

# 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: 2

### **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

<b>MODBUS</b>	
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
43109	1	RO	U16	Last SOT 2 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
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
				Solenoid 2 test	
				Last test	Description: Last solenoid test measurements
43565	2	RO	TIME	Time	Description: Time for last solenoid test
43567	2	RO	DATE	Date	Description: Date for last solenoid test
43569	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43570	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time
43572	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time
43575	2	RO	U32	SOT total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Reference test	Description: Solenoid reference measurements
43595	2	RO	TIME	Time	Description: Time for last reference solenoid test
43597	2	RO	DATE	Date	Description: Date for last reference solenoid test
43599	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43600	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43602	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time, not available with pressure sensor
43605	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

43685	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43681	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
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
				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
43109	1	RO	U16	Last SOT 2 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
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
				Solenoid 2 test	
				Last test	Description: Last solenoid test measurements
43565	2	RO	TIME	Time	Description: Time for last solenoid test
43567	2	RO	DATE	Date	Description: Date for last solenoid test
43569	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43570	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time
43572	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time
43575	2	RO	U32	SOT total time	Range: 0-12000000 Divider: 1000 Unit: sec Description: Total time
				Reference test	Description: Solenoid reference measurements
43595	2	RO	TIME	Time	Description: Time for last reference solenoid test

43597	2	RO	DATE	Date	Description: Date for last reference solenoid test
43599	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43600	2	RO	U32	Reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
43602	2	RO	U32	Breakaway time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV breakaway time, not available with pressure sensor
43605	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
43685	1	RO	U16	Start pressure	Range: 0-65535 Divider: 100 Unit: bar Description: Start pressure
43681	2	RO	U32	SOV reaction time	Range: 0-12000000 Divider: 1000 Unit: sec Description: SOV reaction time, only available with pressure sensor
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 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; 00004: Start solenoid 2; 00011:Start Partial stroke reference; 00012: Start full stroke reference; 00013: Start solenoid test reference; 00014: Start solenoid test reference; 00030: Start scheduled action; 00099: abort current operation; Description: Command to start a valve test