

USER MANUAL

Modbus

DID-UM-004

IDC24



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1 General

This manual covers software version:

Software ID: DID-SW-001

Software Version: 1.19

1.1 Safety instructions

For a safe installation of a device, the following must be observed. The module must only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this product as well as all instructions in this manual.

The information in this user manual is subject to changes without notice.

2 Purpose

It is the purpose of this document, to list specifications, protocol commands and functions, the MODBUS communication protocol in Val Control products.

3 Specifications

MODBUS specification version V1.1b 2006

3.1 Electrical specifications for standard configuration

MODBUS	
Interface	RS485
Communication Settings	Default: 57600 Stop bit:1 Data size: 8 bit Parity: Even Others: 57600 Stop bit:2 Data size: 8 bit Parity: None 9600 Stop bit:2 Data size: 8 bit Parity: None 9600 Stop bit:1 Data size: 8 bit Parity: Even Bit Length is 10 bits for each data block.
Node ID	1-247 (Software selectable)
Response time	Max. 2 sec from slave
MODBUS mode	RTU with CRC16

4 Function codes

This section contains the supported MODBUS commands.

4.1 03 (0x03) Read holding registers

Reads Register 40001 - 49999

Request

	Length	Value
Function code	1 Byte	0x03
Starting address	2 Bytes	0x0000 to 0xFFFF
Quantity of registers	2 Bytes	1 to 125 (0xD7)

Response

	Length	Value
Function code	1 Byte	0x03
Byte count	1 Byte	2 x N*
Register value	N* x 2 Bytes	

Error

	Length	Value
Error code	1 Byte	0x83
Exception code	1 Byte	01 to 08

4.2 16 (0x10) Write multiple registers

Writes to Register 40001 - 49999

Request

	Length	Value
Function code	1 Byte	0x10
Starting address	2 Bytes	0x0000 to 0xFFFF
Quantity of registers	2 Bytes	0x0001 to 0x007B
Byte count	1 Byte	2 x N*
Registers value	N* x 2 Bytes	value

Response

	Length	Value
Function code	1 Byte	0x10
Byte count	1 Byte	0x0000 to 0xFFFF
Register value	N* x 2 Bytes	1 to 123 (0x7B)

Error

	Length	Value
Error code	1 Byte	0x90
Exception code	1 Byte	01 to 08

5 Commands

5.1 Identification

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Identification	
40051	16	RO	ASCII	Model number	Description: Model number
40067	16	RO	ASCII	Serial number	Description: Serial number
40003	10	RO	ASCII	Software ID	Value: Ex: 10203 decimal = 1.02.03 Description: Software identification number
40001	2	RO	U32	Software version	Value: Ex: ValveTag Description: Software version number, e.g. 10203 = 1.02.03
40035	16	RW	ASCII	Tag number	Description: User configurable tag number

5.2 Logs

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				System error log	
40101	1	RO	U16	Number of errors	Default: 00000 Range: 0-10 Description: Number of entries in the log
40102	1	RO	U16	System error 1	Default: 00000 Range: 0-65535 Description: Value of newest system error
40103	1	RO	U16	System error 2	Default: 00000 Range: 0-65535 Description: Value of error
40104	1	RO	U16	System error 3	Default: 00000 Range: 0-65535 Description: Value of error
40105	1	RO	U16	System error 4	Default: 00000 Range: 0-65535 Description: Value of error
40106	1	RO	U16	System error 5	Default: 00000 Range: 0-65535 Description: Value of error
40107	1	RO	U16	System error 6	Default: 00000 Range: 0-65535 Description: Value of error
40108	1	RO	U16	System error 7	Default: 00000 Range: 0-65535 Description: Value of error
40109	1	RO	U16	System error 8	Default: 00000 Range: 0-65535 Description: Value of error
40110	1	RO	U16	System error 9	Default: 00000 Range: 0-65535 Description: Value of error
40111	1	RO	U16	System error 10	Default: 00000 Range: 0-65535 Description: Value of oldest error, if a new error occurs this value will be removed.
				Test log	
40131	1	RO	U16	Number of errors	Default: 00000 Range: 0-10

					Description: Number of entries in the log
40132	1	RO	U16	Test error 1	Default: 00000 Range: 0-65535 Description: Value of newest test logging
40133	1	RO	U16	Test error 2	Default: 00000 Range: 0-65535 Description: Value of test logging
40134	1	RO	U16	Test error 3	Default: 00000 Range: 0-65535 Description: Value of test logging
40135	1	RO	U16	Test error 4	Default: 00000 Range: 0-65535 Description: Value of test logging
40136	1	RO	U16	Test error 5	Default: 00000 Range: 0-65535 Description: Value of test logging
40137	1	RO	U16	Test error 6	Default: 00000 Range: 0-65535 Description: Value of test logging
40138	1	RO	U16	Test error 7	Default: 00000 Range: 0-65535 Description: Value of test logging
40139	1	RO	U16	Test error 8	Default: 00000 Range: 0-65535 Description: Value of test logging
40140	1	RO	U16	Test error 9	Default: 00000 Range: 0-65535 Description: Value of test logging
40141	1	RO	U16	Test error 10	Default: 00000 Range: 0-65535 Description: Value of oldest test logging, if a new error occurs this value will be removed
				Event log	Description: Event log
40501	1	RO	U16	Number of events	Description: Number of events in the event log in the memory
40502	1	RO	U16	Event 1 Type	Description: Type of event
40503	2	RO	DATE	Event 1 Date	Description: Date when the event occurred
40505	2	RO	TIME	Event 1 Time	Description: Time when the event occurred
40507	1	RO	U16	Event 1 Argument	Description: Argument for the event. Only applicable for some event types
40508	1	RO	U16	Event 2 Type	Description: Type of event
40509	2	RO	DATE	Event 2 Date	Description: Date when the event occurred
40511	2	RO	TIME	Event 2 Time	Description: Time when the event occurred
40513	1	RO	U16	Event 2 Argument	Description: Argument for the event. Only applicable for some event types
40514	1	RO	U16	Event 3 Type	Description: Type of event
40515	2	RO	DATE	Event 3 Date	Description: Date when the event occurred
40517	2	RO	TIME	Event 3 Time	Description: Time when the event occurred
40519	1	RO	U16	Event 3 Argument	Description: Argument for the event. Only applicable for some event types
40520	1	RO	U16	Event 4 Type	Description: Type of event
40521	2	RO	DATE	Event 4 Date	Description: Date when the event occurred

40523	2	RO	TIME	Event 4 Time	Description: Time when the event occurred
40525	1	RO	U16	Event 4 Argument	Description: Argument for the event. Only applicable for some event types
40526	1	RO	U16	Event 5 Type	Description: Type of event
40527	2	RO	DATE	Event 5 Date	Description: Date when the event occurred
40529	2	RO	TIME	Event 5 Time	Description: Time when the event occurred
40531	1	RO	U16	Event 5 Argument	Description: Argument for the event. Only applicable for some event types
40532	1	RO	U16	Event 6 Type	Description: Type of event
40533	2	RO	DATE	Event 6 Date	Description: Date when the event occurred
40535	2	RO	TIME	Event 6 Time	Description: Time when the event occurred
40537	1	RO	U16	Event 6 Argument	Description: Argument for the event. Only applicable for some event types
40538	1	RO	U16	Event 7 Type	Description: Type of event
40539	2	RO	DATE	Event 7 Date	Description: Date when the event occurred
40541	2	RO	TIME	Event 7 Time	Description: Time when the event occurred
40543	1	RO	U16	Event 7 Argument	Description: Argument for the event. Only applicable for some event types
40544	1	RO	U16	Event 8 Type	Description: Type of event
40545	2	RO	DATE	Event 8 Date	Description: Date when the event occurred
40547	2	RO	TIME	Event 8 Time	Description: Time when the event occurred
40549	1	RO	U16	Event 8 Argument	Description: Argument for the event. Only applicable for some event types
40550	1	RO	U16	Event 9 Type	Description: Type of event
40551	2	RO	DATE	Event 9 Date	Description: Date when the event occurred
40553	2	RO	TIME	Event 9 Time	Description: Time when the event occurred
40555	1	RO	U16	Event 9 Argument	Description: Argument for the event. Only applicable for some event types
40556	1	RO	U16	Event 10 Type	Description: Type of event
40557	2	RO	DATE	Event 10 Date	Description: Date when the event occurred
40559	2	RO	TIME	Event 10 Time	Description: Time when the event occurred
40561	1	RO	U16	Event 10 Argument	Description: Argument for the event. Only applicable for some event types

5.3 Live Status

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Position	
40300	1	RO	U16	Position - travel	Range: 0-10000 Divider: 100 Unit: % Description: Position in %. For switches 0% and 100% are shown
				Device state	
40421	1	RO	U16	Valve test service	Range: 00001: None; 00002: Auto Calibration; 00003: PST; 00004: FST; 00005: SOT; 00006: ESD; Description: Shows what test service the device is running, e.g. partial stroke test or auto calibration
40303	1	RO	U16	Remote/local switch status	Range: 00001: Local; 00002: Remote;
40304	1	RO	U16	Ready to reset	Range: 00001: Yes; 00002: No;
				ESD signal status	
40212	1	RO	U16	PS1 power line status	Range: 00001: On; 00002: Off; Description: PS1 power line status
40210	1	RO	U16	PS3 power line status	Range: 00001: On; 00002: Off; Description: PS3 power line status
40211	1	RO	U16	DO11	Range: 00001: On; 00002: Off; Description: Power on DO11
40219	1	RO	U16	DO12	Range: 00001: On; 00002: Off; Description: Power on DO12
40217	1	RO	U16	Is in ESD mode	Range: 00001: Yes; 00002: No; Description: The device is in emergency shutdown
				Scheduler	
44103	1	RO	U16	Action required?	Range: 00001: Yes; 00002: No; Divider: 1 Description: A flag used in semi auto to indicate that an action must be performed
				Digital Inputs	
40221	1	RO	U16	DI1	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40222	1	RO	U16	DI2	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40223	1	RO	U16	DI3	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40224	1	RO	U16	DI4	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40225	1	RO	U16	DI5	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40226	1	RO	U16	DI6	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40227	1	RO	U16	DI7	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40228	1	RO	U16	DI8	Default: 00002

					Range: 00001: On; 00002: Off; Description: Current state of the input
40382	1	RO	U16	DI9	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40386	1	RO	U16	DI10	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40392	1	RO	U16	DI11	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40245	1	RO	U16	DI12	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40255	1	RO	U16	DI13	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40265	1	RO	U16	DI14	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40275	1	RO	U16	DI15	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40285	1	RO	U16	DI16	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
40295	1	RO	U16	DI17	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of the input
				Digital Outputs	
40201	1	RO	U16	DO1	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO1
40202	1	RO	U16	DO2	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO2
40203	1	RO	U16	DO3	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO3
40204	1	RO	U16	DO4	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO4
40205	1	RO	U16	DO5	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO5
40206	1	RO	U16	DO6	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of DO6
				Analogue Inputs	
				Analogue Input 0	
40241	1	RO	U16	AI0 - unit	Range: 0-65535 Divider: 100 Description: Value measured in a given unit
40242	1	RO	U16	AI0	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Input 1	

40251	1	RO	U16	AI1 - unit	Range: 0-65535 Divider: 100 Description: Value Measured at the input
40252	1	RO	U16	AI1	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Input 2	
40261	1	RO	U16	AI2 - unit	Range: 0-65535 Divider: 100 Description: Value measured in a given unit
40262	1	RO	U16	AI2	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Input 3	
40271	1	RO	U16	AI3 - unit	Range: 0-65535 Divider: 100 Description: Value measured in a given unit
40272	1	RO	U16	AI3	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Input 4	
40281	1	RO	U16	AI4 - unit	Range: 0-65535 Divider: 100 Description: Value measured in a given unit
40282	1	RO	U16	AI4	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Input 5	
40291	1	RO	U16	AI5 - unit	Range: 0-65535 Divider: 100 Description: Value measured in a given unit
40292	1	RO	U16	AI5	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the input
				Analogue Outputs	
				Analogue Output 0	
42106	1	RO	U16	AO0	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the output
42107	1	RO	U16	AO0	Range: 0-65535 Divider: 100 Unit: % Description: % value of the output
				Analogue Output 1	
42116	1	RO	U16	AO1	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the output
42117	1	RO	U16	AO1	Range: 0-65535 Divider: 100

					Unit: % Description: % value of the output
				Analogue Output 2	
42126	1	RO	U16	AO2	Range: 0-65535 Divider: 100 Unit: mA Description: mA value of the output
42127	1	RO	U16	AO2	Range: 0-65535 Divider: 100 Unit: % Description: % value of the output
				Virtual Digital Outputs	
40321	1	RO	U16	Virtual DO51	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of Virtual DO51
40322	1	RO	U16	Virtual DO52	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of Virtual DO52
40323	1	RO	U16	Virtual DO53	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of Virtual DO53
40324	1	RO	U16	Virtual DO54	Default: 00002 Range: 00001: On; 00002: Off; Description: Current state of Virtual DO54

5.4 Valve Test Status

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Latest tests	
43102	1	RO	U16	Last PST result	Default: 00000 Range: 00000: No Test; 00001: Pass; 00002: Fail; 00003: Warning; 00005: Abort; Description: Result of the last Partial Stroke Test
43103	1	RO	U16	Last FST result	Default: 00000 Range: 00000: No Test; 00001: Pass; 00002: Fail; 00003: Warning; 00005: Abort; Description: Result of the last Full Stroke Test
43104	1	RO	U16	Last SOT result	Default: 00000 Range: 00000: No Test; 00001: Pass; 00002: Fail; 00003: Warning; 00005: Abort; Description: Result of the last Solenoid Valve Test
43108	1	RO	U16	Last EST result	Default: 00000 Range: 00000: No Test; 00001: Pass; 00005: Abort; Description: Result of the last Emergency Shutdown Test
				Partial stroke test	
				Last test	Description: Last partial stroke test measurements
43251	2	RO	TIME	Time	Description: Time for last partial stroke
43253	2	RO	DATE	Date	Description: Date for last partial stroke
43270	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43264	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43255	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43271	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Breakaway pressure
43257	2	RO	U32	PST time	Range: 0-12000000 Divider: 1000 Unit: sec Description: PST time
43266	2	RO	U32	PST pressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Pressurising time
43272	1	RO	U16	PST pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Pressure at SP

43259	2	RO	U32	PST return time	Range: 0-12000000 Divider: 1000 Unit: sec Description: PST return time
43268	2	RO	U32	Actuator fill time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Actuator fill time, only available with pressure sensor
43261	2	RO	U32	PST total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
43263	1	RO	U16	PST maximum travel	Range: 0-10000 Divider: 100 Unit: % Description: Maximum travel distance
43273	1	RO	U16	PST minimum pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Minimum pressure
				Reference test	Description: Partial stroke reference measurements
43281	2	RO	TIME	Time	Description: Time for last reference partial stroke
43283	2	RO	DATE	Date	Description: Date for last reference partial stroke
43300	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43294	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43285	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43301	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Breakaway pressure
43287	2	RO	U32	PST time	Range: 0-12000000 Divider: 1000 Unit: sec Description: PST time
43302	1	RO	U16	PST pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Pressure at SP
43296	2	RO	U32	PST pressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Pressurising time
43289	2	RO	U32	PST return time	Range: 0-12000000 Divider: 1000 Unit: sec Description: PST return time
43298	2	RO	U32	Actuator fill time	Range: 0-12000000 Divider: 1000 Unit: sec

					Description: Actuator fill time, only available with pressure sensor
43291	2	RO	U32	PST total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
43293	1	RO	U16	PST maximum travel	Range: 0-10000 Divider: 100 Unit: % Description: Maximum travel distance
43303	1	RO	U16	PST minimum pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Minimum pressure
				Full stroke test	
				Last test	Description: Last full stroke test measurements
43401	2	RO	TIME	Time	Description: Time for last full stroke
43403	2	RO	DATE	Date	Description: Date for last full stroke
43421	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43413	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43405	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43422	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Breakaway pressure
43407	2	RO	U32	FST time	Range: 0-12000000 Divider: 1000 Unit: sec Description: FST time
43415	2	RO	U32	FST depressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Depressurising time, only available with pressure sensor
43417	2	RO	U32	FST pressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Pressurising time
43409	2	RO	U32	FST return time	Range: 0-12000000 Divider: 1000 Unit: sec Description: FST return time
43419	2	RO	U32	Actuator fill time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Actuator fill time, only available with pressure sensor
43411	2	RO	U32	FST total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time

				Reference test	Description: Full stroke reference measurements
43431	2	RO	TIME	Time	Description: Time for last reference full stroke
43433	2	RO	DATE	Date	Description: Date for last reference full stroke
43451	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43443	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43435	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43452	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Breakaway pressure
43437	2	RO	U32	FST time	Range: 0-12000000 Divider: 1000 Unit: sec Description: FST time
43445	2	RO	U32	FST depressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Depressurising time, only available with pressure sensor
43447	2	RO	U32	FST pressurising time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Pressurising time
43439	2	RO	U32	FST return time	Range: 0-12000000 Divider: 1000 Unit: sec Description: FST return time
43449	2	RO	U32	Actuator fill time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Actuator fill time, only available with pressure sensor
43441	2	RO	U32	FST total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Solenoid test	
				Last test	Description: Last solenoid test measurements
43551	2	RO	TIME	Time	Description: Time for last solenoid test
43553	2	RO	DATE	Date	Description: Date for last solenoid test
43555	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43556	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec

					Description: SOV reaction time
43558	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time
43561	2	RO	U32	SOT total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Reference test	Description: Solenoid reference measurements
43581	2	RO	TIME	Time	Description: Time for last reference solenoid test
43583	2	RO	DATE	Date	Description: Date for last reference solenoid test
43585	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43586	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43588	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time, not available with pressure sensor
43591	2	RO	U32	SOT total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Emergency shutdown test	
				Last EST	Description: Emergency shutdown measurements
43671	2	RO	TIME	Time	Description: Time for last Emergency shutdown
43673	2	RO	DATE	Date	Description: Date for last Emergency shutdown
43681	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43685	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43675	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43686	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Breakaway pressure
43677	2	RO	U32	FST time	Range: 0-12000000 Divider: 1000 Unit: sec Description: FST time
43683	2	RO	U32	FST depressurising time	Range: 0-12000000 Divider: 1000

					Unit: sec Description: Depressurising time, only available with pressure sensor
43679	2	RO	U32	EST total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time

5.5 Configuration

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				PST error parameters	
43311	1	RW	U16	Enable errors	Default: 00002 Range: 00002: Yes;00001: No; Description: Show PST errors
43318	1	RW	U16	Start pressure low	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure low for the partial stroke
43319	1	RW	U16	Start pressure high	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure high for the partial stroke
43312	2	RW	U32	Breakaway timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway timeout for the partial stroke test
43321	1	RW	U16	Minimum breakaway pressure	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Minimum allowed pressure before breakaway is detected
43314	2	RW	U32	PST timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Partial stroke timeout
43316	2	RW	U32	PST total timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the partial stroke
43320	1	RW	U16	Minimum allowed pressure	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Minimum allowed pressure during the partial stroke
				PST warning parameters	
43341	1	RW	U16	Enable warnings	Default: 00001 Range: 00002: Yes;00001: No; Description: Show PST warnings
43342	2	RW	U32	Breakaway time low	Default: 00000

					Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for breakaway time warning
43344	2	RW	U32	Breakaway time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for breakaway time warning
43356	1	RW	U16	Breakaway pressure low	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Low limit for breakaway pressure low
43357	1	RW	U16	Breakaway pressure high	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: High limit for breakaway pressure high
43346	2	RW	U32	PST time low	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for partial stroke time warning
43348	2	RW	U32	PST time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for partial stroke time warning
43350	2	RW	U32	PST total time low	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for total time warning
43352	2	RW	U32	PST total time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for total time warning
43355	1	RW	U16	Travel low	Default: 1500 Range: 0-10000 Divider: 100 Unit: % Description: Low limit for stroke warning
43354	1	RW	U16	Travel high	Default: 2500 Range: 0-10000 Divider: 100 Unit: % Description: High limit for stroke warning
Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				FST error parameters	
43461	1	RW	U16	Enable errors	Default: 00002 Range: 00002: Yes;00001: No;

					Description: Show FST errors
43468	1	RW	U16	Start pressure low	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure low for the full stroke
43469	1	RW	U16	Start pressure high	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure high for the full stroke
43462	2	RW	U32	Breakaway timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway timeout for the full stroke test
43470	1	RW	U16	Minimum breakaway pressure	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Minimum breakaway pressure
43471	1	RW	U16	Position limit for breakaway pressure	Default: 5000 Range: 0-10000 Divider: 100 Unit: % Description: Position limit for breakaway pressure
43464	2	RW	U32	FST timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Timeout for the fail position stroke
43466	2	RW	U32	FST total timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the full stroke
				FST warning parameters	
43491	1	RW	U16	Enable warnings	Default: 00001 Range: 00002: Yes;00001: No; Description: Show FST warnings
43492	2	RW	U32	Breakaway time low	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for breakaway time warning
43494	2	RW	U32	Breakaway time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for breakaway time warning
43504	1	RW	U16	Breakaway pressure low	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar

					Description: Low limit for breakaway pressure low
43505	1	RW	U16	Breakaway pressure high	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: High limit for breakaway pressure high
43496	2	RW	U32	FST time low	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for fail position stroke time warning
43498	2	RW	U32	FST time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for fail position stroke time warning
43500	2	RW	U32	FST total time low	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for total time warning
43502	2	RW	U32	FST total time high	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for total time warning
Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				SOT error parameters	
43611	1	RW	U16	Enable errors	Default: 00002 Range: 00002: Yes;00001: No; Description: Show SOT errors
43612	2	RW	U32	Timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: The timeout, before which a pressure drop must occur
43614	1	RW	U16	Start pressure low	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: Low limit for the start pressure
43615	1	RW	U16	Start pressure high	Default: 00000 Range: 0-65535 Divider: 100 Unit: bar Description: High limit for the start pressure
43616	2	RW	U32	SOT total timeout	Default: 00000 Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the solenoid test
Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Scheduler	

44101	1	RW	U16	Status	Default: 00002 Range: 00002: Off; 00003: Auto; 00004: Semi-automatic; Divider: 1 Description: Activate the scheduler. Auto will perform the action, semi auto will raise an alert
44102	1	RW	U16	Action	Default: 00000 Range: 00000: None; 00001: Start PST; 00002: Start FST; 00003: Start SOT; Divider: 1 Description: The action to perform
				Time and date configuration	
44104	1	RW	U16	Hour	Default: 9 Range: 0-23 Divider: 1 Description: The hour of the day of the scheduler
				Date	Description: The scheduler can execute an action up to four times each month
44105	1	RW	U16	Day of month 1	Default: 0 Range: 0-31 Divider: 1 Description: The day of the month to perform the action
44106	1	RW	U16	Day of month 2	Default: 0 Range: 0-31 Divider: 1 Description: The day of the month to perform the action
44107	1	RW	U16	Day of month 3	Default: 0 Range: 0-31 Divider: 1 Description: The day of the month to perform the action
44108	1	RW	U16	Day of month 4	Default: 0 Range: 0-31 Divider: 1 Description: The day of the month to perform the action
				Months	Description: Select which month the scheduler must perform the action
44111	1	RW	U16	January	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in January
44112	1	RW	U16	February	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in February
44113	1	RW	U16	March	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in March
44114	1	RW	U16	April	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in

					April
44115	1	RW	U16	May	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in May
44116	1	RW	U16	June	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in June
44117	1	RW	U16	July	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in July
44118	1	RW	U16	August	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in August
44119	1	RW	U16	September	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in September
44120	1	RW	U16	October	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in October
44121	1	RW	U16	November	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in November
44122	1	RW	U16	December	Default: 000002 Range: 00001: On; 00002: Off; Divider: 1 Description: Perform the action in December
Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Modbus	Description: Modbus parameters
40090	1	RW	U16	Node ID	Default: 00001 Range: 1-247 Divider: 1 Description: Modbus node ID
40093	1	RW	U16	Baud rate	Default: 57600 Range: 09600: 9600 Baud; 19200: 19200 Baud; 31250: 31250 Baud; 38400: 38400 Baud; 57600: 57600 Baud; Description: Baud rate
40091	1	RW	U16	Parity	Default: 00002 Range: 00001: None Parity; 00002: Even Parity; 00003: Odd Parity; Description: Parity
40092	1	RW	U16	Stop bits	Default: 00001 Range: 00001: 1 Stop bit; 00002: 2 Stop bits; Description: Stop bits
				HART	Description: HART Parameters

48902	1	RW	U16	Node id	Default: 00000 Range: 0-63 Description: Node ID
48942	1	RW	U16	SV output	Default: 00001 Range: 00001: PST status; 00002: Transmitter mA; Description: Set the SV output
48943	1	RW	U16	TV output	Default: 00011 Range: 00011: Position (%); 00012: LCP Close Alarm Description: Set the TV output

5.6 Commands

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Valve test	
43101	1	WO	U16	Start valve test	Default: 00000 Range: 00001: Start partial stroke; 00002 Start full stroke 00003: Start solenoid; 00011:Start Partial stroke reference; 00012: Start full stroke reference; 00013: Start solenoid test reference; 00030: Start scheduled action; 00099: abort current operation; Description: Command to start a valve test