

# USER MANUAL

Modbus

DVC-UM-002

IVC24



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## 1 General

This manual covers software version:

Software ID: DVC-SW-001

Software Version: 2.12

### 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.

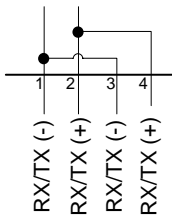
### 3 Specifications

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
Galvanic isolated	

#### 3.2 Terminals



**The Device does not contain any internal termination resistors on the RS485 bus.**

Termination resistors should have the value of 120 ohm. The termination resistors could be applied across terminal 3 and 4, since Term 1 is internally connected to Term 3 and Term 2 is internally connected to Term 4.

A maximum of 256 nodes can be connected on the same daisy chain bus.

## 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	Value: Ex: 10203 decimal = 1.02.03
40001	2	RO	U32	Software version	Description: Software version number, e.g. 10203 = 1.02.03
40003	10	RO	ASCII	Software ID	Description: Software identification number
40013	10	RO	ASCII	Manufacture name	Description: Product manufacturer name
40023	7	RO	ASCII	Type name	Value: Ex: ValveTag Description: Product type name
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 Log Registers

Register	Len	Access	Type	Parameter Name	Parameter Range/Units/Notes
<b>System error log</b>					
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.

Default: -

**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



## 5.4 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
40301	1	RO	U16	End position - 100%	Range: 00001: Yes; 00002: No;
40302	1	RO	U16	End position - 0%	Range: 00001: Yes; 00002: No;
				Device state	
40421	1	RO	U16	Valve test service	Default: 00000 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
				Digital Inputs	
40221	1	RO	U16	DI1	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40222	1	RO	U16	DI2	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40223	1	RO	U16	DI3	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40224	1	RO	U16	DI4	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40225	1	RO	U16	DI5	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40226	1	RO	U16	DI6	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40227	1	RO	U16	DI7	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40228	1	RO	U16	DI8	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40382	1	RO	U16	DI9	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40386	1	RO	U16	DI10	Default: 00002 Range: 00001: On; 00002: Off;

					Description: Current status of the input
40392	1	RO	U16	DI11	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40245	1	RO	U16	DI12	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40255	1	RO	U16	DI13	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40265	1	RO	U16	DI14	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40275	1	RO	U16	DI15	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40285	1	RO	U16	DI16	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
40295	1	RO	U16	DI17	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of the input
				Digital Outputs	
40201	1	RO	U16	DO1	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of DO1
40202	1	RO	U16	DO2	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of DO2
40203	1	RO	U16	DO3	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of DO3
40204	1	RO	U16	DO4	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of DO4
40205	1	RO	U16	DO5	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status of DO5
40206	1	RO	U16	DO6	Default: 00002 Range: 00001: On; 00002: Off; Description: Current status 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
				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
				Advanced	
				Digital inputs	
40231	1	RO	U16	DI1	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input

40232	1	RO	U16	DI2	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40233	1	RO	U16	DI3	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40234	1	RO	U16	DI4	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40235	1	RO	U16	DI5	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40236	1	RO	U16	DI6	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40237	1	RO	U16	DI7	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40238	1	RO	U16	DI8	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
				Analogue inputs	
40243	1	RO	U16	AI0 (DI12)	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40253	1	RO	U16	AI1 (DI13)	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40263	1	RO	U16	AI2 (DI14)	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40273	1	RO	U16	AI3 (DI15)	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40283	1	RO	U16	AI4 (DI16)	Range: 0-65535 Divider: 1 Unit: ADC Description: Raw ADC value of the input
40293	1	RO	U16	AI5 (DI17)	Range: 0-65535



					Divider: 1 Unit: ADC Description: Raw ADC value of the input
				Analogue outputs	
42103	1	RO	U16	AO0	Range: 0-65536 Unit: DAC Description: Raw ADC value of the output
				Potentiometer Input	
40381	1	RO	U16	Pot high (DI9)	Range: 0-65535 Divider: 1 Unit: ADC Description: Potentiometer high pin ADC value
40385	1	RO	U16	Pot wiper (DI10)	Range: 0-65535 Divider: 1 Unit: ADC Description: Potentiometer wiper pin ADC value
40391	1	RO	U16	Pot low (DI11)	Range: 0-65535 Divider: 1 Unit: ADC Description: Potentiometer low pin ADC value
				Power supply	
40298	1	RO	U16	Power supply	Range: 0-60000 Divider: 1000 Unit: V Description: Voltage on the Power supply
40299	1	RO	U16	Power supply	Range: 2000 - 25000 Divider: 1 Unit: ADC Description: Raw ADC value
				ESD signal status	
40212	1	RO	U16	ESD power line status	Default: 00000 Range: 00001: On; 00002: Off; Description: ESD Line Status
40211	1	RO	U16	SIL relay energized	Default: 00000 Range: 00001: Yes; 00002: No; Description: Is the Internal SIL Relay energized
40218	1	RO	U16	ESD power - adc	Range: 0-65535 Unit: ADC Description: raw ADC value for ESD line sensor
40217	1	RO	U16	Is in ESD mode	Default: 00000 Range: 00001: Yes; 00002: No; Description: 0: Unknown; 1: Yes; 2: No
40213	1	RO	U16	SIL SOV1	Unit: ADC Description: Raw ADC value
40214	1	RO	U16	SIL SOV1 Current	Range: 0-2000 Divider: 1000 Unit: A Description: Current drawn by SOV1

40215	1	RO	U16	SIL SOV2	Unit: ADC Description: Raw ADC value
40216	1	RO	U16	SIL SOV2 Current	Range: 0-2000 Divider: 1000 Unit: A Description: Current drawn by SOV2
				Expansion boards	
40395	1	RO	U16	Is Bluetooth module installed	Default: 2 Range: 00001: Yes; 00002: No; Description: Tells if Bluetooth module is available
40396	1	RO	U16	Is fieldbus module installed	Default: 2 Range: 00001: Yes; 00002: No; Description: Tells if fieldbus module is available
				File numbers	
46380	1	RO	U16	PST	Range: 0-65535 Description: Number of the latest file
46381	1	RO	U16	FST	Range: 0-65535 Description: Number of the latest file
46382	1	RO	U16	SOT	Range: 0-65535 Description: Number of the latest file
46383	1	RO	U16	PST reference	Range: 0-65535 Description: Number of the latest file
46384	1	RO	U16	FST reference	Range: 0-65535 Description: Number of the latest file
46385	1	RO	U16	SOT reference	Range: 0-65535 Description: Number of the latest file
46386	1	RO	U16	EST	Range: 0-65535 Description: Number of the latest file for all the test
				Test order	Description: The order the tests were performed.
43105	1	RO	U16	Test 1	Default: 00000 Range: 00000: None; 00001: PST; 00002: FST; 00003: SOT; Description: The type of the latest test
43106	1	RO	U16	Test 2	Default: 00000 Range: 00000: None; 00001: PST; 00002: FST; 00003: SOT; Description: The type of the second last test
43107	1	RO	U16	Test 3	Default: 00000 Range: 00000: None; 00001: PST; 00002: FST; 00003: SOT; Description: The type of the third last test
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Latest tests	
43102	1	RO	U16	Last PST result	Default: 00000 Range: 00000: No Test; 00001: Pass; 00002: Fail; 00003: Warning; 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;

					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; Description: Result of the last Solenoid Valve 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
43255	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43257	2	RO	U32	Closing time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time
43259	2	RO	U32	Opening time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Opening time
43261	2	RO	U32	Total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
43263	1	RO	U16	Max travel	Range: 0-10000 Divider: 100 Unit: % Description: Maximum travel distance
				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
43285	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43287	2	RO	U32	Closing time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time
43289	2	RO	U32	Opening time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Opening time
43291	2	RO	U32	Total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
43293	1	RO	U16	Max travel	Range: 0-10000 Divider: 100 Unit: % Description: Maximum travel distance

					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
43405	2	RO	U32	Breakaway time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43407	2	RO	U32	Closing time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time
43409	2	RO	U32	Opening time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Opening time
43411	2	RO	U32	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
43435	2	RO	U32	Breakaway time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43437	2	RO	U32	Closing time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time
43439	2	RO	U32	Opening time		Range: 0-12000000 Divider: 1000 Unit: sec Description: Opening time
43441	2	RO	U32	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 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
43560	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Description: SOV breakaway pressure
43561	2	RO	U32	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 Description: Start pressure
43586	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time
43588	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time
43590	1	RO	U16	Breakaway pressure	Range: 0-65535 Divider: 100 Description: SOV breakaway pressure
43591	2	RO	U32	Total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Emergency shutdown	
				Last ESD	
43671	2	RO	TIME	Time	
43673	2	RO	DATE	Date	
43675	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway time
43677	2	RO	U32	Closing time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time
43679	2	RO	U32	Total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time

## 5.5 Configuration

Register	Len	Access	Type	Name	Parameter Range/Units/Notes
				Valve configuration	
				Valve open	
42001	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO1
42002	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO2
42003	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO3
42004	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO4
42005	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO5
42006	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve DO6
42007	1	RW	U16	SIL	Default: 00001 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Open valve SIL relay
				Valve close	
42011	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO1
42012	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO2
42013	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO3
42014	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO4
42015	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO5
42016	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO6
42017	1	RW	U16	SIL	Default: 00002 Range: 00000: Not Used; 00001: On; 00002: Off;

					Description: Close valve SIL relay
				Valve stay put	
42051	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO1
42052	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO2
42053	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO3
42054	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO4
42055	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO5
42056	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve DO6
42057	1	RW	U16	SIL	Default: 00002 Range: 00000: Not Used; 00001: On; 00002: Off; Description: Close valve SIL relay
				Power on state	
43008	1	RW	U16	Local power on state	Default: 00001 Range: 00001: Open; 00002: Close; 00003: Stay put; Description: Valve state on power on when in local mode
43009	1	RW	U16	Remote power on state	Default: 00001 Range: 00001: Open; 00002: Close; 00003: Stay put; Description: Valve state on power on when in remote mode
				End settings	
43040	1	RW	U16	Stay put at open status	Default: 00002 Range: 00001: On; 00002: Off; Description: Enable the Stay put function at the open end
43041	1	RW	U16	Stay put at open time	Default: 5 Range: 0-240 Unit: sec Description: Set the time after reaching open when the Stay put function is activated
43042	1	RW	U16	Stay put at close status	Default: 00002 Range: 00001: On; 00002: Off; Description: Enable the Stay put function at the close end
43043	1	RW	U16	Stay put at close time	Default: 5 Range: 0-240 Unit: sec

					Description: Set the time after reaching close when the Stay put function is activated
43044	1	RW	U16	Deadband	Default: 100 Range: 0-10000 Divider: 100 Unit: % Description: End settings deadband, used to determine open and close
				Position signal	
				Position input signal	
41101	1	RW	U16	Position input	Default: 00001 Range: 00000: None; 00001: AI1 (position input); 00002: Switches; Description: Position input signal
				Position input switches	
41102	1	RW	U16	Position switch 100%	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Set the 100% switch, only if position input is switches
41103	1	RW	U16	Position switch 0%	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Set the 0% switch, only if position input is switches
				Transmitter - AO0	
43030	1	RW	U16	Fail position	Default: 00000 Range: 00000:None; 00002: 3.5 mA; 00003: 21.5 mA Description: Set the transmitter output to this value if there is an system error
					Default: -
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Digital input - Type	
41001	1	RW	U16	DI1	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41002	1	RW	U16	DI2	Default: 00001 Range: 00001:Normally open; 00002:Normally closed;



					Description: Digital Input type
41003	1	RW	U16	DI3	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41004	1	RW	U16	DI4	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41005	1	RW	U16	DI5	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41006	1	RW	U16	DI6	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41007	1	RW	U16	DI7	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41008	1	RW	U16	DI8	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41081	1	RW	U16	DI9	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41082	1	RW	U16	DI10	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41083	1	RW	U16	DI11	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41017	1	RW	U16	DI12	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41027	1	RW	U16	DI13	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41037	1	RW	U16	DI14	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41047	1	RW	U16	DI15	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41057	1	RW	U16	DI16	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
41067	1	RW	U16	DI17	Default: 00001 Range: 00001:Normally open; 00002:Normally closed; Description: Digital Input type
				Digital output - Turn off time	

40361	1	RW	U16	DO1	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
40362	1	RW	U16	DO2	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
40363	1	RW	U16	DO3	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
40364	1	RW	U16	DO4	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
40365	1	RW	U16	DO5	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
40366	1	RW	U16	DO6	Default: 00000 Range: 0-240 Divider: 1 Unit: min Description: 0 = Disable; 1-240 Turn off time in minutes
				Analogue input	
				Analogue Input 0	
41011	1	RW	U16	4 mA unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value a 4mA, e.g. 0 for 0.0 bar
41012	1	RW	U16	20 mA unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value a 20mA, e.g. 25000 for 250.0 bar
				Analogue Input 1 (Position input)	
41021	1	RW	U16	0% unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value at 0% position, e.g. 0 for 0.0 degree
41022	1	RW	U16	100% unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value at 100% position, e.g. 9000 for 90.0 degree

				Analogue Input 2	
41031	1	RW	U16	4 mA unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value a 4mA, e.g. 0 for 0.0 bar
41032	1	RW	U16	20 mA unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value a 20mA, e.g. 25000 for 250.0 bar
				Analogue Input 3	
41041	1	RW	U16	4 mA unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value a 4mA, e.g. 0 for 0.0 bar
41042	1	RW	U16	20 mA unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value a 20mA, e.g. 25000 for 250.0 bar
				Analogue Input 4	
41051	1	RW	U16	4 mA unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value a 4mA, e.g. 0 for 0.0 bar
41052	1	RW	U16	20 mA unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value a 20mA, e.g. 25000 for 250.0 bar
				Analogue Input 5	
41061	1	RW	U16	4 mA unit value	Default: 0 Range: 0-65535 Divider: 100 Description: Unit value a 4mA, e.g. 0 for 0.0 bar
41062	1	RW	U16	20 mA unit value	Default: 10000 Range: 0-65536 Divider: 100 Description: Unit value a 20mA, e.g. 25000 for 250.0 bar
				Analogue output Configuration	
				Analogue Output 0	
42105	1	RW	U16	Direction	Description: Calibration and setup of Analogue Output 0 Default: 00001 Range: 00001: Direct; 00002: Reverse;
				4-20 mA calibration	
				Analogue input	
				Analogue input 0	
41013	1	RW	U16	1 value adc	Range: 0-65535 Unit: ADC Description: Value to change the

					endpoint of the unit value
41014	1	RW	U16	2 value adc	Range: 0-65536 Unit: ADC Description: Value to change the endpoint of the unit value
41015	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration value
41016	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue input 1 (Position input)	
41023	1	RW	U16	0% value adc	Range: 0-65535 Unit: ADC Description: ADC value for 0% position
41024	1	RW	U16	100% value adc	Range: 0-65536 Unit: ADC Description: ADC value for 100% position
41025	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration value
41026	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue input 2	
41033	1	RW	U16	1 value adc	Range: 0-65535 Unit: ADC Description: Value to change the endpoint of the unit value
41034	1	RW	U16	2 value adc	Range: 0-65536 Unit: ADC Description: Value to change the endpoint of the unit value
41035	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration value
41036	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue input 3	
41043	1	RW	U16	1 value adc	Range: 0-65535 Unit: ADC Description: Value to change the endpoint of the unit value
41044	1	RW	U16	2 value adc	Range: 0-65536 Unit: ADC Description: Value to change the endpoint of the unit value
41045	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration

					value
41046	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue input 4	
41053	1	RW	U16	1 value adc	Range: 0-65535 Unit: ADC Description: Value to change the endpoint of the unit value
41054	1	RW	U16	2 value adc	Range: 0-65536 Unit: ADC Description: Value to change the endpoint of the unit value
41055	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration value
41056	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue input 5	
41063	1	RW	U16	1 value adc	Range: 0-65535 Unit: ADC Description: Value to change the endpoint of the unit value
41064	1	RW	U16	2 value adc	Range: 0-65536 Unit: ADC Description: Value to change the endpoint of the unit value
41065	1	RW	U16	4mA adc	Range: 0-65535 Unit: ADC Description: 4 mA signal calibration value
41066	1	RW	U16	20mA adc	Range: 0-65536 Unit: ADC Description: 20 mA signal calibration value
				Analogue outputs	
				Analogue output 0	
42101	1	RW	U16	4mA dac	Range: 0-65536 Unit: DAC Description: Signal calibration for 4mA output value
42102	1	RW	U16	20mA dac	Range: 0-65536 Unit: DAC Description: Signal calibration for 20mA output value
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Local/remote	
43001	1	RW	U16	Local mode input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9

					<p>cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont;</p> <p>Description: Set the controller in local mode with this digital input, Remote is the default</p>
43002	1	RW	U16	Local open input signal	<p>Default: 00000</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Push button to open the valve when in local mode</p>
43003	1	RW	U16	Local close signal input	<p>Default: 00000</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Push button to close the valve when in local mode</p>

43004	1	RW	U16	Local continuously open input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Digital input which must be connected to open the valve when in local mode
43005	1	RW	U16	Remote open input signal	Default: 00022 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Push button to open the valve when in remote mode
43006	1	RW	U16	Remote close input signal	Default: 00023 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14

					long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Push button to close the valve when in remote mode
43007	1	RW	U16	Remote continuously open input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Digital input which must be connected to open the valve when in remote mode
43021	1	RW	U16	End position deadband	Default: 100 Range: 0-10000 Divider: 100 Unit: % Description: The deadband used to determine if the valve is at 0% or 100%
43022	1	RW	U16	0% output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output to indicate that the valve is at 0%
43023	1	RW	U16	100% output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output to indicate that the valve is at 100%
				ESD Reset Configuration	
42151	1	RW	U16	Reset on power up	Default: 00002 Range: 00001: On; 00002: Off; 00010: Instantly Description: Go to ESD directly after power up
42152	1	RW	U16	Reset input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push;



					00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Push button to reset device after an ESD
42153	1	RW	U16	Ready to reset output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Ready to reset output
42154	1	RW	U16	ESD input	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: ESD input signal. Not a SIL input
42155	1	RW	U16	Close after ESD	Default: 00002 Range: 00001: Yes; 00002: No; Description: Require an open command after an ESD
				Pump controller	
44004	1	RW	U16	Manual mode input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Digital input to set the pump controller in manual mode
44005	1	RW	U16	Manual mode pump start input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Digital input to start the pump when the pump controller is in

					manual mode
				Valve test	
				Partial stroke test	
43111	1	RW	U16	Local start input signal	<p>Default: 00021</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to start a partial stroke from local</p>
43116	1	RW	U16	Local abort input signal	<p>Default: 00011</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to abort a partial stroke from local</p>
43117	1	RW	U16	Remote start input signal	<p>Default: 00021</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push;</p>

					<p>00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to start a partial stroke from remote</p>
43118	1	RW	U16	Remote abort input signal	<p>Default: 00011</p> <p>Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to abort a partial stroke from remote</p>
43112	1	RW	U16	Test in progress output signal	<p>Default: 00053</p> <p>Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6;</p> <p>Description: Digital output to show that a partial stroke is in progress</p>
43113	1	RW	U16	Pass output signal	<p>Default: 00051</p> <p>Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6;</p> <p>Description: Digital output to show that the latest partial stroke was successful</p>

43114	1	RW	U16	Fail output signal	Default: 00052 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that the latest partial stroke failed
43115	1	RW	U16	Warning output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that the latest partial stroke ended with a warning
				Full stroke test	
43121	1	RW	U16	Start input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Push button to start a full stroke
43126	1	RW	U16	Local abort input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push;

					00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Input to abort a full stroke from local
43127	1	RW	U16	Remote start input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Input to start a full stroke from remote
43128	1	RW	U16	Remote abort input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Input to abort a full stroke from remote
43122	1	RW	U16	Test in progress output signal	Default: 00000 Range: 00000: None; 00051:

					DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that a full stroke is in progress
43123	1	RW	U16	Pass output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that the latest full stroke was successful
43124	1	RW	U16	Fail output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that the latest full stroke failed
43125	1	RW	U16	Warning output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Digital output to show that the latest full stroke ended with a warning
				Solenoid test	
43131	1	RW	U16	Start input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Push button to start a solenoid test
43136	1	RW	U16	Local abort input signal	Default: 00000 Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7

					<p>short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to abort a solenoid test from local</p>
43137	1	RW	U16	Remote start input signal	<p>Default: 00000          Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14 short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push;</p> <p>Description: Input to start a solenoid test from remote</p>
43138	1	RW	U16	Remote abort input signal	<p>Default: 00000          Range: 00000: None; 00011: DI1 short push; 00012: DI2 short push; 00013: DI3 short push; 00014: DI4 short push; 00015: DI5 short push; 00016: DI6 short push; 00017: DI7 short push; 00018: DI8 short push; 00021: DI1 long push; 00022: DI2 long push; 00023: DI3 long push; 00024: DI4 long push; 00025: DI5 long push; 00026: DI6 long push; 00027: DI7 long push; 00028: DI8 long push; 00071: DI9 short push; 00072: DI10 short push; 00073: DI11 short push; 00041: DI12 short push; 00042: DI13 short push; 00043: DI14</p>

					short push; 00044: DI15 short push; 00045: DI16 short push; 00046: DI17 short push; 00081: DI9 long push; 00082: DI10 long push; 00083: DI11 long push; 00051: DI12 long push; 00052: DI13 long push; 00053: DI14 long push; 00054: DI15 long push; 00055: DI16 long push; 00056: DI17 long push; Description: Input to abort a solenoid test from remote
43132	1	RW	U16	Test in progress output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Digital output to show that a solenoid test is in progress
43133	1	RW	U16	Pass output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Digital output to show that the latest solenoid test was successful
43134	1	RW	U16	Fail output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Digital output to show that the latest solenoid test failed
43135	1	RW	U16	Warning output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Digital output to show that the latest solenoid test ended with a warning
				Lamp test	
42160	1	RW	U16	Input signal	Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Turn on the selected digital output when this input is activated
42161	1	RW	U16	Test DO1	Range: 00001: Yes; 00002: No; Description: Test DO1 in the lamp test
42162	1	RW	U16	Test DO2	Range: 00001: Yes; 00002: No; Description: Test DO2 in the lamp test
42163	1	RW	U16	Test DO3	Range: 00001: Yes; 00002: No;



					Description: Test DO3 in the lamp test
42164	1	RW	U16	Test DO4	Range: 00001: Yes; 00002: No; Description: Test DO4 in the lamp test
42165	1	RW	U16	Test DO5	Range: 00001: Yes; 00002: No; Description: Test DO5 in the lamp test
42166	1	RW	U16	Test DO6	Range: 00001: Yes; 00002: No; Description: Test DO6 in the lamp test
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Pump	
44001	1	RW	U16	Pump control active	Default: 00002 Range: 00001: Always on; 00002: Always off; 00003: Auto; Description: Activate the pump controller
44002	1	RW	U16	Pump output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Output to activate the pump
44003	1	RW	U16	Stop pump on ESD	Default: 00002 Range: 00001: Yes; 00002: No; Description: Stop the pump when an ESD is detected
				Motor safety relay	
44011	1	RW	U16	Input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Input for the motor safety relay
44012	1	RW	U16	Output signal	Default: 00000 Range: 00000: None; 00051: DO1;00052: DO2;00053: DO3;00054: DO4;00055: DO5;00056: DO6; Description: Output to show that there is an error on the safety relay
				Max running time	
44021	1	RW	U16	Status	Default: 00002 Range: 00001: On; 00002: Off; Description: Turn on the max running time function
44022	1	RW	U16	Time	Default: 210 Range: 0-60000 Unit: sec Description: The maximum running

					time limit in sec
44023	1	RW	U16	Output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is activated when the maximum running time is reached
				Pressure	
44031	1	RW	U16	Analogue input signal	Default: 00000 Range: 00000: None; 00100: AI0; 00101: AI1; 00102: AI2; 00103: AI3; 00104: AI4; 00105: AI5; Description: The pressure input sensor
44032	1	RW	U16	Low digital input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Pressure low input switch
44033	1	RW	U16	High digital input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Pressure high input switch
44034	1	RW	U16	Low limit	Default: 8000 Range: 0-50000 Divider: 100 Description: Start the pump below this value
44035	1	RW	U16	High limit	Default: 12000 Range: 0-50000 Divider: 100 Description: Stop the pump above this value
44036	1	RW	U16	Low output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is active when the pressure is low
44037	1	RW	U16	High output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is active when the pressure is high

				Temperature	
44041	1	RW	U16	Analogue input signal	Default: 00000 Range: 00000: None; 00100: AI0; 00101: AI1; 00102: AI2; 00103: AI3; 00104: AI4; 00105: AI5; Description: The temperature input sensor
44042	1	RW	U16	Low digital input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Temperature low input switch
44043	1	RW	U16	High digital input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Temperature high input switch
44044	1	RW	U16	Low limit	Default: 35300 Range: 0-115000 Divider: 100 Description: Temperature error below this limit
44045	1	RW	U16	High limit	Default: 37300 Range: 0-115000 Divider: 100 Description: Temperature error above this limit
44046	1	RW	U16	Low output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is active when the temperature is low
44047	1	RW	U16	High output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is active when the temperature is high
44048	1	RW	U16	Stop on error	Default: 00001 Range: 00000: Unknown; 00001: Yes; 00002: No; Description: Stop the pump on a temperature error
				Level	

44051	1	RW	U16	Analogue input signal	Default: 00000 Range: 00000: None; 00100: AI0; 00101: AI1; 00102: AI2; 00103: AI3; 00104: AI4; 00105: AI5; Description: The level input sensor
44052	1	RW	U16	Low digital input signal	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Level low input switch
44053	1	RW	U16	Low limit	Default: 100 Range: 0-999900 Divider: 100 Description: Level high input switch
44054	1	RW	U16	Limit output signal	Default: 00000 Range: 00000: None; 00051: DO1; 00052: DO2; 00053: DO3; 00054: DO4; 00055: DO5; 00056: DO6; Description: Output which is active when the level is low
44055	1	RW	U16	Stop on error	Default: 00001 Range: 00001: Yes; 00002: No; Description: Stop the pump on a level error
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Valve configuration	
42021	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO1
42022	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO2
42023	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO3
42024	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO4
42025	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO5
42026	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve DO6
42027	1	RW	U16	SIL	Default: 00002 Range: 00000: Not Used; 00001: On; 00002: Off; Description: PST close valve SIL relay

PST configuration					
41111	1	RW	U16	SP switch signal input	Default: 00000 Range: 00000: None; 00001: DI1 cont; 00002: DI2 cont; 00003: DI3 cont; 00004: DI4 cont; 00005: DI5 cont; 00006: DI6 cont; 00007: DI7 cont; 00008: DI8 cont; 00061: DI9 cont; 00062: DI10 cont; 00063: DI11 cont; 00031: DI12 cont; 00032: DI13 cont; 00033: DI14 cont; 00034: DI15 cont; 00035: DI16 cont; 00036: DI17 cont; Description: Set the PST switch, only if position input is switches
41112	1	RW	U16	Position deadband	Default: 100 Range: 0-1000 Divider: 100 Unit: % Description: Set the partial stroke deadband, only if position input is AI1
41113	1	RW	U16	PST travel	Default: 2000 Range: 0-10000 Divider: 100 Unit: % Description: The partial stroke travel, only if position input is AI1
41115	1	RW	U16	PST signature sample time	Default: 100 Range: 1-60000 Divider: 1 Unit: ms Description: Sample time for the PST signatures
PST error parameters					
43311	1	RW	U16	Disable all errors	Default: 00002 Range: 00001: Yes; 00002: No; Description: Disable all PST errors
43312	2	RW	U32	Breakaway timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway timeout for the partial stroke test
43314	2	RW	U32	Closing timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time out for the partial stroke
43316	2	RW	U32	Total timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the partial stroke
PST warning parameters					
43341	1	RW	U16	Disable all warnings	Default: 00001 Range: 00001: Yes; 00002: No;

					Description: Disable all PST warnings
43342	2	RW	U32	Breakaway time low	Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for breakaway time warning
43344	2	RW	U32	Breakaway time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for breakaway time warning
43346	2	RW	U32	Closing time low	Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for closing time warning
43348	2	RW	U32	Closing time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for closing time warning
43350	2	RW	U32	Total time low	Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for total time warning
43352	2	RW	U32	Total time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for total time warning
43354	1	RW	U32	Max travel	Range: 0-10000 Divider: 100 Unit: % Description: Limit for stroke warning
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Valve configuration	
42031	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO1
42032	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO2
42033	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO3
42034	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO4
42035	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO5
42036	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve DO6

42037	1	RW	U16	SIL	Default: 00002 Range: 00000: Not Used; 00001: On; 00002: Off; Description: FST close valve SIL relay
				FST configuration	
43521	1	RW	U16	Wait at fail position during reference	Default: 10 Range: 0-255 Unit: sec Description: Wait for pressure to drop during calibration
43522	2	RW	U32	SOV activate time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Auto set during calibration based on FST closing time and wait at fail position
43524	1	RW	U16	Position deadband	Default: 100 Range: 0-1000 Divider: 100 Unit: % Description: The position deadband which is used to determine if the valve has moved
43525	1	RW	U16	FST signature sample time	Default: 100 Range: 1-60000 Divider: 1 Unit: ms Description: Sample time for the FST signatures
				FST error parameters	
43461	1	RW	U16	Disable all errors	Default: 00002 Range: 00001: Yes; 00002: No; Description: Ignore all FST errors
43462	2	RW	U32	Breakaway timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Breakaway timeout for the full stroke test
43464	2	RW	U32	Closing timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Closing time out for the partial stroke
43466	2	RW	U32	Total timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the full stroke
				FST warning parameters	
43491	1	RW	U16	Disable all warnings	Default: 00001 Range: 00001: Yes; 00002: No; Description: Disable all FST warnings
43492	2	RW	U32	Breakaway time low	Range: 0-12000000 Divider: 1000

					Unit: sec Description: Low limit for breakaway time warning
43494	2	RW	U32	Breakaway time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for breakaway time warning
43496	2	RW	U32	Closing time low	Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for closing time warning
43498	2	RW	U32	Closing time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for closing time warning
43500	2	RW	U32	Total time low	Range: 0-12000000 Divider: 1000 Unit: sec Description: Low limit for total time warning
43502	2	RW	U32	Total time high	Range: 0-12000000 Divider: 1000 Unit: sec Description: High limit for total time warning
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Valve configuration	
42041	1	RW	U16	DO1	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO1
42042	1	RW	U16	DO2	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO2
42043	1	RW	U16	DO3	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO3
42044	1	RW	U16	DO4	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO4
42045	1	RW	U16	DO5	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO5
42046	1	RW	U16	DO6	Default: 00000 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve DO6
42047	1	RW	U16	SIL	Default: 00002 Range: 00000: Not Used; 00001: On; 00002: Off; Description: SOT close valve SIL
				SOT configuration	
43641	1	RW	U16	SOT pressure input	Default: 00000



					Range: 00000: None; 00100:AI0; 00101:AI1; 00102:AI2; 00103:AI3; 00104:AI4; 00105:AI5; Description: The input for the pressure sensor. To perform SOT without pressure sensor set to None
43642	1	RW	U16	Pressure deadband	Range: 0-65535 Divider: 100 Description: The pressure deadband which is used to determine if the SOV has reacted
43644	1	RW	U16	Position deadband	Default: 100 Range: 0-1000 Divider: 100 Unit: % Description: The position deadband which is used to determine if the valve has moved
				SOT error parameters	
43611	1	RW	U16	Disable all errors	Default: 00002 Range: 00001: Yes; 00002: No; Description: Disable all SOT errors
43612	2	RW	U32	Timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: The timeout, before which a pressure drop must occur
43614	1	RW	U16	Start pressure high	Range: 0-65535 Divider: 100 Description: High limit for the start pressure
43615	1	RW	U16	Start pressure low	Range: 0-65535 Divider: 100 Description: Low limit for the start pressure
43616	2	RW	U32	Total timeout	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total timeout for the solenoid test
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
43701	1	RW	U16	Wait before test	Default: 10 Range: 0-255 Divider: 1 Unit: sec Description: Time to wait before the test is performed
<b>Register</b>	<b>Len</b>	<b>Access</b>	<b>Type</b>	<b>Name</b>	<b>Parameter Range/Units/Notes</b>
				Modbus configuration	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 - Advanced	Description: HART Parameters
48902	1	RW	U16	Node id	Default: 00000 Range: 0-63 Description: Node ID
				HART - Advanced	
48901	1	RW	U16	Preambles	Range: 0-7
48903	1	RW	U16	Master 0 config change counter	Description: HART master 0 config change counter
48904	1	RW	U16	Master 1 config change counter	Description: HART master 1 config change counter
48905	1	RW	U16	Master 0 config changed	Description: HART master 0 config changed
48906	1	RW	U16	Master 1 config changed	Description: HART master 1 config changed
48907	12	RW	ASCII	Message	Description: HART message
48919	10	RW	ASCII	Tag descriptor	Description: HART tag descriptor
48929	2	RW	U32	Final assembly number	Description: HART final assembly number

## 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