reset all settings	1	WO	-	130 / 0x82			

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