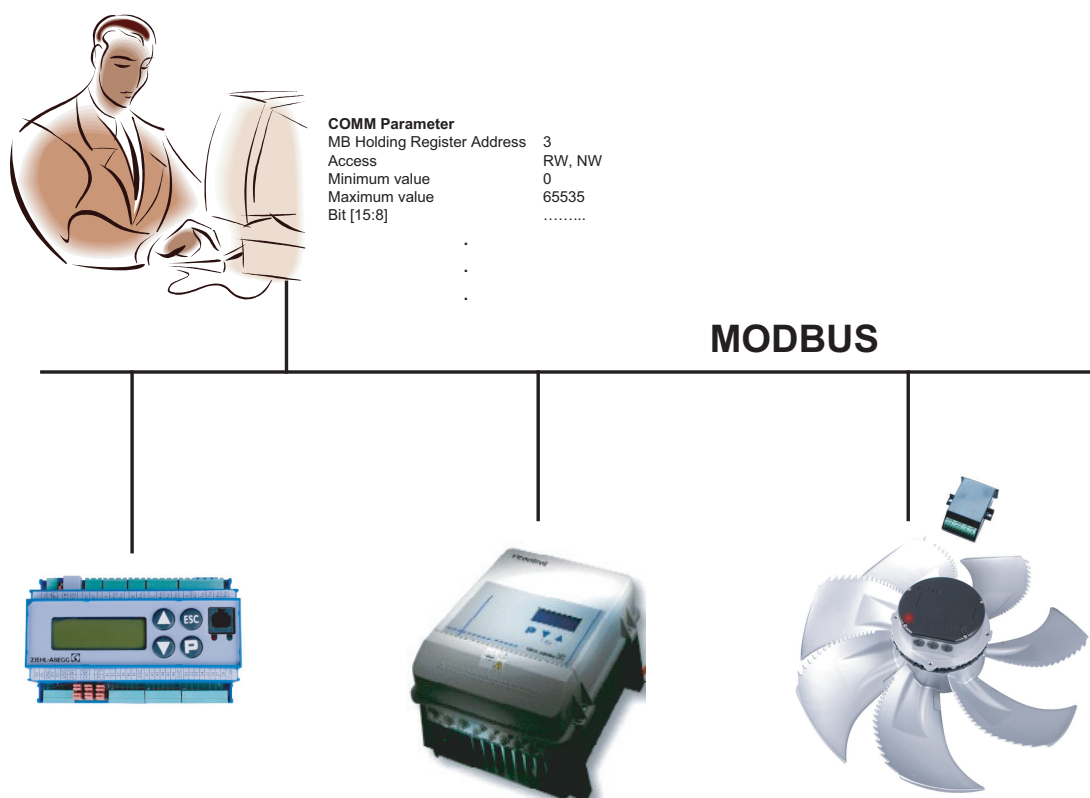


Description MODBUS Communication

CXG-327(A)NE-R



Content

1	General notes	3
1.1	Target group	3
1.2	Exclusion of liability	3
1.3	Copyright	3
2	Safety instructions	3
3	General MODBUS register description	3
3.1	Kind of register	3
3.2	Abbreviations for register inputs	4
3.3	Necessary PIN protection level for acces to register for ECblue or devices with AM-MODBUS (Icontrol Basic, Fcontrol Basic, ..)	4
4	MODBUS Register	5
4.1	Input register	5
4.2	Holding register	20
5	Enclosure	25
5.1	Manufacturer reference	25

1 General notes

1.1 Target group

This description is aimed at users with a good knowledge in the area of serial bus system protocols and specifically the MODBUS protocol. Details of the communication are not covered by this document.

1.2 Exclusion of liability

Concurrence between the contents of these document and the described software has been examined. It is still possible that non-compliances exist. No guarantee is assumed for complete conformity.- To allow for future developments given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided. ZIEHL-ABEGG SE is not liable for damage due to misuse, incorrect or improper use.

1.3 Copyright

These operating instructions contain copyright protected information. The operating instructions may be neither completely nor partially photocopied, reproduced, translated or put on data medium without previous explicit consent from ZIEHL-ABEGG SE. Infringements are liable for damages. All rights reserved, including those that arise through patent issue or registration on a utility model.

2 Safety instructions



Attention!

Remarks concerning safety, installation and connection must be followed (see Assembly instructions or Operating Instructions).

3 General MODBUS register description

The MODBUS/TCP protocol can be used to read information from the device. It can also be used to control and configure the device.

When using MODBUS/TCP, the MODBUS-RTU data records are packaged into TCP/IP packages to be transferred. TCP port 502 is reserved for MODBUS/TCP.

MODBUS/TCP has been specified in the IEC 61158 standard since 2007 and is referenced as CPF 15/1 in IEC 61784-2.

The device's MODBUS-RTU protocol implementation complies with the standards as described in the MODBUS Application Protocol Specification 1.1b3.

Not all the function codes they contain are implemented in the device. The device essentially supports all functions that are available for holding and input registers (Read Register, Write Single Register, Write multiple Register).



Information

Registers flagged with "NV !" are limited to 10,000 write processes. Therefore, they may only be used for configuration purposes.

3.1 Kind of register

Abbreviation	Possible access
R	Register readable
RW	Register readable and writeable
W	Register writeable
NV	Register permanent stored (non-volatile)

3.2 Abbreviations for register inputs

h18	Example for access to holding register 19 with address 18
i12	Example for access to input register 13 with address 12

3.3 Necessary PIN protection level for acces to register for ECblue or devices with AM-MODBUS (Icontrol Basic, Fcontrol Basic, ..)

PIN protection level	Accesslevel
0	Not protected, in each PIN protection level recordably
1	Starting from adjustet PIN protection level 1 or higher recordably. For adjusted PIN protection level 0 PIN: 1234 necessary.
2	Starting from adjustet PIN protection level 2 or higher recordably. For adjusted PIN protection level 0 and 1 PIN: 0010 necessary.

4 MODBUS Register

4.1 Input register

▷ All input registers are readable = "R"

MODBUS-TCP Input Register

Register			
i0		Firmware	XX.YY
i1		Produktcode 1 (Controller Code)	0x506
i2		Parametersatz ID	0
i3		Unique Device Signature 0	MAC-ID XX aa aa aa aa aa
i4		Unique Device Signature 1	MAC-ID aa XX aa aa aa aa
i5		Unique Device Signature 2	MAC-ID aa aa XX aa aa aa
i6		Unique Device Signature 3	MAC-ID aa aa aa XX aa aa
i7		Unique Device Signature 4	MAC-ID aa aa aa aa XX aa
i8		Unique Device Signature 5	MAC-ID aa aa aa aa aa XX
i9		Parametersatz Index	
i10	Group 1	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i11		factor for parameters	
i12		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i13		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i14		for future use	
i15		for future use	
i16		for future use	
i17		for future use	
i18		for future use	
i19		for future use	
i20	Group 2	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i21		factor for parameters	
i22		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i23		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i24		for future use	
i25		for future use	
i26		for future use	
i27		for future use	
i28		for future use	
i29		for future use	
i30	Group 3	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i31		factor for parameters	
i32		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i33		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i34		for future use	

Register			
i35		for future use	
i36		for future use	
i37		for future use	
i38		for future use	
i39		for future use	
i40	Group 4	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i41		factor for parameters	
i42		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i43		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i44		for future use	
i45		for future use	
i46		for future use	
i47		for future use	
i48		for future use	
i49		for future use	
i50	Group 5	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i51		factor for parameters	
i52		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i53		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i54		for future use	
i55		for future use	
i56		for future use	
i57		for future use	
i58		for future use	
i59		for future use	
i60	Group 6	actual value	dependent on 'factor for parameters', unit..'Ctrl Mode'
i61		factor for parameters	
i62		Ctrl Mode	0..Speed controller [%], 1.. Air velocity control [m/s], 2..Pressure control [Pa], 3..Temperature control [°C]
i63		Error	0001..Sensor-Error, 0010..MIN-Limit, 0100..MAX-Limit, 1000...FFU-Error
i64		for future use	
i65		for future use	
i66		for future use	
i67		for future use	
i68		for future use	
i69		for future use	
i70	D1..D8		Dx: ---- ---- 8765 4321 D1..D8 <-> i70.0..i70.7
i71	E1		dependent on 'factor for parameters', unit..'Ctrl Mode'
i72	E2		dependent on 'factor for parameters', unit..'Ctrl Mode'
i73	E3		dependent on 'factor for parameters', unit..'Ctrl Mode'

Register			
i74	E4		dependent on 'factor for parameters', unit..'Ctrl Mode'
i75	E5		dependent on 'factor for parameters', unit..'Ctrl Mode'
i76	E6		dependent on 'factor for parameters', unit..'Ctrl Mode'
i77	K2...K8		Kx: ---- ---- 8765 432- K2..K8 <-> i77.1..i77.7
i78	A1		
i79	A2		
i80	A3		
i81	A4		
i82	A5		
i83	A6		
i84		for future use	
i85		for future use	
i86		for future use	
i87		for future use	
i88		for future use	
i89		for future use	
i90		for future use	
i91		for future use	
i92		for future use	
i93		for future use	
i94		for future use	
i95		for future use	
i96		for future use	
i97		for future use	
i98		for future use	
i99	PIN protection level		
i100	number of FFU	number of FFU at 1D/2D	Bit[14:8]..FFU 2D, Bit[7:0]..FFU 1D
i101	1D, FFU1	Group (additional State)	Bit[3:0]..Group, Bit[8:15]..State
i102		Speed (ECblue i14)	
i103		Operation Condition 1 (ECblue i10)	
i104		Error1 (ECblue i12)	
i105		Power (ECblue i33)	
i106	1D, FFU2	Group (additional State)	
i107		Speed (ECblue i14)	
i108		Operation Condition 1 (ECblue i10)	
i109		Error1 (ECblue i12)	
i110		Power (ECblue i33)	
i111	1D, FFU3	Group (additional State)	
i112		Speed (ECblue i14)	
i113		Operation Condition 1 (ECblue i10)	
i114		Error1 (ECblue i12)	
i115		Power (ECblue i33)	
i116	1D, FFU4	Group	
i117		Speed (ECblue i14)	
i118		Operation Condition 1 (ECblue i10)	
i119		Error1 (ECblue i12)	
i120		Power (ECblue i33)	
i121	1D, FFU5	Group	
i122		Speed (ECblue i14)	
i123		Operation Condition 1 (ECblue i10)	

Register			
i124		Error1 (ECblue i12)	
i125		Power (ECblue i33)	
i126	1D, FFU6	Group	
i127		Speed (ECblue i14)	
i128		Operation Condition 1 (ECblue i10)	
i129		Error1 (ECblue i12)	
i130		Power (ECblue i33)	
i131	1D, FFU7	Group	
i132		Speed (ECblue i14)	
i133		Operation Condition 1 (ECblue i10)	
i134		Error1 (ECblue i12)	
i135		Power (ECblue i33)	
i136	1D, FFU8	Group	
i137		Speed (ECblue i14)	
i138		Operation Condition 1 (ECblue i10)	
i139		Error1 (ECblue i12)	
i140		Power (ECblue i33)	
i141	1D, FFU9	Group	
i142		Speed (ECblue i14)	
i143		Operation Condition 1 (ECblue i10)	
i144		Error1 (ECblue i12)	
i145		Power (ECblue i33)	
i146	1D, FFU10	Group	
i147		Speed (ECblue i14)	
i148		Operation Condition 1 (ECblue i10)	
i149		Error1 (ECblue i12)	
i150		Power (ECblue i33)	
i151	1D, FFU11	Group	
i152		Speed (ECblue i14)	
i153		Operation Condition 1 (ECblue i10)	
i154		Error1 (ECblue i12)	
i155		Power (ECblue i33)	
i156	1D, FFU12	Group	
i157		Speed (ECblue i14)	
i158		Operation Condition 1 (ECblue i10)	
i159		Error1 (ECblue i12)	
i160		Power (ECblue i33)	
i161	1D, FFU13	Group	
i162		Speed (ECblue i14)	
i163		Operation Condition 1 (ECblue i10)	
i164		Error1 (ECblue i12)	
i165		Power (ECblue i33)	
i166	1D, FFU14	Group	
i167		Speed (ECblue i14)	
i168		Operation Condition 1 (ECblue i10)	
i169		Error1 (ECblue i12)	
i170		Power (ECblue i33)	
i171	1D, FFU15	Group	
i172		Speed (ECblue i14)	
i173		Operation Condition 1 (ECblue i10)	
i174		Error1 (ECblue i12)	
i175		Power (ECblue i33)	

Register			
i176	1D, FFU16	Group	
i177		Speed (ECblue i14)	
i178		Operation Condition 1 (ECblue i10)	
i179		Error1 (ECblue i12)	
i180		Power (ECblue i33)	
i181	1D, FFU17	Group	
i182		Speed (ECblue i14)	
i183		Operation Condition 1 (ECblue i10)	
i184		Error1 (ECblue i12)	
i185		Power (ECblue i33)	
i186	1D, FFU18	Group	
i187		Speed (ECblue i14)	
i188		Operation Condition 1 (ECblue i10)	
i189		Error1 (ECblue i12)	
i190		Power (ECblue i33)	
i191	1D, FFU19	Group	
i192		Speed (ECblue i14)	
i193		Operation Condition 1 (ECblue i10)	
i194		Error1 (ECblue i12)	
i195		Power (ECblue i33)	
i196	1D, FFU20	Group	
i197		Speed (ECblue i14)	
i198		Operation Condition 1 (ECblue i10)	
i199		Error1 (ECblue i12)	
i200		Power (ECblue i33)	
i201	1D, FFU21	Group	
i202		Speed (ECblue i14)	
i203		Operation Condition 1 (ECblue i10)	
i204		Error1 (ECblue i12)	
i205		Power (ECblue i33)	
i206	1D, FFU22	Group	
i207		Speed (ECblue i14)	
i208		Operation Condition 1 (ECblue i10)	
i209		Error1 (ECblue i12)	
i210		Power (ECblue i33)	
i211	1D, FFU23	Group	
i212		Speed (ECblue i14)	
i213		Operation Condition 1 (ECblue i10)	
i214		Error1 (ECblue i12)	
i215		Power (ECblue i33)	
i216	1D, FFU24	Group	
i217		Speed (ECblue i14)	
i218		Operation Condition 1 (ECblue i10)	
i219		Error1 (ECblue i12)	
i220		Power (ECblue i33)	
i221	1D, FFU25	Group	
i222		Speed (ECblue i14)	
i223		Operation Condition 1 (ECblue i10)	
i224		Error1 (ECblue i12)	
i225		Power (ECblue i33)	
i226	1D, FFU26	Group	
i227		Speed (ECblue i14)	

Register			
i228		Operation Condition 1 (ECblue i10)	
i229		Error1 (ECblue i12)	
i230		Power (ECblue i33)	
i231	1D, FFU27	Group	
i232		Speed (ECblue i14)	
i233		Operation Condition 1 (ECblue i10)	
i234		Error1 (ECblue i12)	
i235		Power (ECblue i33)	
i236	1D, FFU28	Group	
i237		Speed (ECblue i14)	
i238		Operation Condition 1 (ECblue i10)	
i239		Error1 (ECblue i12)	
i240		Power (ECblue i33)	
i241	1D, FFU29	Group	
i242		Speed (ECblue i14)	
i243		Operation Condition 1 (ECblue i10)	
i244		Error1 (ECblue i12)	
i245		Power (ECblue i33)	
i246	1D, FFU30	Group	
i247		Speed (ECblue i14)	
i248		Operation Condition 1 (ECblue i10)	
i249		Error1 (ECblue i12)	
i250		Power (ECblue i33)	
i251	1D, FFU31	Group	
i252		Speed (ECblue i14)	
i253		Operation Condition 1 (ECblue i10)	
i254		Error1 (ECblue i12)	
i255		Power (ECblue i33)	
i256	1D, FFU32	Group	
i257		Speed (ECblue i14)	
i258		Operation Condition 1 (ECblue i10)	
i259		Error1 (ECblue i12)	
i260		Power (ECblue i33)	
i261	1D, FFU33	Group	
i262		Speed (ECblue i14)	
i263		Operation Condition 1 (ECblue i10)	
i264		Error1 (ECblue i12)	
i265		Power (ECblue i33)	
i266	1D, FFU34	Group	
i267		Speed (ECblue i14)	
i268		Operation Condition 1 (ECblue i10)	
i269		Error1 (ECblue i12)	
i270		Power (ECblue i33)	
i271	1D, FFU35	Group	
i272		Speed (ECblue i14)	
i273		Operation Condition 1 (ECblue i10)	
i274		Error1 (ECblue i12)	
i275		Power (ECblue i33)	
i276	1D, FFU36	Group	
i277		Speed (ECblue i14)	
i278		Operation Condition 1 (ECblue i10)	
i279		Error1 (ECblue i12)	

Register			
i280		Power (ECblue i33)	
i281	1D, FFU37	Group	
i282		Speed (ECblue i14)	
i283		Operation Condition 1 (ECblue i10)	
i284		Error1 (ECblue i12)	
i285		Power (ECblue i33)	
i286	1D, FFU38	Group	
i287		Speed (ECblue i14)	
i288		Operation Condition 1 (ECblue i10)	
i289		Error1 (ECblue i12)	
i290		Power (ECblue i33)	
i291	1D, FFU39	Group	
i292		Speed (ECblue i14)	
i293		Operation Condition 1 (ECblue i10)	
i294		Error1 (ECblue i12)	
i295		Power (ECblue i33)	
i296	1D, FFU40	Group	
i297		Speed (ECblue i14)	
i298		Operation Condition 1 (ECblue i10)	
i299		Error1 (ECblue i12)	
i300		Power (ECblue i33)	
i301	1D, FFU41	Group	
i302		Speed (ECblue i14)	
i303		Operation Condition 1 (ECblue i10)	
i304		Error1 (ECblue i12)	
i305		Power (ECblue i33)	
i306	1D, FFU42	Group	
i307		Speed (ECblue i14)	
i308		Operation Condition 1 (ECblue i10)	
i309		Error1 (ECblue i12)	
i310		Power (ECblue i33)	
i311	1D, FFU43	Group	
i312		Speed (ECblue i14)	
i313		Operation Condition 1 (ECblue i10)	
i314		Error1 (ECblue i12)	
i315		Power (ECblue i33)	
i316	1D, FFU44	Group	
i317		Speed (ECblue i14)	
i318		Operation Condition 1 (ECblue i10)	
i319		Error1 (ECblue i12)	
i320		Power (ECblue i33)	
i321	1D, FFU45	Group	
i322		Speed (ECblue i14)	
i323		Operation Condition 1 (ECblue i10)	
i324		Error1 (ECblue i12)	
i325		Power (ECblue i33)	
i326	1D, FFU46	Group	
i327		Speed (ECblue i14)	
i328		Operation Condition 1 (ECblue i10)	
i329		Error1 (ECblue i12)	
i330		Power (ECblue i33)	
i331	1D, FFU47	Group	

Register			
i332		Speed (ECblue i14)	
i333		Operation Condition 1 (ECblue i10)	
i334		Error1 (ECblue i12)	
i335		Power (ECblue i33)	
i336	1D, FFU48	Group	
i337		Speed (ECblue i14)	
i338		Operation Condition 1 (ECblue i10)	
i339		Error1 (ECblue i12)	
i340		Power (ECblue i33)	
i341	1D, FFU49	Group	
i342		Speed (ECblue i14)	
i343		Operation Condition 1 (ECblue i10)	
i344		Error1 (ECblue i12)	
i345		Power (ECblue i33)	
i346	1D, FFU50	Group	
i347		Speed (ECblue i14)	
i348		Operation Condition 1 (ECblue i10)	
i349		Error1 (ECblue i12)	
i350		Power (ECblue i33)	
i351	1D, FFU51	Group	
i352		Speed (ECblue i14)	
i353		Operation Condition 1 (ECblue i10)	
i354		Error1 (ECblue i12)	
i355		Power (ECblue i33)	
i356	1D, FFU52	Group	
i357		Speed (ECblue i14)	
i358		Operation Condition 1 (ECblue i10)	
i359		Error1 (ECblue i12)	
i360		Power (ECblue i33)	
i361	1D, FFU53	Group	
i362		Speed (ECblue i14)	
i363		Operation Condition 1 (ECblue i10)	
i364		Error1 (ECblue i12)	
i365		Power (ECblue i33)	
i366	1D, FFU54	Group	
i367		Speed (ECblue i14)	
i368		Operation Condition 1 (ECblue i10)	
i369		Error1 (ECblue i12)	
i370		Power (ECblue i33)	
i371	1D, FFU55	Group	
i372		Speed (ECblue i14)	
i373		Operation Condition 1 (ECblue i10)	
i374		Error1 (ECblue i12)	
i375		Power (ECblue i33)	
i376	1D, FFU66	Group	
i377		Speed (ECblue i14)	
i378		Operation Condition 1 (ECblue i10)	
i379		Error1 (ECblue i12)	
i380		Power (ECblue i33)	
i381	1D, FFU57	Group	
i382		Speed (ECblue i14)	
i383		Operation Condition 1 (ECblue i10)	

Register			
i384		Error1 (ECblue i12)	
i385		Power (ECblue i33)	
i386	1D, FFU58	Group	
i387		Speed (ECblue i14)	
i388		Operation Condition 1 (ECblue i10)	
i389		Error1 (ECblue i12)	
i390		Power (ECblue i33)	
i391	1D, FFU59	Group	
i392		Speed (ECblue i14)	
i393		Operation Condition 1 (ECblue i10)	
i394		Error1 (ECblue i12)	
i395		Power (ECblue i33)	
i396	1D, FFU60	Group	
i397		Speed (ECblue i14)	
i398		Operation Condition 1 (ECblue i10)	
i399		Error1 (ECblue i12)	
i400		Power (ECblue i33)	
i401	1D, FFU61	Group	
i402		Speed (ECblue i14)	
i403		Operation Condition 1 (ECblue i10)	
i404		Error1 (ECblue i12)	
i405		Power (ECblue i33)	
i406	1D, FFU62	Group	
i407		Speed (ECblue i14)	
i408		Operation Condition 1 (ECblue i10)	
i409		Error1 (ECblue i12)	
i410		Power (ECblue i33)	
i411	2D, FFU1	Group	
i412		Speed (ECblue i14)	
i413		Operation Condition 1 (ECblue i10)	
i414		Error1 (ECblue i12)	
i415		Power (ECblue i33)	
i416	2D, FFU2	Group	
i417		Speed (ECblue i14)	
i418		Operation Condition 1 (ECblue i10)	
i419		Error1 (ECblue i12)	
i420		Power (ECblue i33)	
i421	2D, FFU3	Group	
i422		Speed (ECblue i14)	
i423		Operation Condition 1 (ECblue i10)	
i424		Error1 (ECblue i12)	
i425		Power (ECblue i33)	
i426	2D, FFU4	Group	
i427		Speed (ECblue i14)	
i428		Operation Condition 1 (ECblue i10)	
i429		Error1 (ECblue i12)	
i430		Power (ECblue i33)	
i431	2D, FFU5	Group	
i432		Speed (ECblue i14)	
i433		Operation Condition 1 (ECblue i10)	
i434		Error1 (ECblue i12)	
i435		Power (ECblue i33)	

Register			
i436	2D, FFU6	Group	
i437		Speed (ECblue i14)	
i438		Operation Condition 1 (ECblue i10)	
i439		Error1 (ECblue i12)	
i440		Power (ECblue i33)	
i441	2D, FFU7	Group	
i442		Speed (ECblue i14)	
i443		Operation Condition 1 (ECblue i10)	
i444		Error1 (ECblue i12)	
i445		Power (ECblue i33)	
i446	2D, FFU8	Group	
i447		Speed (ECblue i14)	
i448		Operation Condition 1 (ECblue i10)	
i449		Error1 (ECblue i12)	
i450		Power (ECblue i33)	
i451	2D, FFU9	Group	
i452		Speed (ECblue i14)	
i453		Operation Condition 1 (ECblue i10)	
i454		Error1 (ECblue i12)	
i455		Power (ECblue i33)	
i456	2D, FFU10	Group	
i457		Speed (ECblue i14)	
i458		Operation Condition 1 (ECblue i10)	
i459		Error1 (ECblue i12)	
i460		Power (ECblue i33)	
i461	2D, FFU11	Group	
i462		Speed (ECblue i14)	
i463		Operation Condition 1 (ECblue i10)	
i464		Error1 (ECblue i12)	
i465		Power (ECblue i33)	
i466	2D, FFU12	Group	
i467		Speed (ECblue i14)	
i468		Operation Condition 1 (ECblue i10)	
i469		Error1 (ECblue i12)	
i470		Power (ECblue i33)	
i471	2D, FFU13	Group	
i472		Speed (ECblue i14)	
i473		Operation Condition 1 (ECblue i10)	
i474		Error1 (ECblue i12)	
i475		Power (ECblue i33)	
i476	2D, FFU14	Group	
i477		Speed (ECblue i14)	
i478		Operation Condition 1 (ECblue i10)	
i479		Error1 (ECblue i12)	
i480		Power (ECblue i33)	
i481	2D, FFU15	Group	
i482		Speed (ECblue i14)	
i483		Operation Condition 1 (ECblue i10)	
i484		Error1 (ECblue i12)	
i485		Power (ECblue i33)	
i486	2D, FFU16	Group	
i487		Speed (ECblue i14)	

Register			
i488		Operation Condition 1 (ECblue i10)	
i489		Error1 (ECblue i12)	
i490		Power (ECblue i33)	
i491	2D, FFU17	Group	
i492		Speed (ECblue i14)	
i493		Operation Condition 1 (ECblue i10)	
i494		Error1 (ECblue i12)	
i495		Power (ECblue i33)	
i496	2D, FFU18	Group	
i497		Speed (ECblue i14)	
i498		Operation Condition 1 (ECblue i10)	
i499		Error1 (ECblue i12)	
i500		Power (ECblue i33)	
i501	2D, FFU19	Group	
i502		Speed (ECblue i14)	
i503		Operation Condition 1 (ECblue i10)	
i504		Error1 (ECblue i12)	
i505		Power (ECblue i33)	
i506	2D, FFU20	Group	
i507		Speed (ECblue i14)	
i508		Operation Condition 1 (ECblue i10)	
i509		Error1 (ECblue i12)	
i510		Power (ECblue i33)	
i511	2D, FFU21	Group	
i512		Speed (ECblue i14)	
i513		Operation Condition 1 (ECblue i10)	
i514		Error1 (ECblue i12)	
i515		Power (ECblue i33)	
i516	2D, FFU22	Group	
i517		Speed (ECblue i14)	
i518		Operation Condition 1 (ECblue i10)	
i519		Error1 (ECblue i12)	
i520		Power (ECblue i33)	
i521	2D, FFU23	Group	
i522		Speed (ECblue i14)	
i523		Operation Condition 1 (ECblue i10)	
i524		Error1 (ECblue i12)	
i525		Power (ECblue i33)	
i526	2D, FFU24	Group	
i527		Speed (ECblue i14)	
i528		Operation Condition 1 (ECblue i10)	
i529		Error1 (ECblue i12)	
i530		Power (ECblue i33)	
i531	2D, FFU25	Group	
i532		Speed (ECblue i14)	
i533		Operation Condition 1 (ECblue i10)	
i534		Error1 (ECblue i12)	
i535		Power (ECblue i33)	
i536	2D, FFU26	Group	
i537		Speed (ECblue i14)	
i538		Operation Condition 1 (ECblue i10)	
i539		Error1 (ECblue i12)	

Register			
i540		Power (ECblue i33)	
i541	2D, FFU27	Group	
i542		Speed (ECblue i14)	
i543		Operation Condition 1 (ECblue i10)	
i544		Error1 (ECblue i12)	
i545		Power (ECblue i33)	
i546	2D, FFU28	Group	
i547		Speed (ECblue i14)	
i548		Operation Condition 1 (ECblue i10)	
i549		Error1 (ECblue i12)	
i550		Power (ECblue i33)	
i551	2D, FFU29	Group	
i552		Speed (ECblue i14)	
i553		Operation Condition 1 (ECblue i10)	
i554		Error1 (ECblue i12)	
i555		Power (ECblue i33)	
i556	2D, FFU30	Group	
i557		Speed (ECblue i14)	
i558		Operation Condition 1 (ECblue i10)	
i559		Error1 (ECblue i12)	
i560		Power (ECblue i33)	
i561	2D, FFU31	Group	
i562		Speed (ECblue i14)	
i563		Operation Condition 1 (ECblue i10)	
i564		Error1 (ECblue i12)	
i565		Power (ECblue i33)	
i566	2D, FFU32	Group	
i567		Speed (ECblue i14)	
i568		Operation Condition 1 (ECblue i10)	
i569		Error1 (ECblue i12)	
i570		Power (ECblue i33)	
i571	2D, FFU33	Group	
i572		Speed (ECblue i14)	
i573		Operation Condition 1 (ECblue i10)	
i574		Error1 (ECblue i12)	
i575		Power (ECblue i33)	
i576	2D, FFU34	Group	
i577		Speed (ECblue i14)	
i578		Operation Condition 1 (ECblue i10)	
i579		Error1 (ECblue i12)	
i580		Power (ECblue i33)	
i581	2D, FFU35	Group	
i582		Speed (ECblue i14)	
i583		Operation Condition 1 (ECblue i10)	
i584		Error1 (ECblue i12)	
i585		Power (ECblue i33)	
i586	2D, FFU36	Group	
i587		Speed (ECblue i14)	
i588		Operation Condition 1 (ECblue i10)	
i589		Error1 (ECblue i12)	
i590		Power (ECblue i33)	
i591	2D, FFU37	Group	

Register			
i592		Speed (ECblue i14)	
i593		Operation Condition 1 (ECblue i10)	
i594		Error1 (ECblue i12)	
i595		Power (ECblue i33)	
i596	2D, FFU38	Group	
i597		Speed (ECblue i14)	
i598		Operation Condition 1 (ECblue i10)	
i599		Error1 (ECblue i12)	
i600		Power (ECblue i33)	
i601	2D, FFU39	Group	
i602		Speed (ECblue i14)	
i603		Operation Condition 1 (ECblue i10)	
i604		Error1 (ECblue i12)	
i605		Power (ECblue i33)	
i606	2D, FFU40	Group	
i607		Speed (ECblue i14)	
i608		Operation Condition 1 (ECblue i10)	
i609		Error1 (ECblue i12)	
i610		Power (ECblue i33)	
i611	2D, FFU41	Group	
i612		Speed (ECblue i14)	
i613		Operation Condition 1 (ECblue i10)	
i614		Error1 (ECblue i12)	
i615		Power (ECblue i33)	
i616	2D, FFU42	Group	
i617		Speed (ECblue i14)	
i618		Operation Condition 1 (ECblue i10)	
i619		Error1 (ECblue i12)	
i620		Power (ECblue i33)	
i621	2D, FFU43	Group	
i622		Speed (ECblue i14)	
i623		Operation Condition 1 (ECblue i10)	
i624		Error1 (ECblue i12)	
i625		Power (ECblue i33)	
i626	2D, FFU44	Group	
i627		Speed (ECblue i14)	
i628		Operation Condition 1 (ECblue i10)	
i629		Error1 (ECblue i12)	
i630		Power (ECblue i33)	
i631	2D, FFU45	Group	
i632		Speed (ECblue i14)	
i633		Operation Condition 1 (ECblue i10)	
i634		Error1 (ECblue i12)	
i635		Power (ECblue i33)	
i636	2D, FFU46	Group	
i637		Speed (ECblue i14)	
i638		Operation Condition 1 (ECblue i10)	
i639		Error1 (ECblue i12)	
i640		Power (ECblue i33)	
i641	2D, FFU47	Group	
i642		Speed (ECblue i14)	
i643		Operation Condition 1 (ECblue i10)	

Register			
i644		Error1 (ECblue i12)	
i645		Power (ECblue i33)	
i646	2D, FFU48	Group	
i647		Speed (ECblue i14)	
i648		Operation Condition 1 (ECblue i10)	
i649		Error1 (ECblue i12)	
i650		Power (ECblue i33)	
i651	2D, FFU49	Group	
i652		Speed (ECblue i14)	
i653		Operation Condition 1 (ECblue i10)	
i654		Error1 (ECblue i12)	
i655		Power (ECblue i33)	
i656	2D, FFU50	Group	
i657		Speed (ECblue i14)	
i658		Operation Condition 1 (ECblue i10)	
i659		Error1 (ECblue i12)	
i660		Power (ECblue i33)	
i661	2D, FFU51	Group	
i662		Speed (ECblue i14)	
i663		Operation Condition 1 (ECblue i10)	
i664		Error1 (ECblue i12)	
i665		Power (ECblue i33)	
i666	2D, FFU52	Group	
i667		Speed (ECblue i14)	
i668		Operation Condition 1 (ECblue i10)	
i669		Error1 (ECblue i12)	
i670		Power (ECblue i33)	
i671	2D, FFU53	Group	
i672		Speed (ECblue i14)	
i673		Operation Condition 1 (ECblue i10)	
i674		Error1 (ECblue i12)	
i675		Power (ECblue i33)	
i676	2D, FFU54	Group	
i677		Speed (ECblue i14)	
i678		Operation Condition 1 (ECblue i10)	
i679		Error1 (ECblue i12)	
i680		Power (ECblue i33)	
i681	2D, FFU55	Group	
i682		Speed (ECblue i14)	
i683		Operation Condition 1 (ECblue i10)	
i684		Error1 (ECblue i12)	
i685		Power (ECblue i33)	
i686	2D, FFU56	Group	
i687		Speed (ECblue i14)	
i688		Operation Condition 1 (ECblue i10)	
i689		Error1 (ECblue i12)	
i690		Power (ECblue i33)	
i691	2D, FFU57	Group	
i692		Speed (ECblue i14)	
i693		Operation Condition 1 (ECblue i10)	
i694		Error1 (ECblue i12)	
i695		Power (ECblue i33)	

Register			
i696	2D, FFU58	Group	
i697		Speed (ECblue i14)	
i698		Operation Condition 1 (ECblue i10)	
i699		Error1 (ECblue i12)	
i700		Power (ECblue i33)	
i701	2D, FFU59	Group	
i702		Speed (ECblue i14)	
i703		Operation Condition 1 (ECblue i10)	
i704		Error1 (ECblue i12)	
i705		Power (ECblue i33)	
i706	2D, FFU60	Group	
i707		Speed (ECblue i14)	
i708		Operation Condition 1 (ECblue i10)	
i709		Error1 (ECblue i12)	
i710		Power (ECblue i33)	
i711	2D, FFU61	Group	
i712		Speed (ECblue i14)	
i713		Operation Condition 1 (ECblue i10)	
i714		Error1 (ECblue i12)	
i715		Power (ECblue i33)	
i716	2D, FFU62	Group	
i717		Speed (ECblue i14)	
i718		Operation Condition 1 (ECblue i10)	
i719		Error1 (ECblue i12)	
i720		Power (ECblue i33)	

4.2 Holding register

- ▷ All holding registers are readable and writeable = "RW"
 - Exception: h0 only writeable = "W"
- ▷ From h100 = "NV" (non-volatile) registers permanently saved.
 - They are limited to 10,000 write processes, i.e. only use for configuration purposes.

MODBUS-TCP Holding Register

Register				
h0	PIN	for cyclic change		1234 protection level 1 0010 protection level 2
h1	Control	for future use (for cyclic change)		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h2	Group 1 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h3	Group 2 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h4	Group 3 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h5	Group 4 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h6	Group 5 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h7	Group 6 Setpoint 1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h8	Set D1	for cyclic change	0 / 1	FALSE / TRUE
h9	Set D2	for cyclic change	0 / 1	FALSE / TRUE
h10	Set D3	for cyclic change	0 / 1	FALSE / TRUE
h11	Set D4	for cyclic change	0 / 1	FALSE / TRUE
h12	Set D5	for cyclic change	0 / 1	FALSE / TRUE
h13	Set D6	for cyclic change	0 / 1	FALSE / TRUE
h14	Set D7	for cyclic change	0 / 1	FALSE / TRUE
h15	Set D8	for cyclic change	0 / 1	FALSE / TRUE
h16	Set A1	for cyclic change	0..32767	(0...10 V)
h17	Set A2	for cyclic change	0..32767	(0...10 V)
h18	Set A3	for cyclic change	0..32767	(0...10 V)
h19	Set A4	for cyclic change	0..32767	(0...10 V)
h20	Set A5	for cyclic change	0..32767	(0...10 V)
h21	Set A6	for cyclic change	0..32767	(0...10 V)
h22	Set K1	for cyclic change	0 / 1	FALSE / TRUE
h23	Set K2	for cyclic change	0 / 1	FALSE / TRUE
h24	Set K3	for cyclic change	0 / 1	FALSE / TRUE
h25	Set K4	for cyclic change	0 / 1	FALSE / TRUE
h26	Set K5	for cyclic change	0 / 1	FALSE / TRUE
h27	Set K6	for cyclic change	0 / 1	FALSE / TRUE
h28	Set K7	for cyclic change	0 / 1	FALSE / TRUE
h29	Set K8	for cyclic change	0 / 1	FALSE / TRUE
h30	Set E1	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h31	Set E2	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h32	Set E3	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h33	Set E4	for cyclic change		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'

Register					
h34	Set E5	for cyclic change			dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h35	Set E6	for cyclic change			dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h36		for future use (for cyclic change)			
h37		for future use (for cyclic change)			
h38		for future use (for cyclic change)			
h39		for future use (for cyclic change)			
h40		for future use (for cyclic change)			
h41		for future use (for cyclic change)			
h42		for future use (for cyclic change)			
h43		for future use (for cyclic change)			
h44		for future use (for cyclic change)			
h45		for future use (for cyclic change)			
h46		for future use (for cyclic change)			
h47		for future use (for cyclic change)			
h48		for future use (for cyclic change)			
h49		for cyclic change			
h50		for cyclic change			
h51		for future use (for cyclic change)			
h52		for future use (for cyclic change)			
h53		for future use (for cyclic change)			
h54		for future use (for cyclic change)			
h55		for future use (for cyclic change)			
h56		for future use (for cyclic change)			
h57		for future use (for cyclic change)			
h58		for future use (for cyclic change)			
h59		for future use (for cyclic change)			
h60		for future use (for cyclic change)			
h61		for future use (for cyclic change)			
h62		for future use (for cyclic change)			
h63		for future use (for cyclic change)			

Register					
h64		for future use (for cyclic change)			
h65		for future use (for cyclic change)			
h66		for future use (for cyclic change)			
h67		for future use (for cyclic change)			
h68		for future use (for cyclic change)			
h69		for future use (for cyclic change)			
h70		for future use (for cyclic change)			
h71		for future use (for cyclic change)			
h72		for future use (for cyclic change)			
h73		for future use (for cyclic change)			
h74		for future use (for cyclic change)			
h75		for future use (for cyclic change)			
h76		for future use (for cyclic change)			
h77		for future use (for cyclic change)			
h78		for cyclic change			
h79		for cyclic change			
h80		for future use (for cyclic change)			
h81		for future use (for cyclic change)			
h82		for future use (for cyclic change)			
h83		for future use (for cyclic change)			
h84		for future use (for cyclic change)			
h85		for future use (for cyclic change)			
h86		for future use (for cyclic change)			
h87		for future use (for cyclic change)			
h88		for cyclic change			
h89		for cyclic change			
h90		for future use (for cyclic change)			
h91		for future use (for cyclic change)			
h92		for future use (for cyclic change)			
h93		for future use (for cyclic change)			
h94		for future use (for cyclic change)			

Register					
h95		for future use (for cyclic change)			
h96		for cyclic change			
h97		for cyclic change			
h98		for future use (for cyclic change)			
h99		for future use (for cyclic change)			
h100*	Group 1	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h101*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h102*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h103		for future use	NV!		
h104		for future use	NV!		
h105		for future use	NV!		
h106		for future use	NV!		
h107		for future use	NV!		
h108		for future use	NV!		
h109		for future use	NV!		
h110*	Group 2	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h111*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h112*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h113		for future use	NV!		
h114		for future use	NV!		
h115		for future use	NV!		
h116		for future use	NV!		
h117		for future use	NV!		
h118		for future use	NV!		
h119		for future use	NV!		
h120*	Group 3	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h121*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h122*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h123		for future use	NV!		
h124		for future use	NV!		
h125		for future use	NV!		
h126		for future use	NV!		
h127		for future use	NV!		
h128		for future use	NV!		
h129		for future use	NV!		
h130*	Group 4	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h131*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'

Register					
h132*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h133		for future use	NV!		
h134		for future use	NV!		
h135		for future use	NV!		
h136		for future use	NV!		
h137		for future use	NV!		
h138		for future use	NV!		
h139		for future use	NV!		
h140*	Group 5	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h141*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h142*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h143		for future use	NV!		
h144		for future use	NV!		
h145		for future use	NV!		
h146		for future use	NV!		
h147		for future use	NV!		
h148		for future use	NV!		
h149		for future use	NV!		
h150*	Group 6	Setpoint 1	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h151*		Setpoint 2	NV!		dependent on INPUT-Reg 'factor for parameters'/'Ctrl Mode'
h152*		Setpoint Select	NV!		0..Select by D1, 1..allways 1, 2..allways 2, 3..select by Week Schedule, 4..allway 1 (by Modbus-TCP)
h153		for future use	NV!		
h154		for future use	NV!		
h155		for future use	NV!		
h156		for future use	NV!		
h157		for future use	NV!		
h158		for future use	NV!		
h159		for future use	NV!		
h160**	invert Dx		NV!	Dx: ---- --8765 4321	D1..D8 <-> h160.0..h160.7
h161**	invert Ax		NV!	Ax: ---- --65 4321	A1..A6 <-> h161.0..h161.5
h162**	invert Kx		NV!	Kx: ---- --8765 432-	K2..K8 <-> h162.1..h162.7
h163**	invert Ex		NV!	Ex: ---- --65 4321	E1..E6 <-> h163.0..h163.5
h164**	Busmode Dx		NV!	Dx: ---- --8765 4321	D1..D8 <-> h164.0..h164.7
h165**	Busmode Ax		NV!	Ax: ---- --65 4321	A1..A6 <-> h165.0..h165.5
h166**	Busmode Kx		NV!	Kx: ---- --8765 432-	K2..K8 <-> h166.1..h166.7
h167**	Busmode Ex		NV!	Ex: ---- --65 4321	E1..E6 <-> h167.0..h167.5
h168					
.	Example: Inversion D1 is h160.0 (holding register 160 bit 0)				
.	Inversion D2 is h160.1 (holding register 160 bit 1)				
.	Bus mode K7 is h166.6 (holding register 166 bit 6)				
h712					

* PIN protection level 1 necessary

** PIN protection level 2 necessary

5 Enclosure

5.1 Manufacturer reference

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

ZIEHL-ABEGG SE
Heinz-Ziehl-Straße
74653 Künzelsau
Telephone: +49 (0) 7940 16-0
Telefax: +49 (0) 7940 16-504
info@ziehl-abegg.de
<http://www.ziehl-abegg.de>