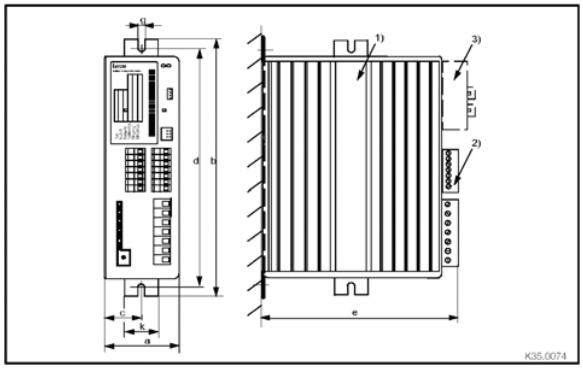
1. Mechanical installation

1.1. Mechanical exchange of frequency inverters ≤ 11kW

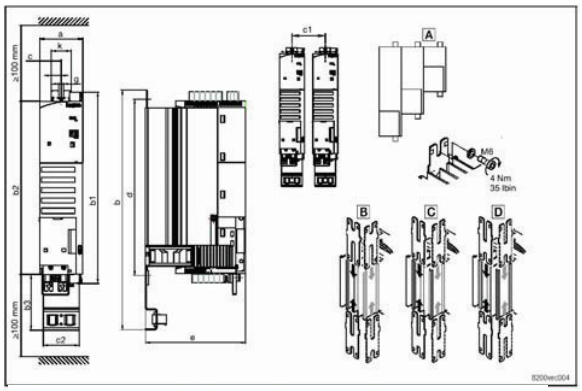
Since the dimensions of the 82xx (≤11kW) housings are not identical to the ones of the 8200vector (≤11kW) series, modifications of the control cabinet are required when these devices are to be interchanged. The different dimensions and resulting necessary modifications are listed in the table below.

Dimensions [mm] Device	a	b [1) 2)]	c	d [1)]	e	g
8201 (0.37kW)	64	210	29	190	158	6.5
E82EV371K2C	60	213…263	30	110…200	140	6.5
8202 (0.75 kW)	64	210	29	190	198	6.5
8211 (0.75 kW)	83	258	38	263	211	6.5
E82EV751KxC	60	273…323	30	170…260	140	6.5
8203 (1.5 kW)	83	283	38	263	211	6.5
8212 (1.5 kW)	83	258	38	263	211	6.5
E82EV152KxC	60	333…363	30	240…290	140	6.5
8204 (2.2 kW)	83	283	38	263	211	6.5
8213 (2.2 kW)	83	258	38	263	211	6.5
E82EV222KxC	60	359…363	30	240…290	162	6.5
8214 (3 kW)	83	258	38	263	211	6.5
E82EV302KxC	100	333	50	255	140	6.5
8215 (4 kW)	125	283		263	218	6.5
E82EV402KxC	100	333	50	255	140	6.5
8216 (5.5 kW)	125	283		263	218	6.5
E82EV552KxC	125	333	50	255	140	6.5
8217 (7.5 kW)	125	283		263	218	6.5
E82EV752KxC	125	333	62.5	255	140	6.5
8218 (11 kW)	125	283		263	218	6.5
E82EV113KxC	125	359	62.5	280…295	162	6.5

1) Dependent on the method how the fixing sheets B C D are mounted
2) Including EMC shield sheet with shield clips for the motor cable and the supply for the motor temperature monitoring



1) Fixing rail for side assembly
2) Observe the free space required for the connection cables
3) With attachable fieldbus or I/O module:
Observe assembly depth and assembly space required for connection cables



A Different sizes can only be mounted side by side when the smaller units are mounted to the right-hand-side of the bigger units!

With regard to the width (column a) only the 3kW device causes problems since the 8200vector is wider than the previous model. Regarding the height, 8200vector devices are always bigger than the previous versions (column b). As a result, more space is to be reserved in the control cabinet. Thus the distance between the bore holes (column d) may be increased, too. All further dimensions of the 8200vector will not cause any problems when devices are to be exchanged.

The devices of the 824x series (≤11kW) are dimensioned much bigger (housings of the 9300 series). As a result, the dimensionsn will not cause any problems when the 8200vector (≤11kW) is to be replaced by an 824x device.

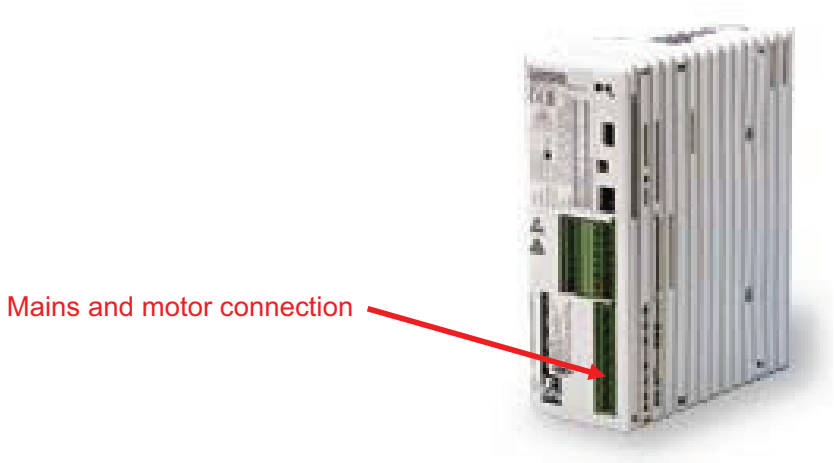
1.2. Mechanical exchange of frequency inverter ≥ 15kW

The devices of the 82xx (≥15kW) and 8200vector (≥15kW) series are identical with regard to their dimensions. Thus they can be interchanged without having to make any modifications in the control cabinet.

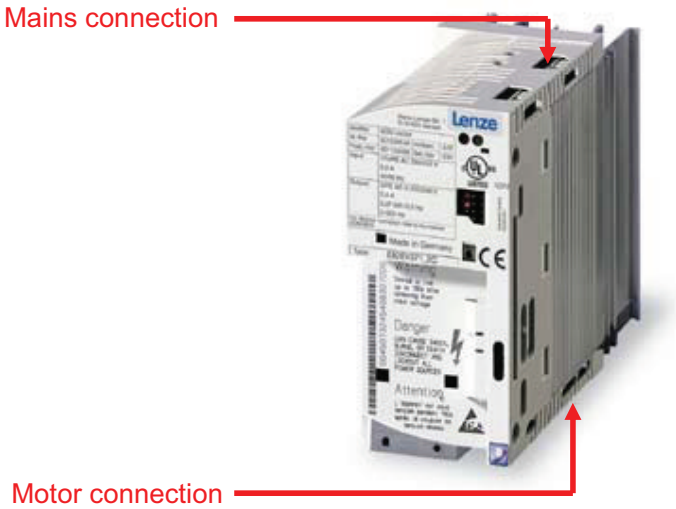
2. Electrical installation

2.1. Mains and motor connection

The mains and motor connections of the 820x, 821x series are in a different location than the connections of the corresponding controllers of the 8200vector series (0.25 kW to 11 kW). The connection of the 820x and 821x controllers are located on the front of the controller.



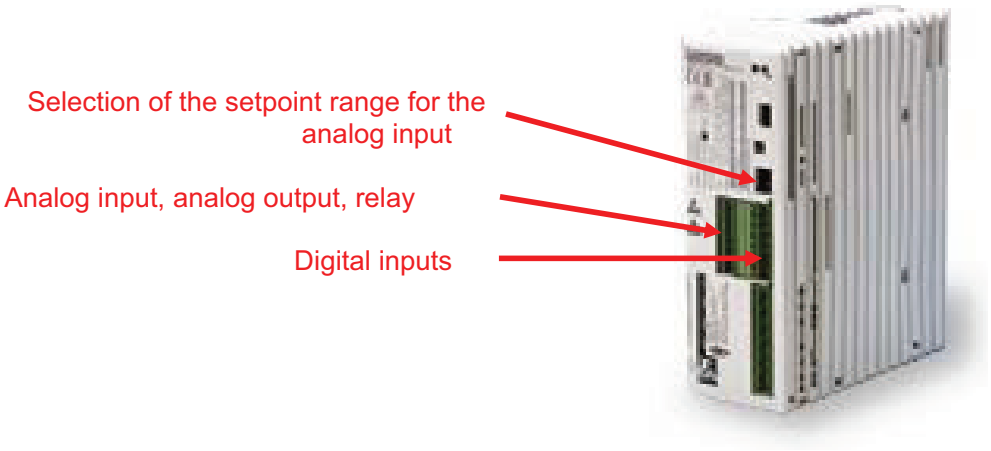
The mains connection of the 8200vector series is located on the top and the motor connection on the bottom of the controller.



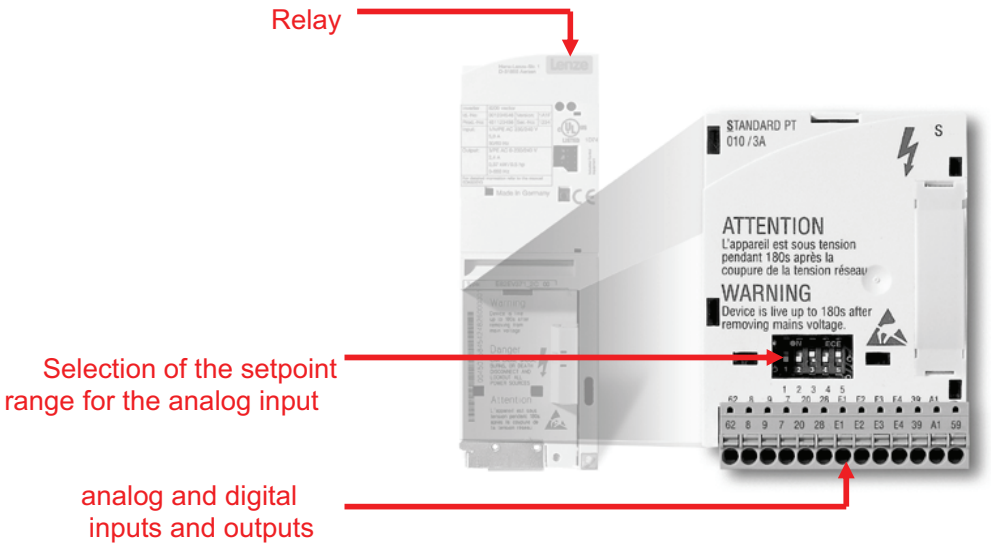
The mains and motor connections of the 822x and 824x series and the 8200vector series are in the same location.

2.2. Control connections

The control connections for the analog input and output, the digital inputs and the relay of the drive controllers type 820x, 821x, 822x and 824x are directly integrated in the basic device, namely on the front. The setpoint range for the analog input is selected with a jumper on the basic device.



The only 8200vector control connection integrated in the basic device is the relay connection, namely on the top. The other control connections are located in the standard I/O for the FIF interface of the 8200vector. By using this standard I/O, the 8200vector becomes compatible with the 82xx regarding the control connections. The setpoint range of the 8200vector for the analog input is selected with the DIP switch of the standard I/O.



The following table compares the technical data of the control connections:

Explanation of the table: Technical data of the drive controllers with:
black text → Lenze default setting
grey text → Optional value range, configurable via hardware or software

Signal type	Terminal	820x, 821x, 822x, 824x	8200vector with standard I/O
Analog output	62	0…6 V / 2 mA	0…6 V / 2mA *0…10 V / 2 mA*
Reference potential for analog signals	7	GND1	GND1
Analog input	8	0…+10 V *0…+5 V* *0…+20 mA* *+4…+20 mA* Input resistance voltage signal: >100 kΩ Current signal: 250 Ω	0…+10 V *0…+5 V* *-10 V…+10 V* *0…+20 mA* *+4…+20 mA* Input resistance voltage signal: >100 kΩ Current signal: 250 Ω
DC voltage source for setpoint potentiometer	9	5.2 V / 6 mA	5.2 V / 10 mA
DC voltage source for digital inputs and outputs	20	12 V / 20 mA	20 V / 40 mA
Controller inhibit (CINH)	28	HIGH: +12…+30 V LOW: 0…+3 V	HIGH: +12…+30 V LOW: 0…+3 V
Digital inputs	I1 I2 I3 I4	HIGH: +12…+30 V LOW: 0…+3 V	HIGH: +12…+30 V LOW: 0…+3 V
Reference potential for digital signals	39	GND2 (isolated from terminal 7 / GND1)	GND2 (isolated from terminal 7 / GND1)
Digital output	O1	-	Internal supply: 0…+20 V / 10 mA external supply: 0…+24 V / 50 mA
DC supply for terminal A1	59	-	Internal (bridge to terminal 20): +20 V external: +24 V
Relay output K1	K11 K12 K14	AC 24 V / 3.0 A DC 60 V / 0.5 A	AC 250 V / 3.0 A DC 24 V /2 A…240 V / 0.22 A
Relay output K2 *) *) only with 822x, 824x and 8200vector ≥ 15 kW	K21 K22 K24	AC 250 V / 3.0 A DC 60 V / 0.5 A	AC 250 V / 3.0 A DC 24 V /2 A…240 V / 0.22 A

2.3. Brake chopper / brake resistor

The 82XX requires an external brake chopper for braking a drive. This prevents an exceeding rise of the DC-bus voltage. The brake chopper is connected to the terminals for the DC-bus voltage (+UG / -UG) and has to be fitted with a brake resistor.
Only the 8200vector controllers with a power range from 0.55 kW to 90 kW have DC-bus terminals (+UG / -UG). Thus, the brake chopper in use with the brake resistor does not need to be replaced when replacing the 82XX by an 8200vector. The 8200vector controllers with 0.25 kW and 0.37 kW do not have these DC-bus terminals. Since the 8200vector (0.25 kW to 11 kW) is not fitted with an internal brake transistor the brake resistor in use can directly be connected to the controller (terminal BR1 / BR2). There is no need for an external brake chopper.

2.4. Wiring according to EMC requirements

In order to ensure a wiring according to EMC requirements when replacing the 82XX by the 8200vector, some aspects have to be especially considered when wiring the 8200vector series.
The shielding of the motor and control cable has to be connected to the supplied shield sheets with a large surface. Additionallz, the shield of the motor cable has to be connected to the PE terminal on the motor output of the frequency inverter. The controller itself has to be mounted directly on the electrically conductive mounting plate of the control cabinet in order to ensure an optimal EMC connection.

Compliance with the RFI levels A or B of the 82XX frequency inverter can only be guaranteed bz using external mains filters. A 8200vector model is the 000 (“with integrated filter measures”). When using this model the RFI levels A and B are complied with (depending on the motor cable length). If a radio interference level in combination with motor cable lengths > 5…20m (depending on the controller) is required, external filter measures are available, which then have to be used in combination with the 8200vector model 200 (“without integrated filter measures”).
When using long motor cables (> 50 m) it could be necessary to additionally install a motor filter on the 8200vector. Further information is provided in the documentation.

3. Parameter setting

3.1. Selection of the correct control mode

Since not all of the control modes available in the 82XX controllers are available in the 8200vector, the following table helps you to change from the one controller series to the other.

		8200vector			
		V/f characteristic control (C0014 = 2)	V/f² characteristic control (C0014 = 3)	Vector control (C0014 = 4)	Sensorless torque control (C0014 = 5)
820X	V/f characteristic control with automatic boost (C014 = 1)			X	
	V/f² characteristic control with automatic boost (C014 = 2)			X	
	V/f characteristic control with constant V_{min} boost (C014 = 3)	X			
	V/f² characteristic control with constant V_{min} boost (C014 = 4)		X		
821X / 822X / 824X	V/f characteristic control with constant V_{min} boost (C014 = 3)	X			
	V/f characteristic control with constant V_{min} boost (C014 = 4)		X		
	Motor current control (C014 = 5)			X	

3.2. Parameter setting 820x / 821x / 822x / 824x

The following table shows the codes of the 82xx and the corresponding setting of the 8200vector codes. The 8200vector provides more code options than the 82xx. These options are not shown in this table.

Explanation of the table: Options of the drive controllers with:
black text → Lenze default setting
grey text → Further options
→ Difference between 82xx and 8200vector

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C001	Operating mode	0	Setpoint selection via terminal 8 Control via terminals Parameter setting via keypad	0	Other source than parameter channel / process data channel of AIF
		1	Setpoint selection via keypad or LECOM Control via terminals Parameter setting via keypad	1	Parameter channel of an AIF bus module
		2	Setpoint selection via terminal 8 Control via terminals Parameter setting via LECOM	2	Other source than parameter channel / process data channel of AIF
		3	Setpoint selection via LECOM Control via LECOM Parameter setting via LECOM	3	Process data channel of an AIF bus module (AIF-IN.W1 or AIF-IN.W2)
C002	Parameter set	0	Function executed	0	Function executed
		1	Overwrite PAR1 with factory setting	1	Lenze setting → PAR1
		2	Overwrite PAR2 with factory setting	2	Lenze setting → PAR2
		3	Overwrite PAR1 and PAR2 with keypad data	10	Keypad → PAR1 … PAR4
		4	Overwrite PAR1 with keypad data	11	Keypad → PAR1
		5	Overwrite PAR2 with keypad data	12	Keypad → PAR2
		6	Transfer PAR1 and PAR2 to keypad	20	PAR1 … PAR4 → Keypad
C004	Switch-on display	0	Field frequency f_d	The bar graph display is parameterised in C004 (Lenze setting C004 = 56 → controller load). The switch-on display of the 8200vector is parameterised via the USER menu C0517/1 (Lenze setting C517/1 = 50 → output frequency).	
		1	Controller load		
		2	Motor current		

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C007	Terminal configuration digital inputs		E4 E3 E2 E1		E4 E3 E2 E1
		0	CW/CCW DCB JOG1/2/3	0	CW/CCW DCB JOG1/2/3
		1	CW/CCW PAR JOG1/2/3	1	CW/CCW PAR JOG1/2/3
		2	CW/CCW QSP JOG1/2/3	2	CW/CCW QSP JOG1/2/3
		3	CW/CCW PAR DCB JOG1	3	CW/CCW PAR DCB JOG1/3
		4	CW/CCW QSP PAR JOG1	4	CW/CCW QSP PAR JOG1/3
		5	CW/CCW DCB TRIP set JOG1	5	CW/CCW DCB TRIP set JOG1/3
		6	CW/CCW PAR TRIP set JOG1	6	CW/CCW PAR TRIP set JOG1/3
		7	CW/ PAR DCB TRIP set	7	CW/CCW PAR DCB TRIP set
		8	CW/CCW QSP PAR TRIP set	8	CW/CCW QSP PAR TRIP set
		9	CW/CCW QSP TRIP set JOG1	9	CW/CCW QSP TRIP set JOG1/3
		10	CW/CCW TRIP set UP DOWN	10	CW/CCW TRIP set UP DOWN
		11	CW/CCW SB UP DOWN	11	CW/CCW DCB UP DOWN
		12	CW/CCW PAR UP DOWN	12	CW/CCW PAR UP DOWN
		13	CW/CCW QSP UP DOWN	13	CW/CCW QSP UP DOWN
		14	CCW/QSP CW/QSP DCB JOG1	14	CW/QSP CCW/QSP DCB JOG1/3
		15	CCW/QSP CW/QSP PAR JOG1	15	CW/QSP CCW/QSP PAR JOG1/3
		16	CCW/QSP CW/QSP JOG1/2/3	16	CW/QSP CCW/QSP JOG1/2/3
		17	CCW/QSP CW/QSP PAR DCB	17	CW/QSP CCW/QSP PAR DCB
		18	CCW/QSP CW/QSP PAR TRIP set	18	CW/QSP CCW/QSP PAR TRIP set
C007	Terminal configuration digital inputs (continued)	19	CCW/QSP CW/QSP DCB TRIP set	19	CW/QSP CCW/QSP DCB TRIP set
		20	CCW/QSP CW/QSP TRIP set JOG1	20	CW/QSP CCW/QSP TRIP set JOG1/3
		21	CCW/QSP CW/QSP UP DOWN	21	CW/QSP CCW/QSP UP DOWN
		22	CCW/QSP CW/QSP UP JOG1	22	CW/QSP CCW/QSP UP JOG1/3
C008	Function relay K1	0	Ready for operation	0	Ready for operation
		1	TRIP error message	1	TRIP error message
		2	Motor is running	2	Motor is running
		3	Motor is running / CW rotation	3	Motor is running / CW rotation
		4	Motor is running / CCW rotation	4	Motor is running / CCW rotation
		5	Field frequency f_d = 0 Hz	5	Output frequency f_d = 0 Hz
		6	f_{dset} reached	6	Frequency setpoint reached
		7	Q_{min} reached	7	Lower than Q_{min} threshold
		8	I_{max} reached	8	I_{max} limit reached
		9	Overtemperature (ϑ_{max}-10°C)	9	Overtemperature (ϑ_{max}-5°C)
		10	TRIP or Q_{min} or IMP	10	TRIP or Q_{min} or IMP
C009	Controller address (for LECOM application only)	1	1… {1} …99	1	1… {1} …99
C010	Minimum output frequency	0	0.00 … {0.05Hz} …480.00 **for 820x**	0	0.00 … {0.02Hz} …650.00
		0	0.00 … {0.02Hz} …480.00 **for 821x / 822x / 824x**		
C011	Maximum output frequency	50	30.00 … {0.05Hz} …480.00 **for 820x**	50	7.50 … {0.02Hz} …650.00
		50	7.50 … {0.02Hz} …480.00 **for 821x / 822x / 824x**		
C012	Acceleration time T_{ir}	5	0.00 … {0.05s} …999.00 **for 820x**	5	0.00 … {0.02s} …1300.00
		5	0.00 … {0.02s} …999.00 **for 821x / 822x / 824x**		
C013	Deceleration time T_{if}	5	0.00 … {0.05s} …999.00 **for 820x**	5	0.00 … {0.02s} …1300.00
		5	0.00 … {0.02s} …999.00 **for 821x / 822x / 824x**		

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C014	Operating mode	0	Linear characteristic V ~ f_d with automatic boost (**820x only**)	-	-
		1	Square-law characteristic V ~ f_d^2 with automatic boost (**820x only**)	-	-
		2	Linear characteristic V ~ f_d with constant V_{min} boost	2	Linear characteristic V ~ f_d with constant V_{min} boost
		3	Square-law characteristic V ~ f_d^2 with constant V_{min} boost	3	Square-law characteristic V ~ f_d^2 with constant V_{min} boost
		4	Motor current control (**only 821x / 822x / 824x**)	4	Vector control
C015	V/f rated frequency	50	30.00 … {0.05Hz} …960.00 **for 820x**	50	7.50 … {0.02Hz} …960.00
		50	7.50 … {0.02Hz} …960.00 **for 821x / 822x / 824x**		
C016	V_{min} boost	0*)	0.00 … {0.02%} …40.00 *) **depending on the controller in case of the 820x**	*)	0.00 … {0.01%} …40.00 *) **depending on the controller**
C017	Operating threshold Q_{min}	0	0.00 … {0.02Hz} …480.00	0	0.00 … {0.02Hz} …650.00
C018	Switching frequency (**only 821x/ 822x/ 824x**)	0	4 kHz power-loss optimised	5	4 kHz power-loss optimised (**only 8200vector ≥ 15 kW**)
		1	8 kHz power-loss optimised	6*)	8 kHz power-loss optimised (**only 8200vector ≥ 15 kW**) *) **factory setting only for 8200vector ≥ 15 kW**
		2	12 kHz power-loss optimised	-	-
		3	16 kHz power-loss optimised	7	4 kHz power-loss optimised (**only 8200vector ≥ 15 kW**)
		4	12 kHz noise optimised	-	-
		5	16 kHz noise optimised	3	16 kHz sin, noise optimised
C019	Operating threshold Auto-DCB (**only 821x/ 822x / 824x**)	0,1	0.10 … {0.02Hz} …5.00	0,1	0.10 … {0.02Hz} …650.00
C021	Slip compen-sation	0*)	0.0 … {0.1%} …12.0 *) **depending on the controller if C014 = 2 or 3**	0	-50.0 … {0.1%} …50.0
		0*)	0.0 … {0.1%} …20.0 *) **depending on the controller if C014 = 2 or 3**		
C022	I_{max} limit in motor mode	150	30 … {1%} …150	150	30 … {1%} …150
C023	I_{max} limit in generator mode	80	30 … {1%} …110	150	30 … {1%} …150
		80	30 … {1%} …150 (**only 822x / 824x as of SW1.6**)		
C034	Master current	0	Voltage 0…+5 V / 0…+10 V Current 0…20 mA	0	Unipolar voltage 0…+5 V / 0…+10 V Current 0…20 mA
		1	4…20 mA	1	Current 4…20 mA
C036	Voltage/ current for DCB	*)	0.00 … {0.02%} …40.00 *) **depending on the controller**	*)	0.00 … {0.02%} …150.00 *) **depending on the controller**
C037	JOG value 1	20	0.00 … {0.02Hz} …480.00	20	-650.00…{0.02Hz} …650.00
C038	JOG value 2	30	0.00 … {0.02Hz} …480.00	30	-650.00…{0.02Hz} …650.00
C039	JOG value 3	40	0.00 … {0.02Hz} …480.00	40	-650.00…{0.02Hz} …650.00

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C050	Output frequency		*- read only -*		*- read only -*
C052	Motor voltage		*- read only -*		*- read only -*
C054	Motor current		*- read only -*		*- read only -*
C056	Controller utilisation		*- read only -*		*- read only -*
C061	Temperature heatsink		*- read only -*		*- read only -*
C079	Oscillation damping	*)	*) **depending on the controller**	2	0 … {1} …140
		5	0 … {1} …80 (**only 822x / 824x**)		
C088	Rated motor current (**only 821x/ 822x / 824x**)	*)	0.0…1.2*rated output current *) **depending on the controller**	*)	0.0 … {0.1A} …650.0 *) **depending on the controller**
C091	Motor cos φ (**only 821x/ 822x / 824x**)	*)	0.4 … {0.1} …1.0 *) **depending on the controller**	*)	0.4 … {0.1} …1.0 *) **depending on the controller**
C093	Device type		*- read only -*		*- read only -*
C099	Software version		*- read only -*		*- read only -*
C105	Deceleration time QSP (**only 821x/ 822x / 824x**)	5	0.00 … {0.01s} …999.00	5	0.00 … {0.02s} …1300.00
C106	Holding time for automatic DCB	0,00	0.00 … {0.01s} …50.00 **for 820x**	0,5	0.00 … {0.01s} …999.00
		0,02	0.00 … {0.01s} …999.00 **for 821x / 822x / 824x**		
C108	Gain (C111)	220	0 … {1} …255 **for 820x**	128	0 … {1} … 255
		128	0 … {1} … 255 **for 821x / 822x / 824x**		
C111	Monitor signal	0	Field frequency	0	Output frequency with slip
		1	Controller load	1	Controller load
		2	Motor current	2	Apparent motor current
		3	DC-bus voltage	3	DC-bus voltage

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C117	Function relay K2 (**only 822x / 824x**)	0	Ready for operation	-	C409=16 ready for operation (**only 8200vector ≥ 15 kW**)
		1	TRIP error message	-	C409=25 TRIP error message (**only 8200vector ≥ 15 kW**)
		2	Motor is running	-	C409=26 motor is running (**only 8200vector ≥ 15 kW**)
		3	Motor is running / CW rotation	-	C409=27 motor is running / CW rotation (**only 8200vector ≥ 15 kW**)
		4	Motor is running / CCW rotation	-	C409=28 motor is running /CCW rotation (**only 8200vector ≥ 15 kW**)
		5	Field frequency f_d = 0	-	C409=7 output frequency= 0 (**only 8200vector ≥ 15 kW**)
		6	f_{dset} reached	-	C409=4 frequency setpoint reached (**only 8200vector ≥ 15 kW**)
		7	Q_{min} reached	-	C409=6 lower than Q_{min} (*LOW active*) (**only 8200vector ≥ 15 kW**)
		8	I_{max} reached	-	C409=3 I_{max} limit reached (**only 8200vector ≥ 15 kW**)
		9	Overtemperature (ϑ_{max}-10°C)	-	C409=13 warning overtemperature (ϑ_{max}-5°C) (**only 8200vector ≥ 15 kW**)
		10	TRIP or Q_{min} or IMP	-	C409=18 TRIP or Q_{min} or IMP (**only 8200vector ≥ 15 kW**)
		11	PTC warning	-	C409=19 PTC warning (**only 8200vector ≥ 15 kW**)
C119	Function PTC (**only 822x / 824x**)	0	PTC input not active	0	PTC input not active, earth fault detection active
		1	PTC input active, TRIP and IMP (pulse inhibit) are set	1	PTC input active, TRIP and IMP (pulse inhibit) are set, earth fault detection active
		2	PTC input active, warning set	2	PTC input active, warning set, earth fault detection active
C120	I²*t disconnection (**only 822x / 824x**)	0	0 … {1%} …100	0	0 … {1%} …200
C125	LECOM baud rate	0	9600 baud	0	9600 baud
		1	4800 baud	1	4800 baud
		2	2400 baud	2	2400 baud
		3	1200 baud	3	1200 baud
		4	19200 baud	4	19200 baud

Code	Designation	820x, 821x, 822x, 824x		8200vector with standard I/O	
C142	Start condition	0	Automatic start inhibited, flying-restart circuit not active	0	Automatic start inhibited after mains connection, flying-restart circuit not active
		1	Automatic start, if terminal 28 HIGH, flying-restart circuit not active	1	Automatic start, if X3/28 = HIGH, flying-restart circuit not active
C142	Starting condition (configuration)	2	Automatic start inhibited, flying restart circuit active	2	Automatic start inhibited after mains connection, flying restart circuit active
		3	Automatic start, if terminal 28 = HIGH, flying restart circuit active	3	Automatic start, if X3/28 = HIGH, flying restart circuit active
C144	Chopper-frequency reduction (**only 821x/ 822x / 824x**)	0	No chopper-frequency reduction	0	No temperature-dependent chopper-frequency reduction
		1	Automatic chopper-frequency reduction when ϑ_{max}-10°C	1	Automatic chopper-frequency reduction to 4 kHz when ϑ_{max}-5°C reached
C161	Current error	-	*- read only -*	-	*- read only -*
C162	Last error	-	*- read only -*	-	*- read only -*
C163	Last but one error	-	*- read only -*	-	*- read only -*
C164	Last but two error	-	*- read only -*	-	*- read only -*
C170	TRIP-reset selection	0	TRIP-reset by pressing the STP key or LOW signal at ctrl. enable or fieldbus	0	TRIP-reset by mains switching, STOP, LOW signal at X3/28, via function module or communication module
		1	Auto-TRIP-reset or TRIP-reset by pressing the STP key or LOW signal at ctrl. enable or fieldbus	1	Auto-TRIP-reset or TRIP-reset by mains switching, STOP, LOW signal at X3/28, via function module or communication module
C171	Delay for TRIP reset	0	0.00 … {0.01s} 60.00	0	0.00 … {0.01s} …60.00
C178	Operating hours	-	*- read only -*	-	*- read only -*
C179	Mains switch-on time	-	*- read only -*	-	*- read only -*
C500	Display factor for process variable numerator (**only 821x/ 822x / 824x**)	2000	1 … {1} …25000	2000	1 … {1} …25000
C501	Display factor for process variable denominator (**only 821x/ 822x / 824x**)	10	1 … {1} …25000	10	1 … {1} …25000