

10 Parameters

The following is a complete list of parameters managed by the application, each with a short code, the ModBus address (Adr), brief description, default values and limits, measurement units (U), the menu in which they are accessed (M) and the notes.

The menus are split into levels: U (User), I (Installer, protected by first-level password), M (Manufacturer, protected by the second level password).

All the parameters in the User menu are freely modifiable and their modification is immediately applied. The Installer parameters are usually loaded by the application only when the machine is in the **Stand-by off** (10), and can be changed only in this state. The Manufacturer parameters are the most low-level and are usually loaded by the application only at the start-up, can be modified only in the **Stand-by off** (10) and requires a reset to load the new value.

The variable *Parameters status* (ParS), is dedicated to requesting a disable or reset state: the new parameters will thus can be loaded only when this signal went to 0.

The correct procedure for changing Installer and Manufacturer parameters is:

- disable the valve
- modify the parameters
- verify the *Parameters status* (ParS) value
- reset the board if requested by *Parameters status* (ParS)

Code	Adr	Mode	Min	Max	U	Def	M	Control mode choice
Pcty	1537	RW	0 7****	6 7****	-	6 7****	I	Main control type 0: none 1: analog positioner on AI1 (0÷20 mA) 2: analog positioner on AI2 (4÷20 mA) 3: analog positioner on AI3 (0÷5V ratiom.) 4: analog positioner on AI4 (0÷10V) 5: analog positioner on AI4 6: SH control EVCO 7: analog positioner on AI3 (4÷20 mA) and AI4 (0÷10V)****
SetP	1538	RW	1	2	-	1	U	SH parameters set selection 1: parameters Set 1 2: parameters Set 2
Code	Adr	Mode	Min	Max	U	Def	M	Parametrs set 1
Pc01	1539	RW	3.0	25.0	K	6.0	U	Set1 SH set-point
Pc02	1540	RW	1.0	3.0	K	2.0	U	Set1 LoSH set-point
Pc03	1541	RW	10.0	40.0	K	15.0	U	Set1 HiSH set-point
Pc04	1542	RW	-40.0	40.0	°C	-40.0	U	Set1 LOP temperature
Pc05	1543	RW	-40.0	40.0	°C	40.0	U	Set1 MOP temperature
Pc13	1681	RW	1.0	100.0	K	40.0	U	Set1 PID proportional band
Pc14	1682	RW	0	999	s	120	U	Set1 PID integral time
Pc15	1687	RW	0	999	s	30	U	Set1 PID derivative time
Pc20	1690	RW	1	255	s	5	U	Set1 Start-up delay
Pc21	1693	RW	0.00	100.00	%	50.00	U	Set1 Start-up position
Code	Adr	Mode	Min	Max	U	Def	M	Parametrs set 2
Pp01	1547	RW	3.0	25.0	K	6.0	U	Set2 SH set-point
Pp02	1548	RW	1.0	3.0	K	2.0	U	Set2 LoSH set-point
Pp03	1549	RW	10.0	40.0	K	15.0	U	Set2 HiSH set-point
Pp04	1550	RW	-40.0	40.0	°C	-40.0	U	Set2 LOP temperature
Pp05	1551	RW	-40.0	40.0	°C	40.0	U	Set2 MOP temperature

Pp13	1685	RW	1.0	100.0	K	40.0	U	Set2 PID proportional band
Pp14	1686	RW	0	999	s	120	U	Set2 PID integral time
Pp15	1689	RW	0	999	s	30	U	Set2 PID derivative time
Pp20	1692	RW	1	255	s	5	U	Set2 Start-up delay
Pp21	1695	RW	0.00	100.00	%	50.00	U	Set2 Start-up position
Code	Adr	Mode	Min	Max	U	Def	M	Common SH algorithm parameters
Fast	1637	RW	1	100	-	100	U	Fast action level
PNHi	1638	RW	0.0	25.0	K	1.0	U	Neutral high threshold
Pcz	1640	RW	PNHi	25.0	K	3.0	U	Smart band threshold
SHFi	1641	RW	0	255	100ms	10	U	SH filter time constant
FaTh	1642	RW	-10.0	10.0	K	-1.0	U	Fast action threshold
Code	Adr	Mode	Min	Max	U	Def	M	Protection and alarms
Pa01	1570	RW	0	1	-	0	I	Enable communication alarm 0: disabled 1: enabled
Pa02	1571	RW	5	120	s	30	I	Communication alarm delay
Pa10	1572	RW	0	1	-	0	I	Enable LoSH alarm 0: disabled 1: enabled
Pa11	1573	RW	0.0	25.0	K	0.5	I	LoSH alarm hysteresis
Pa12	1574	RW	0	250	min	3	I	LoSH alarm delay
Pa20	1575	RW	0	1	-	0	I	Enable HiSH alarm 0: disabled 1: enabled
Pa21	1576	RW	0.0	25.0	K	1.0	I	HiSH alarm hysteresis
Pa22	1577	RW	0	250	min	3	I	HiSH alarm delay
Pa30	1578	RW	0	1	-	0	I	Enable LowPressure alarm 0: disabled 1: enabled
Pa31	1579	RW	0.00	45.00	Barg	0.00	I	Set-point LowPressure alarm
Pa32	1580	RW	0.20	1.00	Barg	0.30	I	LowPressure alarm hysteresis
Pa33	1581	RW	0	250	Min	3	I	LowPressure alarm delay
Pa40	1582	RW	0	1	-	0	I	Enable LOP alarm 0:d isabled 1: enabled
Pa41	1583	RW	0.0	10.0	K	1.0	I	LOP alarm hysteresis
Pa42	1584	RW	0	250	min	3	I	LOP alarm delay
Pa50	1585	RW	0	1	-	0	I	Enable MOP alarm 0: disabled 1: enabled
Pa51	1586	RW	0.0	10.0	K	1.0	I	MOP alarm hysteresis
Pa52	1587	RW	0	250	min	3	I	MOP alarm delay
Pa53	1633	RW	0.0	25.0	K	7.0	I	MOP maximum dSH applicable
Pa54	1634	RW	0.0	25.0	K	8.0	I	MOP band
Pa55	1635	RW	0	255	10s	15	I	MOP filter time constant
Pa56	1636	RW	0	255	min	10	I	MOP bypass delay
Pa70	1590	RW	0	1	-	0	I	Enable main power supply alarm 0: disabled 1: enabled
Pa71	1591	RW	0	60	s	1	I	Main power supply alarm delay
Pa75	1592	RW	0	1	-	0	I	Enable backup battery alarm 0: disabled 1: enabled
Pa76	1593	RW	0	60	s	35	I	Backup battery alarm delay

Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: plant settings
Pi00	1594	RW	0	19	-	1 19**	I	Type of refrigerant 0: R-22 1: R-134A 2: R-402A 3: R-404A 4: R-407A 5: R-407C 6: R-410A 7: R-417A 8: R-422A 9: R-422D 10: R-507A 11: R-744 12: R-438A 13: R-401B 14: R-290 15: R-717 16: R-1270 17: R-32 18: R-407F 19: R-1234ZE
Pi01	1569	RW	0 1**	6 2**	-	1	M	Driving mode selection 0: auto microstepping 1: full step 2 ph on 2: full step 1ph on 3: half step 4: microstepping 4 5: microstepping 8 6: microstepping 16
Pi07	1595	RW	0 1** 39****	28 16** 39****	-	1 39****	M	Valve selection 0: generic valve 1: Sporlan SER AA 2: Sporlan SER A 3: Sporlan SER B 4: Sporlan SER C 5: Sporlan SER D 6: Sporlan SERI F 7: Sporlan SERI G 8: Sporlan SERI J 9: Sporlan SERI K 10: Sporlan SERI L 11: Sporlan SEHI 175 12: Sporlan SEHI 400 13: Sporlan ESX 14: Sporlan EDEV B/C (unipolar) 15: Sporlan reserved 16: Sporlan reserved 17: Sporlan SER 1.5 to 20 18: Sporlan SEI 30 19: Sporlan SEI 50 20: Sporlan SEH 100 21: Sporlan SEI 0.5 to 11 22: Alco EXM/EXL-246 23: Alco EX4 TO 6 24: Alco EX7 25: Alco EX8 26: Danfoss ETS 12.5-25-50 27: Danfoss ETS 100-250 28: Danfoss ETS 400 29: Co2valve
Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: driver settings
Pr05	1598	RW	0.00	100.00	%	0.00	I	Probe alarm position
Pr06	1599	RW	0	9	-	0	I	Enabling mode 0: from digital input DI1 or DI2 (stand alone) 1: from digital input DIHV (stand alone) 2: from CANbus 4: from serial MS RS-485 6: from CANbus + DI1 or DI2 as consequence of communication error 8: from serial MS RS-485 + DI1 or DI2 as consequence of communication error 9

Pr08	1631	RW	0	255	s	0	I	Stabilization delay
Pr09	1632	RW	0.00	100.00	%	100.00	I	Stabilization position
Pr20	1604	RW	0.00	100.00	%	0.00	I	Stand by position
Pr30	1605	RW	50.00	100.00	%	100.00	M	Limit valve opening
Pr40	1606	RO	0	9999	h	0	U	Working hour
Pr41	1607	RW	0	365	day	1	I	Resynchronization interval 0: disabled
Pr45	1608	RW	30	100	%	100	M	Valve duty cycle
Pr48	1609	RW	0.00	100.00	%	0.00	I	Communication error position
Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: generic valve
Pr50*	1610	RW	0	Pr51	step	200	M	Minimum regulation step
Pr51*	1611	RW	Pr50	9999	step	1596	M	Maximum regulation steps
Pr52*	1612	RW	Pr51	9999	step	1600	M	Overdrive steps
Pr53*	1613	RW	25	1000	step/s	200	M	Stepping rate
Pr54*	1614	RW	0	1000	mA	120	M	Operating phase current
Pr55*	1615	RW	0	1000	mA	0	M	Holding phase current
Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: debug
Prd0	1616	RW	25	1000	step/s	25	U	Debug step rate
Prd1	1617	RW	0.00	Prd2	%	0.00	U	Debug minimum position
Prd2	1618	RW	Prd1	100.00	%	100.00	U	Debug maximum position
Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: backup battery
Pb01	1619	RW	0	1	-	0	I	Backup battery 0: absent 1: present
Code	Adr	Mode	Min	Max	U	Def	M	Valve and driver: DI and DO settings
Ph01	1620	RW	0	8	-	0 2****	I	Relay function 0: disabled 1: enabled from any alarm 2: enabled only for probes error 3: following low SH 4: following low MOP 5: following valve alarm 6: used for solenoid valve 7: alarm + solenoid valve 8: signalize re-synchronization is necessary
PH02	1621	RW	0	1	-	0	I	Relay logic 0: normally unexcited 1: normally excited
Ph10	1622	RW	0	1	-	0 1****	I	D11 logic 0: normally open NO 1: normally closed NC
Ph11	1623	RW	0	4	-	1	I	D11 function 0: none 1: enable/disable valve 2: change parameters set 3: resynchro request 4: battery state
Ph20	1624	RW	0	1	-	0	I	D12 logic 0: normally open NO 1: normally closed NC
Ph21	1625	RW	0	4	-	2	I	D12 function 0: none 1: enable/disable valve 2: change parameters set 3: resynchro request 4: battery state
Ph30	1626	RW	0	1	-	0	I	D11HV logic 0: normally open NO 1: normally closed NC

Ph31	1627	RW	0	4	-	0	I	DIHV function 0: none 1: enable/disable valve 2: change parameters set 3: resynchro request 4: battery state
Ph60	1628	RW	0	1	-	0	M	Pressure unit of measurement 0: Barg 1: psig
Ph61	1629	RW	0	1	-	0	M	Temperature unit of measurement 0: °C / K 1: °F / R
Ph70	1630	RW	0	1	-	0	I	Frequency grid 0: 50 Hz 1: 60 Hz
Ph80	1680	RW	0	255	-	0	I	Led_prog function 0: status (default) 1: LOP/MOP 2: LoSH/HiSH
Code	Adr	Mode	Min	Max	U	Def	M	AI1 settings
Piu1	1646	RW	0	2	-	0	I	AI1 probe usage 0: not used 1: Ts suction temperature backup probe 2: Pe suction pressure backup probe
Pia1	1647	RW	1	30	-	1	I	AI1 probe type 1 : NTC probe 6 : Pt1000 probe 10: 4÷20 mA transducer (0.5÷8 BarA) 11: 4÷20 mA transducer (0÷30 BarA) 12: 4÷20 mA transducer (-1÷8 Barg) 13: 4÷20 mA transducer (-1÷15 Barg) 14: 4÷20 mA transducer (0÷30 Barg) 20: 0÷5 V ratiometric transducer (0÷7 Barg) 21: 0÷5 V ratiometric transducer (0÷25 Barg) 22: 0÷5 V ratiometric transducer (0÷60 Barg) 30: scaling
P1Xty	1648	RW	0	2	-	0	I	AI1 X type 0: 0÷20 mA 1: 4÷20 mA 2: 0÷5 V ratiometric
P1XM	1649	RW	P1Xm	0: 20.00 1: 20.00 2: 5.00	-	20.00	I	AI1 X max value
P1Xm	1650	RW	0: 0.00 1: 4.00 2: 0.00	P1XM	-	0.00	I	AI1X min value
P1Yty	1651	RW	0	1	-	0	I	AI1 Y type 0: gauge 1: absolute
P1YM	1652	RW	P1Ym	300.00	Bar/Psi	1.00	I	AI1 Y max value
P1Ym	1653	RW	-300.00	P1YM	Bar/Psi	0.00	I	AI1 Y min value
Code	Adr	Mode	Min	Max	U	Def	M	AI2 settings
Piu2	1654	RW	0	2	-	0	I	AI2 probe usage 0: not used 1: Ts suction temperature backup probe 2: Pe suction pressure backup probe
Pia2	1655	RW	1	30	-	1	I	AI2 probe type 1 : NTC probe 6 : Pt1000 probe 10: 4÷20 mA transducer (0.5÷8 BarA) 11: 4÷20 mA transducer (0÷30 BarA) 12: 4÷20 mA transducer (-1÷8 Barg) 13: 4÷20 mA transducer (-1÷15 Barg) 14: 4÷20 mA transducer (0÷30 Barg) 20: 0÷5 V ratiometric transducer (0÷7 Barg) 21: 0÷5 V ratiometric transducer (0÷25 Barg) 22: 0÷5 V ratiometric transducer (0÷60 Barg) 30: scaling
P2Xty	1656	RW	0	2	-	0	I	AI2 X type 0: 0÷20 mA 1: 4÷20 mA 2: 0÷5 V ratiometric

P2XM	1657	RW	P2Xm	0: 20.00 1: 20.00 2: 5.00	-	20.00	I	AI2 X max value
P2Xm	1658	RW	P2Xm	0: 0.00 1: 4.00 2: 0.00	-	0.00	I	AI2 X min value
P2Yty	1659	RW	0	1	-	0	I	AI2 Y type 0: gauge 1: absolute
P2YM	1660	RW	P2Ym	300.00	Bar/Psi	1.00	I	AI2 Y max value
P2Ym	1661	RW	-300.00	P2YM	Bar/Psi	0.00	I	AI2 Y min value
Code	Adr	Mode	Min	Max	U	Def	M	AI3 settings
Piu3	1662	RW	3	3	-	3	I	AI3 probe usage 3: Ts suction temperature primary probe
Pia3	1663	RW	1	9	-	1	I	AI3 probe type 1 : NTC probe 6 : Pt1000 probe
Code	Adr	Mode	Min	Max	U	Def	M	AI4 settings
Piu4	1670	RW	4	4	-	4	I	AI4 probe usage 4: Pe suction pressure primary probe
Pia4	1671	RW	10	30	-	10	I	AI4 probe type 10: 4÷20 mA transducer (0.5÷8 BarA) 11: 4÷20 mA transducer (0÷30 BarA) 12: 4÷20 mA transducer (-1÷8 Barg) 13: 4÷20 mA transducer (-1÷15 Barg) 14: 4÷20 mA transducer (0÷30 Barg) 20: 0÷5 V ratiometric transducer (0÷7 Barg) 21: 0÷5 V ratiometric transducer (0÷25 Barg) 22: 0÷5 V ratiometric transducer (0÷60 Barg) 30: scaling
P4Xty	1672	RW	0	2	-	0	I	AI4 X type 0: 0÷20 mA 1: 4÷20 mA 2: 0÷5 V ratiometric 3: 0÷10V
P4XM	1673	RW	P4Xm	0: 20.00 1: 20.00 2: 5.00 3: 10.00	-	20.00	I	AI4 X max value
P4Xm	1674	RW	P4Xm	0: 0.00 1: 4.00 2: 0.00 3: 0.00	-	0.00	I	AI4 X min value
P4Yty	1675	RW	0	1	-	0	I	AI4 Y type 0: gauge 1: absolute
P4YM	1676	RW	P4Ym	300.00	Bar/Psi	1.00	I	AI4 Y max value
P4Ym	1677	RW	-300.00	P4YM	Bar/Psi	0.00	I	AI4 Y min value
Code	Adr	Mode	Min	Max	U	Def	M	Temperature offsets
OfsTs	1678	RW	-10.0	10.0	K	0.0	I	Suction temperature (Ts) offset
OfsTe	1679	RW	-10.0	10.0	K	0.0	I	Evaporator temperature (Te) offset
Code	Adr	Mode	Min	Max	U	Def	M	Communication settings
Mb0a	1729	RW	1	247	-	1	M	ModBus RS485 port address
Mb0p	1730	RW	0	2	-	2	M	ModBus RS485 port parity 0: none 1: odd 2: even

Mb0b	1731	RW	0	9		3	M	ModBus RS485 port baud rate 0: 1200 1: 2400 2: 4800 3: 9600 4: 19200 5: 28800 6: 38400 7: 57600 8: 76800 9: 115200
Mb0s	1733	RW	0	1	-	0	M	ModBus RS485 port stop bit 0: 1 bit 1: 2 bit
CANn	1739	RW	1	127		11	U	CAN node address
CANb	1744	RW	0	4		1	U	CAN baud rate 0: 10K 1: 20K 2: 50K 3: 125K 4: 500K
CANt	1741	RW	1	60	s	5	U	CAN timeout
Code	Adr	Mode	Min	Max	U	Def	M	Commands
Pr02	1596	RW	0	2	-	0	U	Functioning mode 0: SH-algorithm 1: manual mode 2: debug functionality
Pr03	1597	RW	0.00	100.00	%	0.00	U	Manual set-point position used if valve in manual mode (Pr02 = 1)
ResR	1281	RW	0	1	-	0	U	Resynchro request 0 → 1 resynchro request
EnaV	1282 1285	RW	0	1	-	0	U	Enable valve command 1282: RS-485 1285:ext MB 0 = disable valve 1 = enable valve
Cmd	1286	RW	0	65535	-	0	U	Commad b0: 0 → 1 reset parameter alarm Cmd: x → 0xBx reset application
Cpy	1812	WO	0	255	-	0	U	Copy selected to generic valve 1 to Pi07 max: copy the selected valve parameters to generic valve parameter
Code	Adr	Mode	Min	Max	U	Def	M	Status
UdM	1645	RO	-	-		-	U	Internal unit of measure b0: 0: Pressure in Barg 1: Pressure in Psig b1: 0: Temperature in K/°C 1: Temperature in R/°F b2: 0: Conversion OK 1: Conversion in progress or halted
DrvM	1792	RO	0	5	-	-	U	Driving mode 0: full step 2 ph on 1: full step 1ph on 2: half step 3: microstepping 4 4: microstepping 8 5: microstepping 16

Stat	1793	RO	0	61	-	-	U	FSM status 0: Initialization 1: Synchronization wait 2: Positioning wait 3: Probe alarm 4: Grid alarm 5: Communication alarm 10: Stand-by off 11: Stand-by on 30: Analog positioner 40: Stabilization 41: Start-up 42: Algorithm selection 50: Manual 51: Debugger 61: EVCO SH-algorithm
AlSt	1794	RO	-	-	-	-	U	Alarm status b 0: EEPROM alarm b 1: configuration alarm b 2-3: communication status b 4-7: probe alarm b 8: power fail b 9: backup battery alarm b 10: algorithm alarm b 11: reserved (ex motor alarm) b 12: parameters conversion failed
AlgS	1795	RO	-	-	-	-	U	SH algorithm status b 0: measure not acquired b 1: algorithm halted b 2: bypass algorithm (manual) b 3: LoSH algorithm is running b 4: LoSH alarm b 5: HiSH algorithm is running b 6: HiSH alarm b 7: LOP algorithm is running b 8: LOP alarm b 9: MOP algorithm is running b 10: MOP alarm b 11: LP b 12: LP alarm
CoWA	1796	RO	0	21	-	-	U	Configuration warning 0: correct configuration 1: incorrect configuration for start-up 2: invalid value for parameter Pia1 3: invalid value for parameter Pia 2 4: invalid value for parameter Pia 3 5: invalid value for parameter Pia 4 6: Piu1 configuration matches other PiuX 7: Piu2 configuration matches other PiuX 8: Piu3 configuration matches other PiuX 9: incorrect configuration Piu4 10: mismatch between Pia 1 and Piu1 11: mismatch between Pia 2 and Piu2 12: mismatch between Pia 3 and Piu3 13: mismatch between Pia 4 and Piu4 14: awaiting configuration AI1 15: awaiting configuration AI2 16: awaiting configuration AI3 17: awaiting configuration AI4 18: awaiting analog configurations 19: error writing Xmax/Xmin probe scaling 20: error writing Xmax/Xmin probe scaling 21: no primary temperature or pressure probe configured
PAtt	1797	RO	0.00	100.00	%	-	U	Current valve position %
PAtP	1798	RO			step	-	U	Current valve position step
Psp	1799	RO	0.00	100.00	%	-	U	Target position
EnaS	1800	RO	0	1	-	-	U	Enable valve status 0: valve not enabled 1: valve enabled
ResS	1801	RO	0	1	-	-	U	Resynchro request status 0: no request 1: request reserved

IhoS	1802	RO	0	1	-	-	U	Holding current status 0: operating phase current 1: holding phase current
Te	1803	RO	-	-	°C	-	U	Te
Pe	1804	RO	-	-	Barg	-	U	Pe
Ts	1805	RO	-	-	°C	-	U	Ts
SH	1806	RO	-	-	K	-	U	SH
SpSH	1807	RO	-	-	K	-	U	SH set-point
SetS	1808	RO	1	3	-	-	U	Selected SH Parameters Set
PidP	1809	RO	-	-	%	-	U	Pid set point position output
ParS	1810	RO	0	2	-	-	U	Parameters status bit 0: disable the valve to accept new parameters bit 1: reset the board to accept new parameters
SRat	1811	RO	-	-	step/s	-	U	Current valve step rate
PoF	1790	RW	-	-	-	-	U	Power fail counter
PoFc	1791	RW	-	-	-	-	U	Power fail complete closure counter
DI1	257	RO	-	-			U	DI 1 status 0: OFF 1: ON
DI2	258	RO	-	-			U	DI 2 status 0: OFF 1: ON
DI1HV	259	RO	-	-			U	DI 1 HV status 0: OFF 1: ON
DO	265	RO	-	-			U	Relay status 0: OFF 1: ON
AI1	513	RO	-	-			U	AI 1 value
AI2	514	RO	-	-			U	AI 2 value
AI3	515	RO	-	-			U	AI 3 value
AI4	516	RO	-	-			U	AI 4 value
Pnum	65329	RO	-	-	-	-	U	Project number
Pvar	65342	RO	-	-	-	-	U	Project variation 0 = AA; 1 = AB; 2 = AC;... 5 = AF, ...
Pver	65330	RO	-	-	-	-	U	Project version
Prev	65331	RO	-	-	-	-	U	Project revision