

## 4 Technical Data of Options

### 4.1 DEH11B Hiperface® encoder card option


#### 4.1.1 Part number

824 310 7

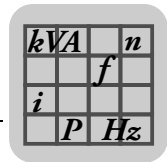
#### 4.1.2 Description

The option capable MOVIDRIVE® MDX61B units can be equipped with the DEH11B Hiperface® encoder card. The encoder card offers one input for the motor encoder and one input for an external encoder, also referred to as distance encoder. The input for the external encoder can also be used as an output for incremental encoder simulation.

#### 4.1.3 Electronics data

Option DEH11B		
 <p>2058970635</p>	Output for incremental encoder simulation or External encoder input X14:	Output for incremental encoder simulation: <ul style="list-style-type: none"> <li>• Signal level to RS422</li> <li>• The number of pulses is the same as on X15 motor encoder input</li> </ul>
	Motor encoder input X15:	Permitted encoder types: <ul style="list-style-type: none"> <li>• Hiperface® encoder</li> <li>• Sin/cos encoder <math>V_{PP} = AC 1 V</math></li> <li>• TTL encoder with negated tracks</li> <li>• Encoder with signal level to RS422</li> <li>• Permitted PPR count: 128/256/512/1024/2048 increments</li> </ul> Encoder power supply <ul style="list-style-type: none"> <li>• DC+12 V (tolerance range DC 10.5 - 13 V)</li> <li>• <math>I_{max} = DC 650 mA</math></li> </ul>

1) Total current load of DC 12 V encoder supply  $\leq DC 650 mA$ .



## 4.2 DER11B resolver card option


### 4.2.1 Part number

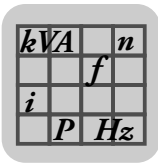
824 307 7

### 4.2.2 Description

Option-capable MOVIDRIVE® MDX61B units can be equipped with resolver card type DER11B. The resolver card offers one input for the resolver as motor encoder and one input for an external encoder, also referred to as distance encoder. The input for the external encoder can also be used as an output for incremental encoder simulation.

### 4.2.3 Electronics data

Option DER11B			
 <p>2058990603</p>	<p>Output for incremental encoder simulation or External encoder input X14:</p>	<p>Output for incremental encoder simulation: Signal level to RS422 The number of pulses is 1024 pulses/revolution</p>	<p>External encoder input (max. 200 kHz): Permitted encoder types:</p> <ul style="list-style-type: none"> <li>• Hiperface® encoder</li> <li>• Sin/cos encoder <math>V_{pp} = AC\ 1\ V</math></li> <li>• TTL encoder with negated tracks</li> <li>• Encoder with signal level to RS422</li> </ul> <p>Encoder power supply</p> <ul style="list-style-type: none"> <li>• DC+12 V (tolerance range DC 10.5 - 13 V)</li> <li>• <math>I_{max} = DC\ 650\ mA</math></li> </ul>
	<p>Motor encoder input X15:</p>	<p>Resolver 2-pole, <math>V_{ref} = AC\ 7\ V</math>, 7 kHz <math>V_{in} / V_{ref} = 0.5 \pm 10\%</math></p>	
	<p>Maximum cable length:</p>	<p>100 m (328 ft)</p>	



#### 4.3 DEU21B multi-encoder card option

##### 4.3.1 Part number

1822 169 6

##### 4.3.2 Description

Option-capable MOVIDRIVE® MDX61B units can be equipped with a DEU21B multi-encoder card. The encoder card offers one input for the motor encoder and one input for an external encoder, also referred to as distance encoder.

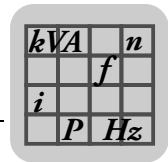
Both encoder inputs can evaluate incremental and absolute encoders. The input for the external encoder can also be used as an output for incremental encoder simulation.

##### 4.3.3 Electronics data

DEU21B option		
	<p><b>External encoder connection X14:</b></p> <p><b>Output for incremental encoder simulation:</b></p> <ul style="list-style-type: none"> <li>• Signal level to RS422</li> <li>• The number of pulses is the same as on X15 motor encoder input</li> </ul>	<p>Permitted encoder types:</p> <ul style="list-style-type: none"> <li>• Hiperface® encoder</li> <li>• Sin/cos encoder <math>V_{PP} = AC 1 V</math></li> <li>• CANopen encoder</li> <li>• TTL encoder with negated tracks</li> <li>• HTL encoder</li> <li>• SSI encoder</li> <li>• SSI combination encoder</li> <li>• EnDat encoder</li> <li>• Encoder with signal level to RS422</li> <li>• Permitted PPR count: 2-4096 increments</li> </ul> <p>Encoder power supply</p> <ul style="list-style-type: none"> <li>• DC 24 V encoder supply<sup>1)</sup></li> <li>• DC 12 V encoder supply<sup>2)</sup></li> </ul>
	<p><b>Motor encoder connection X15:</b></p>	<p>Permitted encoder types:</p> <ul style="list-style-type: none"> <li>• Hiperface® encoder</li> <li>• Sin/cos encoder <math>V_{PP} = AC 1 V</math></li> <li>• TTL encoder with negated tracks</li> <li>• HTL encoder</li> <li>• SSI encoder</li> <li>• SSI combination encoder</li> <li>• EnDat encoder</li> <li>• Encoder with signal level to RS422</li> <li>• Permitted PPR count: 2-4096 increments</li> </ul> <p>Encoder power supply</p> <ul style="list-style-type: none"> <li>• DC 24 V voltage supply<sup>1)</sup></li> <li>• DC 12 V voltage supply<sup>2)</sup></li> </ul>

1) If the overall unit load on the 24 V level exceeds 400 mA, you must connect an external DC 24 V supply to X10:9/X10:10. Observe the "Project planning" chapter in the "MOVIDRIVE® MDX60B/61B" system manual.

2) The maximum load on X14:15 and X15:15 is DC 650 mA in total.



#### 4.4 DEH21B/DIP11B absolute encoder card option

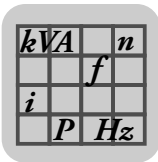
##### 4.4.1 Part numbers

- DEH21B: 1820 818 5
- DIP11B: 824 969 5


##### 4.4.2 Description

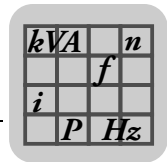
The DEH21B and DIP11B options extend the MOVIDRIVE® B system to include an SSI interface for absolute encoders. This option allows the following possibilities for IPOS<sup>plus</sup>® positioning:

- No reference travel required when the system is started or after a power failure
- Positioning can take place either with the absolute encoder or the incremental encoder/resolver installed on the motor.
- No position switch needed on the travel distance, even without motor encoder feedback
- Free processing of the absolute position in the IPOS<sup>plus</sup>® program
- In addition to the basic unit, 8 digital inputs and 8 digital outputs are available with the DIP1B option.
- The absolute encoder can be mounted either on the motor or along the track (e.g. high-bay warehouse)
- Simple encoder adjustment with user-guided startup
- Endless positioning in combination with activated modulo function



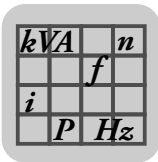
#### 4.4.3 Electronics data for DEH21B

DEH21B option		
	Motor encoder connection X15:	Permitted encoder types: <ul style="list-style-type: none"> <li>• Hiperface® encoder</li> <li>• Sin/cos encoder <math>V_{PP} = AC 1 V</math></li> <li>• TTL encoder with negated tracks</li> <li>• Encoder with signal level to RS422</li> <li>• Permitted PPR count: 128/256/512/1024/2048 increments</li> </ul> Encoder power supply , <ul style="list-style-type: none"> <li>• DC+12 V (tolerance range DC 10.5 ... 13 V)</li> <li>• <math>I_{max} = DC 650 mA</math></li> </ul>
	Encoder connection X62:	SSI encoder input
	Voltage supply connection X60:1	24VIN: DC 24 V power supply for encoder connected to X62
	Reference terminal X60:2	Reference potential 24VIN



4.4.4 Electronics data for DIP11B

DIP11B option			
<p>DIP11B</p> <p>X60</p> <p>X61</p> <p>X62</p> <p>1454658571</p>	Binary input connection	X60:1 ... 8	DI10 ... DI17 isolated via optocoupler, PLC compatible (EN 61131), scanning cycle 1 ms
	Internal resistance		$R_i \approx 3 \text{ k}\Omega$ , $I_E \approx \text{DC } 10 \text{ mA}$
	Signal level (EN 61131)		DC+13 V ... +30 V = "1" / DC 3 V ... +5 V = "0"
	Function	X60:1 ... 8	DI10 ... DI17: Selection option → Parameter menu P61_
	Binary output connection	X61:1 ... 8	DO10 ... DO17, PLC-compatible (EN 61131), short-circuit proof and protected against external voltage to DC 30 V Response time 1 ms
	Signal level (EN 61131)		DC+24 V = "1" DC 0 V = "0" <b>Important:</b> Do not apply external voltage! DO10 ... DO17: Selection option → Parameter menu P63_
	Function	X61:1 ... 8	
Encoder connection	X62:	SSI encoder input	
Reference terminals	X60:9 X60:10	DCOM: Reference potential for binary inputs (DI10 ... DI17) DGND: Reference potential for binary signals and 24VIN	
Permitted cable cross-section		<ul style="list-style-type: none"> <li>Without jumper X60:9-X60:10 (DCOM-DGND) isolated binary inputs</li> <li>With jumper X60:9-X60:10 (DCOM-DGND) non-isolated binary inputs</li> </ul>	
Voltage input	X61:9	24VIN: Supply voltage DC+24 V for binary outputs DO10 ... DO17 and encoder (mandatory)	



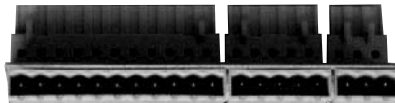
#### 4.5 Connector adapter for unit replacement MD\_60A - MDX60B/61B

The following adapters are available for rapid replacement of a MOVIDRIVE® A unit with a MOVIDRIVE® B unit during system operation.

- DAT11B: Terminal adapter, part number 824 671 8

If the TF/TH option is connected to X10 when using MOVIDRIVE® MD\_A, then X10 can be directly replugged. The jumper between X10:1 and X10:2 must be removed if a TF/TH option is connected to encoder input X15. Three plugs have to be rewired. You can avoid such rewiring work by using the DAT11B terminal adapter. Using this adapter will prevent incorrect connection and save time. The terminal adapter is required for terminals X11 (analog input), X12 (SBus) and X13 (binary inputs).

**DAT11B**



1454696587

- DAE15B: Encoder adapter X15, part number 817 629 9

If a motor with encoder on X15 is in operation on an MDV or MCV, the encoder is connected via a 9-pin plug connector to MOVIDRIVE® A. Since the DEH11B option for MOVIDRIVE® MDX61B comes equipped with a 15-pin socket, you will either have to convert the encoder cable or use the encoder adapter. The encoder adapter DAE15B for connecting sin/cos and TTL encoders can be inserted directly between the existing encoder cable with a 9-pin connector and the 15-pin socket on DEH11B. This step makes for fail-safe and fast connection of existing drives. HTL encoders have to be connected to MOVIDRIVE® B with the DWE11B/12B option (→ chapter "DWE11B/12B interface adapter option").

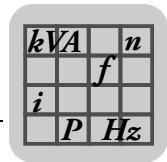
**DAE15B**



1454699659

Length of DAE15B: 200 mm ± 20 mm (7.87 in ± 0.79 in)

Cable cross section: 6 x 2 x 0.25 mm<sup>2</sup> (AWG 23)



Terminal of the 15-pin sub D connector (MOVIDRIVE® MDX61B, DEH11B option, X15)	Core color in prefabricated cable	Terminal of 9-pin sub D socket (encoder end)
1	Yellow (YE)	1
2	Red (RD)	2
3	Pink (PK)	3
4	Violet (VT)	4
8	Brown (BN)	5
9	Green (GN)	6
10	Blue (BU)	7
11	Gray (GY)	8
15	White (WH)	9

- DAE14B: Encoder adapter X14, part number 817 630 2

If a distance encoder at X14 is operated on MOVIDRIVE® MDV, MDS, MCV or MCS, connection takes place via a 9-pin connector. Since the DEH11B and DER11B options for MOVIDRIVE® MDX61B come equipped with a 15-pin plug, you will either have to rework the encoder cable or use the DAE14B encoder adapter. The DAE14B encoder adapter can be plugged directly between the existing encoder cable with 9-pin socket and the 15-pin connector on the DEH11B//DER11B option. This step makes for fail-safe and fast connection of existing drives.

DAE14B



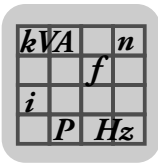
1454702731

Length of DAE14B: 200 mm ± 20 mm (7.87 in ± 0.79 in)

Cable cross section: 6 x 2 x 0.25 mm<sup>2</sup> (AWG 23)

Terminal of 15-pin sub D socket (MOVIDRIVE® MDX61B, DEH11B//DER11B option, X14)	Core color in prefabricated cable	Terminal of the 9-pin sub D connector (encoder end)
1	Yellow (YE)	1
2	Red (RD)	2
3	Pink (PK)	3
7	Violet (VT)	4
8	Brown (BN)	5
9	Green (GN)	6
10	Blue (BU)	7
11	Gray (GY)	8
15	White (WH)	9



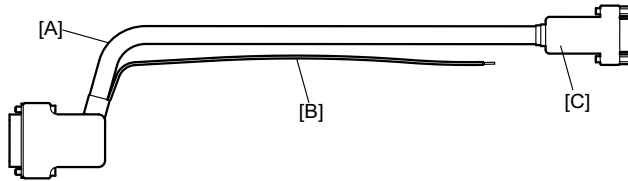


#### 4.6 DWE11B/12B interface adapter option

##### 4.6.1 Part number and description

- DWE11B, part number 188 187 6

The interface adapter DWE11B (HTL→TTL) in the form of an adapter cable is used **to connect single-ended HTL encoders to the DEH11B/DEH21B option**. Only the A, B and C tracks are connected. The interface adapter is suitable for all HTL encoders that were operated on MOVIDRIVE® A, MDV and MCV and can be connected without any rewiring effort.



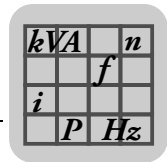
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[A] 5 x 2 x 0.25 mm<sup>2</sup> (AWG 23) / length 1000 mm (39.37 in) /

Max. line length inverter - encoder: 100 m (328 ft)

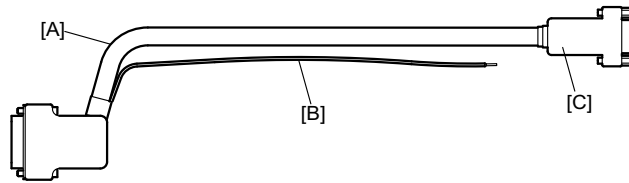
[B] DC 24 V connection for HTL encoder; 1 x 0.5 mm<sup>2</sup> (AWG 20)  
/ length 250 mm (9.84 in)

Signal	Terminal of 9-pin sub D socket [C] (encoder end)
A	1
B	2
C	3
UB	9
GND	5



- DWE12B, part number 188 180 9

The interface adapter DWE12B (HTL→TTL) in the form of an adapter cable is used **to connect single-ended HTL encoders to the DEH11B/DEH21B option**. In addition to the A, B and C track, you will also have to connect the negated tracks ( $\bar{A}$ ,  $\bar{B}$ ,  $\bar{C}$ ). SEW-EURODRIVE recommends using this interface adapter for any new system.

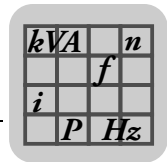


1805896331

- [A] 4 x 2 x 0.25 mm<sup>2</sup> (AWG 23 / length 1000 mm (39.37 in)  
Max. line length inverter - encoder: 200 m (656 ft)
- [B] DC 24 V connection for HTL encoder; 1 x 0.5 mm<sup>2</sup> (AWG 20)  
/ length 250 mm (9.84 in)

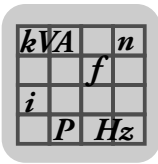
Signal	Terminal of 9-pin sub D socket [C] (encoder end)
A	1
$\bar{A}$	6
B	2
$\bar{B}$	7
C	3
$\bar{C}$	8
UB	9
GND	5





4.7.6 Technical data

UWS11A	
Part number	822 689 X
Ambient temperature	0 ... 40 °C
Storage temperature	-25 °C ... +70 °C (according to EN 60721-3-3, class 3K3)
Degree of protection	IP20
Current consumption	Max. DC 50 mA
Weight	150 g (0.35 lb)
Dimensions	83 mm x 75 mm x 22.5 mm (3.3 in x 3.0 in x 0.866 in)



#### 4.8 UWS21B interface adapter option

##### 4.8.1 Part number

1820 456 2

##### 4.8.2 Description

The UWS21B option converts RS232 signals, for example from the PC, into RS485 signals. These RS485 signals can then be routed to the XT slot of MOVIDRIVE® B.

##### 4.8.3 RS232 interface

The connection of UWS21B with PC is made using a standard serial interface cable (shielded).

##### 4.8.4 RS485 interface

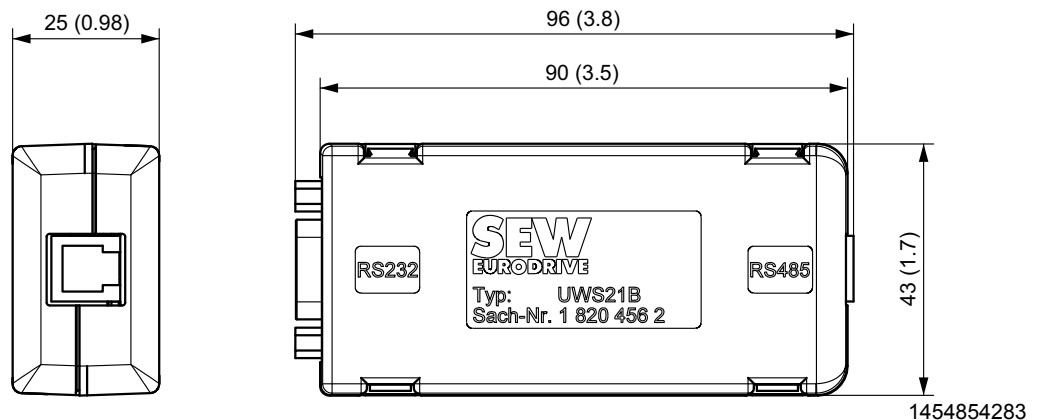
UWS21B and MOVIDRIVE® B are connected using a serial interface cable with RJ10 connectors.

##### 4.8.5 Scope of delivery

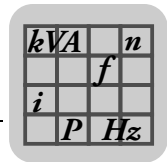
The scope of delivery for the UWS21B option includes:

- UWS21B
- Serial interface cable with 9-pin sub D socket and 9-pin sub D connector to connect the UWS21B option to the PC.
- Serial interface cable with two RJ10 connectors to connect UWS21B and MOVIDRIVE® B.
- CD-ROM with MOVITOOLS® MotionStudio engineering software

##### 4.8.6 Dimension drawing of UWS21B

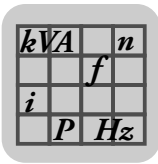


All dimensions in mm (in)



4.8.7 Technical data

UWS21B	
Part number	1 820 456 2
Ambient temperature	0 ... 40 °C
Storage temperature	-25 °C ... +70 °C (according to EN 60721-3-3, class 3K3)
Degree of protection	IP20
Weight	300 g (0.7 lb)
Dimensions	96 mm x 43 mm x 25 mm (3.8 in x 1.7 in x 0.98 in)



#### 4.9 USB11A interface adapter option

##### 4.9.1 Part number

824 831 1

##### 4.9.2 Description

Option USB11A can be used to connect a PC or laptop with a USB interface to the XT slot of MOVIDRIVE<sup>®</sup> B. The USB11A interface adapter supports USB 1.1 and USB 2.0.

##### 4.9.3 USB11A - PC

USB11A is connected to the PC using a commercially available, shielded USB connection cable type USB A-B.

##### 4.9.4 MOVIDRIVE<sup>®</sup> - USB11A

MOVIDRIVE<sup>®</sup> B and USB11A are connected using a serial interface cable with RJ10 connectors.

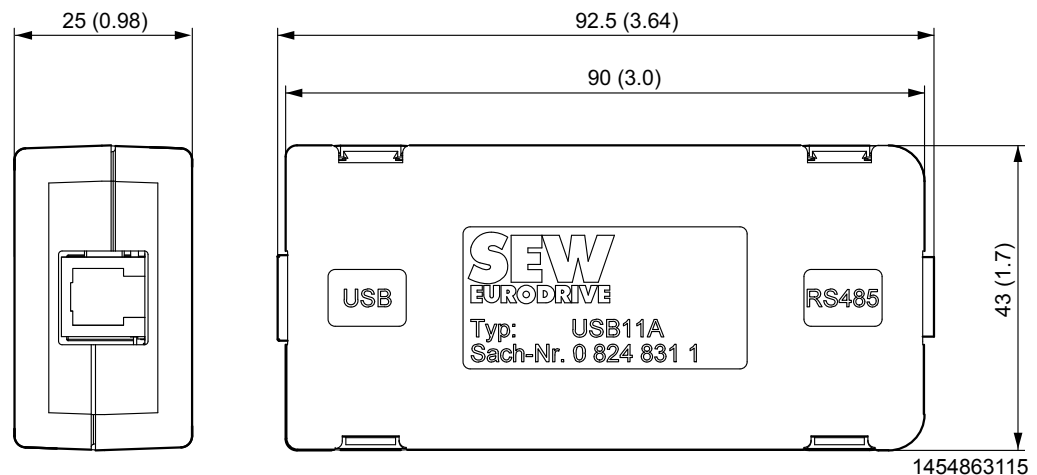
##### 4.9.5 Scope of delivery

The scope of delivery for the USB11A option includes:

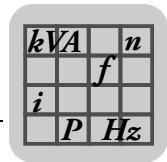
- USB11A interface adapter
- USB connection cable to connect USB11A - PC
- Serial interface cable with 2 RJ10 connectors to connect USB11A and MOVIDRIVE<sup>®</sup> B
- CD-ROM with drivers and MOVITOOLS<sup>®</sup> MotionStudio engineering software

##### 4.9.6 Dimension drawing

All dimensions in mm (in)



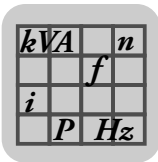
All dimensions in mm (in)



4.9.7 Technical data

<b>USB11A</b>	
<b>Part number</b>	824 831 1
<b>Ambient temperature</b>	0 ... 40 °C
<b>Storage temperature</b>	-25 °C ... +70 °C (according to EN 60721-3-3, class 3K3)
<b>Degree of protection</b>	IP20
<b>Weight</b>	300 g (0.7 lb)
<b>Dimensions</b>	92.5 mm x 43 mm x 25 mm (3.64 in x 1.7 in x 0.98 in)





#### 4.10 DWI11A DC 5 V encoders supply option

##### 4.10.1 Part number

822 759 4

##### 4.10.2 Description

If you are using an incremental encoder with a DC 5 V encoder power supply, install the DC 5 V encoder power supply option type DWI11A between the inverter and the incremental encoder. This option provides a regulated DC 5 V power supply for the encoder. For this purpose, the DC 12 V power supply for the encoder inputs is converted to DC 5 V by means of a voltage controller. A sensor line is used to measure the supply voltage at the encoder and compensate the voltage drop along the encoder cable.

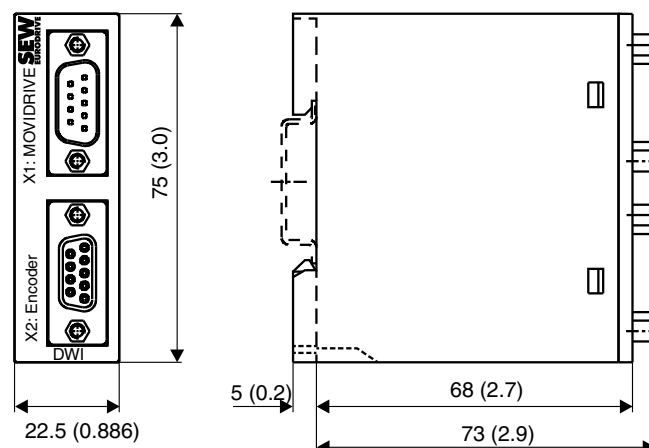
Incremental encoders with DC 5 V encoder power supply are not allowed to be connected directly to the encoder inputs X14: and X15: . This would cause irreparable damage to the encoder.

	<b>INFORMATION</b>
	Note that if a short circuit occurs in the sensor cable, the connected encoder may be exposed to a voltage higher than permitted.

##### 4.10.3 Recommendation

Use prefabricated cables from SEW for the encoder connection.

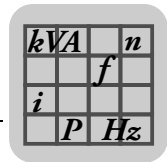
##### 4.10.4 Dimension drawing



All dimensions in mm (in)

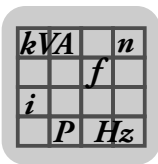
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The DWI11A option is mounted on a support rail (EN 50022-35 × 7.5) in the control cabinet.



4.10.5 Technical data

DWI11A DC 5 V encoder supply option	
Part number	822 759 4
Voltage input	DC 10...30 V, $I_{\max}$ = DC 120 mA
Encoder power supply	DC +5 V (up to $V_{\max} \approx +10$ V), $I_{\max}$ = DC 300 mA
Max. line length that can be connected	100 m (328 ft) total Use a shielded twisted-pair cable (A and $\bar{A}$ , B and $\bar{B}$ , C and $\bar{C}$ ) for connecting the encoder to the DWI11A and the DWI11A to MOVIDRIVE®.



## Technical Data of Options

### DIO11B input/output card option

#### 4.11 DIO11B input/output card option

##### 4.11.1 Part number

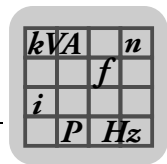
824 308 5

##### 4.11.2 Description

The number of inputs/outputs of the basic MOVIDRIVE® B unit can be expanded with the DIO11B option. The DIO11B option is plugged into the fieldbus slot. If the fieldbus slot is not available, you can plug the DIO11B option into the expansion slot. The programmable signal types of the additional binary inputs/outputs are the same as the basic unit (→ parameter group P6\_\_, Terminal assignment).

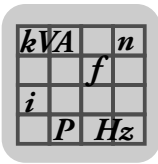
##### 4.11.3 Electronics data

Option DIO11B			
<p>1454878091</p>	Setpoint input n2	X20:1/X20:2	AI21/AI22: Voltage input Differential input or input with AGND reference potential
	AI21/AI22 operating mode		n2 = DC 0...+10 V or DC -10 V...0...+10 V
	Resolution		12 bit, sampling time 1 ms
	Internal resistance		R <sub>i</sub> = 40 kΩ
	Analog outputs	X21:1/X21:4 X21:2/X21:5	AOV1/AOV2: Voltage outputs DC-10 V...0...+10 V, I <sub>max</sub> = DC 10 mA, short-circuit proof and protected against external voltage to DC 30 V, selection option → parameter menu P64_ AOC1/AOC2: Current outputs DC 0(4)...20 mA, max. output voltage DC 15 V, short-circuit proof and protected against external voltages up to DC 30 V, selection option → parameter menu P64_
	Response time		5 ms
	Resolution		12 bit
	Binary inputs	X22:1...X22:8	Isolated (optocoupler), PLC compatible (EN 61131) DI1Ø...DI17 R <sub>i</sub> ≈ 3 kΩ, I <sub>E</sub> ≈ DC 10 mA Sampling time 1 ms
	Internal resistance		
	Signal level		DC+13 V...+30 V = "1" = Contact closed DC -3 V...+5 V = "0" = Contact open
Function	X22:1...X22:8	DI10...DI17: Selection option → Parameter menu P61_	
Binary outputs	X23:1...X23:8	DO1Ø...DO17: PLC-compatible (EN 61131-2), response time 1 ms	
Signal level		"0" = DC 0 V "1" = DC+24 V	
Function	X23:1...X23:8	DO10...DO17: Selection option → Parameter menu P63_ I <sub>max</sub> = DC 50 mA, short-circuit proof and protected against external voltage to DC 30 V	
Reference terminals	X20:3/X21:3/ X21:6 X22:9 X22:10	AGND: Reference potential for analog signals (AI21/AI22/AO_1/AO_2) DCOM: Reference potential for binary inputs X22:1...X22:8 (DI1Ø...DI17) DGND: Reference potential for binary signals, reference potential for DC 24 V power supply	
Voltage input	X23:9	24VIN: Supply voltage DC +24 V for binary outputs DO1Ø...DO17	
Permitted cable cross-section		One core per terminal: 0.08...1.5 mm <sup>2</sup> (AWG 28...16) Two cores per terminal: 0.25...1 mm <sup>2</sup> (AWG 22...17)	



#### 4.11.4 Functions

- 8 binary inputs
- 8 binary outputs
- 1 analog differential input (DC 0...10 V, DC -10 V...+10 V, DC 0...20 mA with corresponding load)
- 2 analog outputs (DC -10 V ... +10 V, DC 0...20 mA, DC 4...20 mA)



#### 4.12 DFP21B PROFIBUS fieldbus interface option

##### 4.12.1 Part number

824 240 2

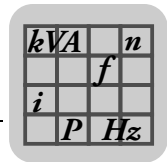
##### 4.12.2 Description

MOVIDRIVE® B can be equipped with a 12 Mbaud fieldbus interface for the PROFIBUS-DP serial bus system. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW homepage (<http://www.sew-eurodrive.de>) under "Software" to help with project planning and facilitate startup.

PROFIBUS-DP (Decentralized Periphery) is primarily used at the sensor/actuator level where fast response times are required. The principal task of PROFIBUS-DP is rapid cyclic data exchange; e.g. setpoints or binary commands, between central automation units (PROFIBUS master) and decentralized peripheral units (e.g. drive inverters). The DFP21B option supports PROFIBUS-DP and DP-V1. Consequently, MOVIDRIVE® B can be controlled via PLC and PROFIBUS-DP / DP-V1.

##### 4.12.3 Electronics data

DFP21B option		
	Protocol variant	PROFIBUS-DP and DPV1 to IEC 61158
	Baud rate	Automatic baud rate detection from 9.6 kbaud to 12 Mbaud
	Connection technology	9-pin sub D socket, pin assignment to IEC 61158
	Bus termination	Not integrated, implement using suitable PROFIBUS connector with terminating resistors that can be activated
	Station address	1 ... 125, adjustable via DIP switches
	GSD file name	DP: SEW_6003.GSD DP-V1: SEWA6003.GSD
	DP ID number	6003 <sub>hex</sub> (24579 <sub>dec</sub> )
	Max. number of process data	10 process data



### 4.13 DFI11B INTERBUS fieldbus interface option

#### 4.13.1 Part number

824 309 3

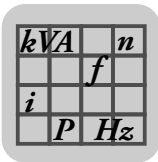
#### 4.13.2 Description

MOVIDRIVE® B can be equipped with a fieldbus interface for the non-proprietary and standardized INTERBUS sensor/actuator bus system.

INTERBUS is defined in EN 50254 / DIN 19258 and, as far as its function is concerned, it consists of a process data channel and a parameter data channel. Intelligent actuators such as the MOVIDRIVE® B inverter can be controlled and configured in a user-friendly way.

#### 4.13.3 Electronics data

DFI11B option		
<p>DFI 11B</p> <p>0 1</p> <p>20 21 22</p> <p>1 2 3 4</p> <p>2M 0,5M</p> <p>U<sub>L</sub></p> <p>RC</p> <p>BA</p> <p>RD</p> <p>TR</p> <p>X30</p> <p>X31</p> <p>1455126155</p>	Supported baud rates	500 kBaud and 2 MBaud, can be selected via DIP switch
	Connection technology	Remote bus input: 9-pin D-sub connector Remote bus output: 9-pin D-sub socket RS485 transmission technology, 6-core shielded and twisted-pair cable
	DP identity numbers	E3 <sub>hex</sub> = 227 <sub>dec</sub> (1 PCP word) E0 <sub>hex</sub> = 224 <sub>dec</sub> (2 PCP words) E1 <sub>hex</sub> = 225 <sub>dec</sub> (4 PCP words) 38 <sub>hex</sub> = 56 <sub>dec</sub> (microprocessor not ready) 03 <sub>hex</sub> = 3 <sub>dec</sub> (no PCP word)
	Max. number of process data	6 process data



**4.14 DFI21B INTERBUS optical fiber fieldbus interface option**

**4.14.1 Part number**

824 311 5

**4.14.2 Description**

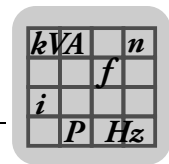
MOVIDRIVE® B can be equipped with a fieldbus interface for the non-proprietary and standardized sensor/actuator bus system INTERBUS / INTERBUS with optical fibers (INTERBUS optical fiber).

INTERBUS is defined in EN 50254 / DIN 19258 and, as far as its function is concerned, it consists of a process data channel and a parameter data channel. Intelligent actuators such as the MOVIDRIVE® B inverter can be controlled and configured in a user-friendly way.

**4.14.3 Electronics data**

DFI21B option		
	Supported baud rates	500 kBaud and 2 MBaud, can be selected via DIP switch
	Connection technology	F-SMA connector
	DP identity numbers	E3 <sub>hex</sub> = 227 <sub>dec</sub> (1 PCP word) E0 <sub>hex</sub> = 224 <sub>dec</sub> (2 PCP words) E1 <sub>hex</sub> = 225 <sub>dec</sub> (4 PCP words) 38 <sub>hex</sub> = 56 <sub>dec</sub> (microprocessor not ready) 03 <sub>hex</sub> = 3 <sub>dec</sub> (no PCP word)
	Max. number of process data	6 process data

1455171339



#### 4.15 DFE32B PROFINET IO RT fieldbus interface option

##### 4.15.1 Part number

1821 345 6

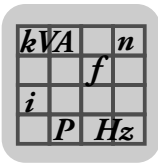
##### 4.15.2 Description

The MOVIDRIVE® MDX61B inverter enables you to use the DFE32B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET/IO protocol) thanks to its powerful, universal fieldbus interface. You can use option DFE32B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio software to change parameters and IPOS<sup>plus</sup>® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

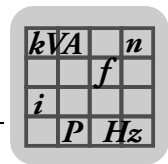
##### 4.15.3 Electronics data

DFE32B option		
<p>1455229707</p>	Application protocols	<ul style="list-style-type: none"> <li>• <b>PROFINET IO</b> (Ethernet frames with frame identification 8892<sub>hex</sub>) to control and parameterize the inverter.</li> <li>• <b>HTTP</b> (Hypertext Transfer Protocol) for diagnostics using a Web browser.</li> <li>• <b>SMLP</b> (Simple MOVILINK Protocol), protocol used by MOVITOOLS® MotionStudio.</li> </ul>
	Port numbers used	<ul style="list-style-type: none"> <li>• 300 (SMLP)</li> <li>• 80 (HTTP)</li> </ul>
	Ethernet services	<ul style="list-style-type: none"> <li>• ARP</li> <li>• ICMP (ping)</li> </ul>
	ISO / OSI layer 2	Ethernet II
	Baud rate	100 Mbaud in full duplex mode
	Connection technology	Two RJ45 plug connectors with integrated switch and auto-crossing
	Addressing	4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)
	Manufacturer ID (Vendor ID)	010A <sub>hex</sub>
	Tools for startup	<ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software version 5.40 or higher.</li> <li>• DBG60B keypad</li> </ul>
	Firmware status of MOVIDRIVE® MDX61B	Firmware version 824 854 0.17 or higher (→ display with P076)



**4.15.4 Functions**

- PROFINET IO protocol
- Two RJ45 plug connectors for star or line type cabling
- Up to 10 process data and PROFINET diagnostic parameter data items can be transferred at the same time
- The PROFINET IO controller assigns the IP address
- Engineering access using MOVITOOLS® MotionStudio via Ethernet TCP/IP
- Inverter diagnostics using a standard browser (e.g. Internet Explorer) via the integrated Web server:
  - Transfer display values
  - DFE32B configuration (after login)



#### 4.16 DFE33B EtherNet/IP and Modbus/TCP fieldbus interface option

##### 4.16.1 Part number

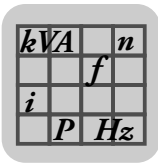
1821 346 4

##### 4.16.2 Description

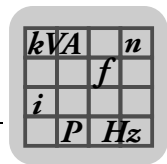
The MOVIDRIVE® MDX61B inverter enables you to use the DFE33B option to connect to higher-level automation, project planning and visualization systems via Ethernet (EtherNet/IP and Modbus/TCP protocol) thanks to its powerful, universal fieldbus interface. You can use option DFE33B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS<sup>plus</sup>® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

##### 4.16.3 Electronics data

DFE33B option		
<p>DFE33B MODULE STATUS NETWORK STATUS MAC-ID 00-0F-89-00-0F-88 IP: X30 X32 DEF IP AS 0 1 ETHERNET/IP 1455412875</p>	Application protocols	<ul style="list-style-type: none"> <li>• <b>EtherNet/IP</b> (Ethernet Industrial Protocol) or <b>Modbus/TCP</b> to control and parameterize the inverter.</li> <li>• <b>HTTP</b> (Hypertext Transfer Protocol) for diagnostics using a Web browser.</li> <li>• <b>SMLP</b> (Simple MOVILINK Protocol), protocol used by MOVITOOLS® MotionStudio.</li> <li>• <b>DHCP</b> (Dynamic Host Configuration Protocol) to assign address parameter automatically.</li> </ul>
	Port numbers used	<ul style="list-style-type: none"> <li>• 44818 EtherNet/IP (TCP)</li> <li>• 2222 EtherNet/IP (UDP)</li> <li>• 502 Modbus/TCP</li> <li>• 300 SMLP (TCP, UDP)</li> <li>• 80 HTTP</li> <li>• 67 / 68 DHCP</li> </ul>
	Ethernet services	<ul style="list-style-type: none"> <li>• ARP</li> <li>• ICMP (ping)</li> </ul>
	<b>ISO / OSI layer 1/2</b> <b>ISO / OSI layer 4/5</b>	Ethernet II TCP/IP and UDP/IP
	Automatic baud rate detection	10 MBaud / 100 MBaud
	Connection technology	2 x RJ45 with integrated switch and autocrossing
	Addressing	4 byte IP address or MAC-ID (00-0F-69-xx-xx-xx)
	Manufacturer ID (Vendor ID)	<ul style="list-style-type: none"> <li>• 013B<sub>hex</sub> (EtherNet/IP)</li> <li>• "SEW-EURODRIVE" (Modbus/TCP)</li> </ul>
	Tools for startup	<ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software version 5.40 or higher.</li> <li>• DBG60B keypad</li> </ul>
	Firmware status of MOVIDRIVE® MDX61B	Firmware version 824 854 0.17 or higher (→ display with P076)

**4.16.4 Functions**

- EtherNet/IP protocol
- Two RJ45 plug connectors for star or line type cabling
- Up to 10 process data and parameter data items can be transferred at the same time
- Two ways to allocate the IP address:
  1. Using the DBG60B keypad and MOVITOOLS® MotionStudio
  2. Using the DHCP server
- Engineering access using MOVITOOLS® MotionStudio via Ethernet TCP/IP
- Inverter diagnostics using a standard browser (e.g. Internet Explorer) via the integrated Web server:
  - Transfer display values
  - DFE33B configuration (after login)



### 4.17 DFE24B EtherCAT® fieldbus interface option

#### 4.17.1 Part number

1821 126 7

#### 4.17.2 Description

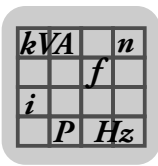
The MOVIDRIVE® MDX61B inverter enables you to use the DFE24B option to connect to higher-level automation, project planning and visualization systems via EtherCAT® thanks to its powerful, universal fieldbus interface. You can use the DFE24B option to communicate with the inverters via the EtherCAT® master and operate the MOVITOOLS® MotionStudio engineering software via EtherCAT® to change parameters and IPOS<sup>plus</sup>® programs.

#### 4.17.3 Electronics data

DFE24B option		
	Standards	IEC 61158, IEC 61784-2
	Baud rate	100 Mbaud full duplex
	Connection technology	Two RJ45 plug connectors
	Bus termination	Not integrated because bus termination is automatically activated.
	OSI layer	Ethernet II
	Station address	Setting via EtherCAT® master (→ Display with P093)
	XML file name	SEW_DFE24B.xml
	Vendor ID	0x59 (CANopenVendor ID)
	EtherCAT® services	<ul style="list-style-type: none"> <li>• CoE (CANopen over EtherCAT®)</li> <li>• VoE (Simple MOVILINK® Protocol over EtherCAT®)</li> </ul>
	Firmware status of MOVIDRIVE® B	824 854 0.18 or higher (→ display with P076)
	Tools for startup	<ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software version 5.40 or higher.</li> <li>• DBG60B keypad</li> </ul>
	1455419915	

#### 4.17.4 Functions

- EtherCAT®
- Two RJ45 plug connectors for line type cabling
- Simultaneous communication of up to 10 process data and parameter data as well as access (Rx, Tx) to 8 IPOS<sup>plus</sup>® variables
- Automatic addressing via EtherCAT® master
- Engineering access using MOVITOOLS® MotionStudio via EtherCAT®



### 4.18 DFD11B DeviceNet fieldbus interface option

#### 4.18.1 Part number

824 972 5

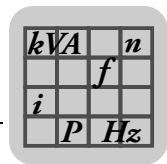
#### 4.18.2 Description

The MOVIDRIVE® MDX61B inverter in conjunction with the DFD11B option allows connection to higher-level automation, project planning and visualization systems via the open and standardized DeviceNet fieldbus system thanks to the option's high-performance universal fieldbus interface.

The DeviceNet fieldbus interface type DFD11B can be plugged into the fieldbus slot on all MOVIDRIVE® MDX61B units. The DFD11B option enables communication with the machine control for a maximum of 10 process data. You need an EDS file to be able to integrate the DFD11B in the machine control. You can download this file from the SEW homepage in the Software section.

#### 4.18.3 Electronics data

DFD11B option		
	Communication protocol	Master/slave connection set according to DeviceNet specification version 2.0
	Number of process data words	Can be set via DIP switch: <ul style="list-style-type: none"> <li>• 1 ... 10 process data words</li> <li>• 1 ... 4 process data words with bit-strobe I/O</li> </ul>
	Baud rate	125, 250 or 500 kbaud, can be set using DIP switch
	Bus cable length	For thick cable according to DeviceNet specification 2.0 appendix B: <ul style="list-style-type: none"> <li>• 500 m at 125 kbaud</li> <li>• 250 m at 250 kbaud</li> <li>• 100 m at 500 kbaud</li> </ul>
	Transmission level	ISO 11 98 - 24 V
	Connection technology	<ul style="list-style-type: none"> <li>• 2-wire bus and 2-wire supply voltage DC 24 V with 5-pole Phoenix terminal</li> <li>• Pin assignment according to DeviceNet specification</li> </ul>
	MAC ID	0 ... 63, can be set using DIP switch Max. 64 stations
	Supported services	<ul style="list-style-type: none"> <li>• Polled I/O: 1 ... 10 words</li> <li>• Bit-strobe I/O: 1 ... 4 words</li> <li>• Explicit messages: <ul style="list-style-type: none"> <li>– Get_Attribute_Single</li> <li>– Set_Attribute_Single</li> <li>– Reset</li> <li>– Allocate_MS_Connection_Set</li> <li>– Release_MS_Connection_Set</li> </ul> </li> </ul>
	Tools for startup	<ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software</li> <li>• DBG60B keypad</li> </ul>



### 4.19 DFC11B CAN/CANopen fieldbus interface option

#### 4.19.1 Part number


824 317 4

#### 4.19.2 Description

The MOVIDRIVE® MDX61B inverter in conjunction with the DFC11B option allows connection to higher-level automation, project planning and visualization systems via the open and standardized CANopen fieldbus system thanks to the option's high-performance universal fieldbus interface. You can also access parameters and process data using the MOVILINK® protocol designed especially for units from SEW-EURODRIVE.


The DFC11B fieldbus interface type can be plugged into the fieldbus slot on all MOVIDRIVE® MDX61B units. In this way, a second system bus (CAN) on MOVIDRIVE® is made available. The DFC11B option enables communication with the machine control for a maximum of 10 process data. You need an EDS file to be able to integrate the DFC11B in the higher-level CANopen control. You can download this file from the SEW homepage in the Software section.

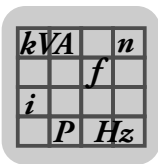
#### 4.19.3 Electronics data

DFC11B option		
 <p>1455445515</p>	Communication profile	<ul style="list-style-type: none"> <li>SEW-MOVILINK®</li> <li>CANopen</li> <li>CAN Layer 2</li> </ul>
	Number of process data words	1 ... 10 process data words
	Baud rate	Setting using parameter P894: 125 kbaud / 250 kbaud / 500 kbaud / 1 Mbaud
	Connection technology	9-pole Sub-D plug connector X30 (plug assigned to CIA standard) or terminal X31
	Permitted cable cross section X31 (CAN bus connection)	One core per terminal: 0.20 ... 2.5 mm <sup>2</sup> (AWG24 ... 12) Two cores per terminal: 0.25 ... 1 mm <sup>2</sup> (AWG22 ... 17)
	Terminating resistor	120 Ω (set using DIP switch S1-R)
	Addressing	Setting via parameter P891 (SBus MOVILINK®) or P896 (CANopen)
	Tools for startup	<ul style="list-style-type: none"> <li>MOVITools® MotionStudio engineering software</li> <li>DBG60B keypad</li> </ul>

#### 4.19.4 Functions

- CAN Layer 2 and communication profile MOVILINK® or CANopen
- Electrical isolation via optocoupler

	<b>INFORMATION</b>
	If electrical isolation is not required, the CAN-Bus can be connected directly to the basic unit at X12:SC11/SC12 without the DFC11B option. This does not effect the functionality.



## 4.20 DRS11B synchronous operation card option

### 4.20.1 Part number

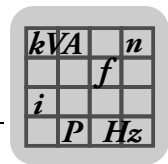
824 672 6

### 4.20.2 Description

The DRS11B option enables a group of motors to run in angular synchronous operation or in an adjustable proportional relationship. For detailed information, refer to the "DRS11B Synchronous Operation Card" manual, which can be ordered from SEW-EURODRIVE. The basis for synchronous operation is the continuous comparison of the rotor angle positions of the master and slave motors. The motors must be equipped with encoders. The DRS11B option is plugged into the expansion slot.

Option DRS11B			
	Binary inputs	X40:1...X40:6	INPØ...INP5: Isolated (optocoupler) PLC compatible (EN 61131)
	Internal resistance		$R_i \approx 3 \text{ k}\Omega$ , $I_E \approx \text{DC } 10 \text{ mA}$ Sampling time 5 ms
	Signal level		DC+13 V...+30 V = "1" = Contact closed DC- 3 V...+5 V = "0" = contact open
	Function		Fixed assignment with: <ul style="list-style-type: none"> <li>• INPØ = Free-running</li> <li>• INP1 = Offset 1</li> <li>• INP2 = Offset 2</li> <li>• INP3 = Offset 3</li> <li>• INP4 = IPOS<sup>plus</sup>® variable H477.0</li> <li>• INP5 = IPOS<sup>plus</sup>® variable H477.1</li> </ul>
	Binary outputs	X40:9/X40:10	OUTPØ/OUTP1: PLC compatible (EN 61131-2) Response time 5 ms
	Signal level		"0" = DC 0 V "1" = DC+24 V <b>Important:</b> Do not apply any external voltage!
	Function		Fixed assignment with: <ul style="list-style-type: none"> <li>• OUTPØ = IPOS<sup>plus</sup>® variable H476.0</li> <li>• OUTP1 = IPOS<sup>plus</sup>® variable H476.1</li> </ul> $I_{\text{max}} = \text{DC } 50 \text{ mA}$ , short-circuit proof, protected against external voltage to DC 30 V
	Reference terminals	X40:11 X40:7	DGND: Reference potential for binary signals DCOM: Reference potential for binary inputs X40:1...X40:6 (INPØ...INP5) VO24: Voltage output DC +24 V, max. DC 100 mA
	Voltage output	X40:8	
	Distance encoder input Encoder power supply	X41:	Max. 200 kHz, signal level according to RS422 or sin/cos DC +24 V, $I_{\text{max}} = 650 \text{ mA}$ <sup>1)</sup> 9-pin D-sub socket
Master encoder input Encoder power supply	X42:	Max. 200 kHz, signal level according to RS422 or sin/cos DC+24 V, $I_{\text{max}} = \text{DC } 650 \text{ mA}$ 9-pin D-sub socket	
Encoder simulation output	X43:	Signal level to RS422 9-pin D-sub connector	
Voltage input	X44:1 X44:2 X44:3	GND DC+24 V supply voltage for binary outputs X40:9/X40:10 and encoder GND	
Permitted cable cross-section		One core per terminal: 0.08 ... 1.5 mm <sup>2</sup> (AWG28 ... 16) Two cores per terminal: 0.25 ... 1 mm <sup>2</sup> (AWG22 ... 17)	

1) Total current load (X41 and X42) of the DC 24 V encoder supply  $\leq \text{DC } 650 \text{ mA}$



## 4.21 DFS11B fieldbus interface option PROFIBUS DP-V1 with PROFIsafe

### 4.21.1 Part number

1820 962 9

### 4.21.2 Description

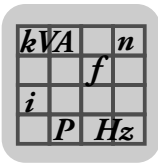
MOVIDRIVE® B can be equipped with the 12 Mbaud fieldbus interface DFS11B for the serial bus system PROFIBUS-DP-V1 with PROFIsafe. In addition to cyclical and acyclical data exchange, safety-oriented communication takes place that allows to switch a safe F-DO output. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW homepage (<http://www.sew-eurodrive.com>) under "Software" to help with project planning and facilitate startup.

For more detailed information, refer to the "DFS11B Fieldbus Interface PROFIBUS DP-V1 with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

### 4.21.3 Electronics data

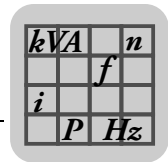
DFS11B option		
<p>DFS11B</p> <p>R FS</p> <p>BF FDO</p> <p>GO</p> <p>F ADDRESS</p> <p>20 21 22 23 24 25 26 27 28 29</p> <p>X30</p> <p>20 21 22 23</p> <p>24 25 26 AS</p> <p>0 1</p> <p>1455484171</p>	PROFIBUS protocol options	PROFIBUS DP and DP-V1 to IEC 61158
	Automatic baud rate detection	9.6 kbaud ... 12 Mbaud
	Connection technology	<ul style="list-style-type: none"> <li>9-pin D-sub socket</li> <li>Pin assignment acc. to IEC 61158</li> </ul>
	Bus termination	Not integrated, implement using suitable PROFIBUS plug with terminating resistors that can be switched on.
	Station address	1 ... 125, adjustable via DIP switches
	GSD file name	SEW_600C.GSD
	DP ID number	600C = 24588 <sub>hex</sub>
	Diagnostics data	<ul style="list-style-type: none"> <li>Max. 8 bytes</li> <li>Standard diagnostics: 6 bytes</li> </ul>
	Tools for startup	<ul style="list-style-type: none"> <li>MOVITOOLS® MotionStudio engineering software</li> <li>DBG60B keypad</li> </ul>
	F address	1 ... 1022 DIP switch for setting the failsafe address
	Ambient temperature	0 ... 55 °C





#### 4.21.4 Safety part

Safety characteristics	
Maximum possible safety class	<ul style="list-style-type: none"> <li>SIL 3 according to EN 61508</li> <li>Category 4 according to EN 954-1</li> <li>Performance level e according to EN ISO 13849-1</li> </ul>
System structure	2 channels with diagnostics (1002D)
Operating mode selection	"High demand" rate according to EN 61508
Probability of dangerous failure per hour (PFH value)	<1.00E-09 (1 FIT)
Proof test interval (EN61508)	10 years, after which the component must be replaced with a new one
Repair time	100 hours
Safe condition	Value "0" for all safety-oriented F-DO process values (output disabled)
Safe output	
P-M switch (from load voltage supply)	DC 24 V output according to EN 61131-2, protected against short circuits and overloads
Rated current	1A
Leakage current ("0" signal)	Typically -2 mA (with 2 V / 1 kΩ load resistance) (Note: Current flows from F-DO_M to F-DO_P)
Internal voltage drop (P and M output)	Max. 3 V
Short circuit protection	Electronic, response value: 2.8 A ... 9 A
Overload protection	Response value: 1.4 A ... 1.6 A
Load resistance range	24 kΩ ... 1 kΩ
Voltage limitation when switching off inductive loads	Typically -70 V
Response time (command via PROFIsafe → output switches)	≤ 25 ms
Maximum line length	30 m



## 4.22 DFS12B fieldbus interface option PROFIBUS DP-V1 with PROFIsafe

### 4.22.1 Part number

1820 963 7

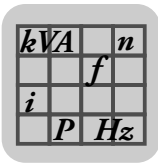
### 4.22.2 Description

MOVIDRIVE® B can be equipped with the 12 Mbaud fieldbus interface DFS12B for the serial bus system PROFIBUS DP-V1 with PROFIsafe. In addition to cyclical and acyclical data exchange, safety-oriented communication takes place in conjunction with the DCS21B option. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW homepage (<http://www.sew-eurodrive.com>) under "Software" to help with project planning and facilitate startup.

For more detailed information, refer to the "DFS12B Fieldbus Interface PROFIBUS DP-V1 with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

### 4.22.3 Electronics data

DFS12B option		
	PROFIBUS protocol options	PROFIBUS DP and DP-V1 to IEC 61158
	Automatic baud rate detection	9.6 kbaud ... 12 Mbaud
	Connection technology	<ul style="list-style-type: none"> <li>9-pin D-sub socket</li> <li>Pin assignment acc. to IEC 61158</li> </ul>
	Bus termination	Not integrated, implement using suitable PROFIBUS plug with terminating resistors that can be switched on.
	Station address	1 ... 125, adjustable via DIP switches
	GSD file name	SEW_600C.GSD
	DP ID number	600C = 24588 <sub>hex</sub>
	Diagnostics data	<ul style="list-style-type: none"> <li>Max. 8 bytes</li> <li>Standard diagnostics: 6 bytes</li> </ul>
	Tools for startup	<ul style="list-style-type: none"> <li>MOVITOOLS® MotionStudio engineering software</li> <li>DBG60B keypad</li> </ul>
	F address	The failsafe address is set using the DCS21B option
	Ambient temperature	0 ... 55 °C



## Technical Data of Options

### DFS21B fieldbus interface option PROFINET IO with PROFIsafe

#### 4.23 DFS21B fieldbus interface option PROFINET IO with PROFIsafe

##### 4.23.1 Part number

1821 183 6

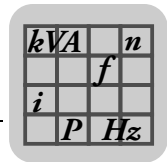
##### 4.23.2 Description

The MOVIDRIVE® MDX61B inverter enables you to use the DFS21B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET/IO RT protocol) thanks to its powerful, universal fieldbus interface. In addition to cyclical and acyclical data exchange, safety-oriented communication takes place that allows to switch a safe F-DO output. You can use option DFS21B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS<sup>plus</sup>® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

For more detailed information, refer to the "DFS21B Fieldbus Interface PROFINET IO with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

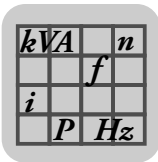
##### 4.23.3 Electronics data

DFS21B option	
	Application protocols <ul style="list-style-type: none"> <li>• <b>PROFINET IO</b> (Ethernet frames with frame identification 8892<sub>hex</sub>) to control and parameterize the inverter.</li> <li>• <b>HTTP</b> (Hypertext Transfer Protocol) for diagnostics using a Web browser.</li> <li>• <b>SMLP</b> (Simple MOVILINK Protocol), protocol used by MOVITOOLS® MotionStudio.</li> </ul>
	Port numbers used <ul style="list-style-type: none"> <li>• 300 (SMLP)</li> <li>• 80 (HTTP)</li> </ul>
	Ethernet services <ul style="list-style-type: none"> <li>• ARP</li> <li>• ICMP (ping)</li> </ul>
	ISO / OSI layer 2 <p>Ethernet II</p>
	Baud rate <p>100 Mbaud in full duplex mode</p>
	Connection technology <p>Two RJ45 plug connectors with integrated switch and auto-crossing</p>
	Addressing <p>4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)</p>
	Manufacturer ID (Vendor ID) <p>010A<sub>hex</sub></p>
	Tools for startup <ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software version 5.40 or higher.</li> <li>• DBG60B keypad</li> </ul>
	F address <p>1 ... 1022 DIP switch for setting the failsafe address</p>
Firmware status of MOVIDRIVE® MDX61B <p>Firmware version 824 854 0.17 or higher (→ display with P076)</p>	
Ambient temperature <p>0 ... 55 °C</p>	



#### 4.23.4 Safety part

Safety characteristics	
Maximum possible safety class	<ul style="list-style-type: none"> <li>SIL 3 according to EN 61508</li> <li>Category 4 according to EN 954-1</li> <li>Performance level e according to EN ISO 13849-1</li> </ul>
System structure	2 channels with diagnostics (1oo2D)
Operating mode selection	"High demand" rate according to EN 61508
Probability of dangerous failure per hour (PFH value)	<1.00E-09 (1 FIT)
Proof test interval (EN61508)	10 years, after which the component must be replaced with a new one
Repair time	100 hours
Safe condition	Value "0" for all safety-oriented F-DO process values (output disabled)
Safe output	
P-M switch (from load voltage supply)	DC 24 V output according to EN 61131-2, protected against short circuits and overloads
Rated current	1A
Leakage current ("0" signal)	Typically -2 mA (with 2 V / 1 kΩ load resistance) (Note: Current flows from F-DO_M to F-DO_P)
Internal voltage drop (P and M output)	Max. 3 V
Short circuit protection	Electronic, response value: 2.8 A ... 9 A
Overload protection	Response value: 1.4 A ... 1.6 A
Load resistance range	24 kΩ ... 1 kΩ
Voltage limitation when switching off inductive loads	Typically -70 V
Response time (command via PROFIsafe® → output switches)	≤ 25 ms
Maximum line length	30 m



## Technical Data of Options

### DFS22B fieldbus interface option PROFINET IO with PROFIsafe

#### 4.24 DFS22B fieldbus interface option PROFINET IO with PROFIsafe

##### 4.24.1 Part number

1821 184 4

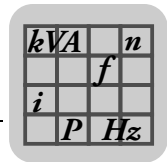
##### 4.24.2 Description

The MOVIDRIVE® MDX61B inverter enables you to use the DFS22B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET IO RT protocol) thanks to its powerful, universal fieldbus interface. In addition to cyclical and acyclical data exchange, safety-oriented communication takes place in conjunction with the DCS21B option. You can use option DFS22B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS<sup>plus</sup>® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

For more detailed information, refer to the "DFS22B Fieldbus Interface PROFINET IO with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

##### 4.24.3 Electronics data

DFS22B option		
	Application protocols	<ul style="list-style-type: none"> <li>• <b>PROFINET IO</b> (Ethernet frames with frame identification 8892<sub>hex</sub>) to control and parameterize the inverter.</li> <li>• <b>HTTP</b> (Hypertext Transfer Protocol) for diagnostics using a Web browser.</li> <li>• <b>SMLP</b> (Simple MOVILINK Protocol), protocol used by MOVITOOLS® MotionStudio.</li> </ul>
	Port numbers used	<ul style="list-style-type: none"> <li>• 300 (SMLP)</li> <li>• 80 (HTTP)</li> </ul>
	Ethernet services	<ul style="list-style-type: none"> <li>• ARP</li> <li>• ICMP (ping)</li> </ul>
	ISO / OSI layer 2	Ethernet II
	Baud rate	100 Mbaud in full duplex mode
	Connection technology	Two RJ45 plug connectors with integrated switch and auto-crossing
	Addressing	4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)
	Manufacturer ID (Vendor ID)	010A <sub>hex</sub>
	Tools for startup	<ul style="list-style-type: none"> <li>• MOVITOOLS® MotionStudio engineering software version 5.40 or higher.</li> <li>• DBG60B keypad</li> </ul>
	F address	The failsafe address is set using the DCS21B option
Firmware status of MOVIDRIVE® MDX61B	Firmware version 824 854 0.17 or higher (→ display with P076)	
Ambient temperature	0 ... 55 °C	



## 4.25 MOVISAFE® DCS21B/31B safety module option

### 4.25.1 Part numbers

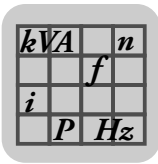
- DCS21B complete with prefabricated cable DAE34B (CAN bus connection between DCS21B X86 and DFS21B X31): 1821 895 4
- DCS21B without prefabricated cable: 1820 392 2
- DCS31B: 1820 958 0

### 4.25.2 Description

The DCS21B and DCS31B options of the MOVISAFE® series are designed as expansion options for functional safety. They are capable of performing various drive monitoring functions, such as standstill, speed, direction of rotation or position monitoring. Additionally, sensor signals can be processed via safe inputs and outputs and MOVIDRIVE® B can be switched off according to stop categories 0, 1, or 2.

To being able to communicate with a higher-level safety controller in a safety-oriented manner, the DCS21B option must be used together with the DFS12B fieldbus interface (PROFIBUS DP-V1) or DFS22B (PROFINET IO). The DCS21B/31B option is plugged into the expansion slot.

For detailed information, refer to the "DCS21B/31B Safety Monitor" manual, which you can order from SEW-EURODRIVE.



#### Overview of pre-fabricated cables

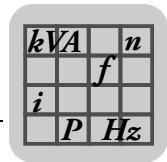
For connecting an encoder to both MOVIDRIVE® B and the DCS21B/31B option, you can order prefabricated cables from SEW-EURODRIVE.

Prefabricated cables allow you to split the encoder signals and to connect the encoder to the options DCS21B/31B **and** DEH11B/21B or DEU21B.

Encoder cables				
Type	DCS units		Part number	Length
DAE31B <sup>1)</sup>	SIN/COS splitting to DEH X15 - DCS X84/X85		1810 053 8	300 mm ± 30 mm (1 ft ± 0.1 ft)
DAE32B <sup>1)</sup>	SSI absolute splitting to X62 - DCS X84/X85		1810 625 0	
DAE33B <sup>1)</sup>	Conversion from D-sub 15-pole Hiperface® encoder to D-sub 9-pole DCS card X84/85		1810 785 0	
DAE34B <sup>2)</sup>	CAN cable (still used for cards with S no. > 1500)		1821 307 3	150 mm ± 30 mm (0.5 ft ± 0.1 ft)
Type	DCS units	Inverter → DCSB X84/85	Part number	Length
DAE40B	SIN/COS splitting Asynchronous	DEH11B → X14 DEU21B → X14 DER11B → X14	1811 601 9	200 mm to 6 m (0.66 ft – 19.7 ft)
DAE41B	SIN/COS splitting Synchronous	DEU21B → X14 DER11B → X14	1811 468 7	
DAE42B	SIN/COS splitting Asynchronous	DEH11B → X15 DEU21B → X15	1811 602 7	
DAE43B	SIN/COS splitting Synchronous	DEH11B → X15 DEU21B → X15	1811 467 9	
DAE44B	Splitting SSI 9-pole	DEH21B → X62	1810 625 0	
DAE45B	Splitting SSI	DEU21B → X15	1811 709 0	
DAE47B	Sin/cos encoder adapter 15-pin to 9-pin	Cable with resistors	1811 604 3	
DAE48B	SSI encoder adapter 9-pin to 9-pin	Cable with 1 x resistor	1811 917 4	
DAE49B	SSI encoder adapter 15-pin to 9-pin	Cable with 1 x resistor	1811 918 2	

1) Can only be used for DCS21B/31B with serial number ≤ 001499

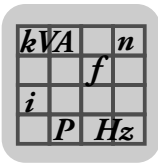
2) CAN bus connection between X86 of option DCS21B and X31 of option DFS12B/22B.



4.25.3 Electronics data

DCS21B/31B option	
<p>DCS21B</p> <p>1455652235</p>	<p>DCS31B</p> <p>1455668107</p>
	<p>LED alarm/error                  LED watchdog                  LED system B                  LED system A</p> <p>X80: Power supply connection</p> <p>X81: Connection binary inputs</p> <p>X82: Connection of binary outputs DO0, DO1</p> <p>X83: Terminal for binary output DO2</p> <p>X84: Connection of incremental, sin/cos or absolute encoder (encoder 1)</p> <p>X85: Connection of incremental, sin/cos or absolute encoder (encoder 2)</p> <p>X86: CAN bus connection (only for DCS21B)</p> <p>X87: Connection for service interface</p>





#### 4.26 MOVI-PLC® basic DHP11B controller option

##### 4.26.1 Part numbers

The MOVI-PLC® *basic* DHP11B controller is available in 3 variants, which differ in the modules available from a range of libraries.

Part number	MOVI-PLC® <i>basic</i> DHP11B unit variant	Description
1820 472 4	DHP11B-T0	MOVI-PLC® <i>basic</i> controller
1820 822 3	DHP11B-T1	Application version I (in addition to version T0, enables additional functions including electronic cam and synchronous operation)
1820 823 1	DHP11B-T2	Application version II (in addition to version T1, enables additional functions including handling)

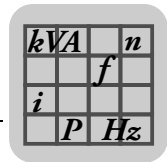
##### 4.26.2 Description

MOVI-PLC® is a series of controllers available from SEW-EURODRIVE. MOVI-PLC® can be programmed by users according to IEC 61131-3 and PLCopen.

The MOVI-PLC® *basic* DHP11B controller is equipped with a PROFIBUS DP-V1 slave interface, two SBus interfaces (CAN), RS485, and eight digital inputs/outputs, five of which are interrupt-capable. MOVI-PLC® *basic* DHP11B can control 12 units at the same time (MOVIDRIVE® B/compact, MOVITRAC® B, MOVIAxis®, MOVIMOT®).

##### 4.26.3 Electronics data

MOVI-PLC® <i>basic</i> DHP11B option		
<p>DHP 11B</p> <p>X31</p> <p>X32</p> <p>X33</p> <p>X30</p> <p>X34</p> <p>T0</p> <p>1455674379</p>	Status displays	LEDs for I/O voltage supply, firmware, program, PROFIBUS, system buses
	Fieldbus	<ul style="list-style-type: none"> <li>PROFIBUS DP and DP-V1 to IEC 61158</li> <li>Automatic baud rate detection from 9.6 kbaud to 12 Mbaud</li> <li>Bus connection implemented with suitable connector</li> <li>GSD file SEW_6007.GSD</li> <li>DP ident. number 6007<sub>hex</sub> (24579<sub>dec</sub>)</li> <li>Maximum 32 process data</li> </ul>
	System bus	<ul style="list-style-type: none"> <li>2 system buses (CAN) to control 12 inverters and CANopen I/O modules</li> <li>CAN layer 2 (SCOM cyclic, acyclic) or via the SEW MOVILINK® protocol</li> <li>Baud rate: 125 kbaud ... 1 Mbaud</li> <li>External bus terminator</li> <li>Address range: 0 ... 127</li> </ul>
	Engineering	Via RS485, PROFIBUS and the system buses
	Panel operation	Via RS485 and CAN 2 (in preparation)
	Connection technology	<ul style="list-style-type: none"> <li>PROFIBUS: 9-pole D-sub connector according to IEC 61158</li> <li>System buses and I/Os: plug-in terminals</li> <li>RS485: RJ10</li> </ul>
	Binary inputs/outputs	8 I/Os to IEC 61131-2; can be configured as inputs or outputs. Five are interrupt-capable
	Memory	<ul style="list-style-type: none"> <li>Program: 512 kB</li> <li>Data: 128 kB</li> <li>Retain: 24 kB</li> </ul>
	Tools for startup	MOVITOOLS® MotionStudio with integrated PLC Editor (Programming languages IL, ST, LD, FBD, CFC, SFC; libraries to optimize control of the inverters)



## 4.27 OST11B option

### 4.27.1 Part number


1820 544 5

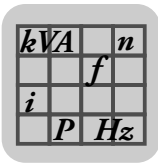
### 4.27.2 Description

Option OST11B provides an additional RS485 interface (COM2) for MOVI-PLC<sup>®</sup> *basic* DHP11B in terminal design or as an engineering interface. Use option OST11B only in conjunction with MOVI-PLC<sup>®</sup> *basic* DHP11B.

When the MOVI-PLC<sup>®</sup> *basic* DHP11B option is plugged into the fieldbus slot, option OST11B is plugged into the encoder slot. When the MOVI-PLC<sup>®</sup> *basic* DHP11B option is plugged into the expansion slot, option OST11B is installed in the expansion slot above the option MOVI-PLC<sup>®</sup> *basic* DHP11B.

### 4.27.3 Electronics data

OST11B option		
 <p>1455757707</p>	RS485 interface COM2 X35:1 ... X35:4 X36:1 ... X36:3	<ul style="list-style-type: none"> <li>For connection of an Engineering PC, a DOP11A/B operator terminal or a gearmotor with integrated frequency inverter MOVIMOT<sup>®</sup></li> <li>I/O standard, 57.6 kBd, max. total cable length 200 m, integrated dynamic terminating resistor permanently installed</li> </ul>
	Potential level	COM2 is isolated from the MOVI-PLC <sup>®</sup> <i>basic</i> DHP11B controller.



#### 4.28 DHE/DHF/DHR21 and DHE/DHF/DHR41B controller option

Three types of DH.21B/41B controllers are available, which differ in the fieldbus interfaces:

DH.21B/41B type	Fieldbus interfaces
DHE21B/41B	Ethernet TCP/IP, UDP
DHF21B/41B	Ethernet TCP/IP, UDP, PROFIBUS DP-V1, DeviceNet
DHR21B/41B	Ethernet TCP/IP, UDP, PROFINET, EtherNet/IP, ModbusTCP/IP

##### 4.28.1 Description

*Freely programmable motion and logic controller (MOVI-PLC®)*

The controller can be operated as freely programmable motion and logic controller MOVI-PLC® when using SD cards of the type OMH41B. MOVI-PLC® is a series of programmable motion and logic controllers. It allows drive solutions, logic processes and sequence controls to be automated simply and efficiently using IEC 61131-3 compliant programming languages.

- MOVI-PLC® is a **universal** solution because it is able to control the entire portfolio of SEW inverters and offers a simple upgrade to a more powerful MOVI-PLC® version due to the fact that all possible programs can be executed.
- MOVI-PLC® is **scalable** due to several different hardware platforms (standard, advanced, etc.) and modular software concepts (libraries for numerous applications).
- MOVI-PLC® is **powerful** due to extensive technologies (such as electronic cam, synchronous operation) and the control of demanding applications (such as material handling).

*MOVI-PLC® standard performance class*

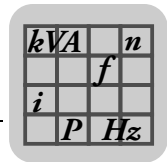
- DH.21B controllers enable coordinated single axis movements and integration of external inputs/outputs as well as Drive Operator Panels (DOP). The DH.21B.. option is therefore suitable for use as a module controller or stand-alone controller for machines of medium complexity.

*MOVI-PLC® advanced performance class*

- The DH.41B controller is characterized by a greater variety of interfaces and a higher performance level, which allows complex calculations and interpolated movements, for example. The DH.41B option is therefore suitable for the automation of cells and machines. The integrated Ethernet interface enables direct connection of the DH.41B controller to the control level.

*Configurable application controller (CCU)*

The controller can be used as configurable application controller (CCU) by using SD cards of the type OMC41B. Only standardized application modules created by SEW-EURODRIVE can be executed. The application modules can be started up quickly and conveniently by graphical configuration. A defined process data interface provides this functionality to a higher-level controller. A process data monitor with control mode is available to support the startup procedure.



*CCU standard performance class*

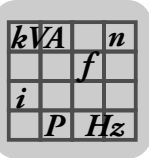
The "CCU standard" performance class is intended for application modules with single-axis functionality and medium response times. A maximum of 16 axes can be connected to a configurable application controller. The following application modules are available and can be started up using the *AxisConfigurator* tool.

- Speed specification
- Cam positioning
- Bus positioning with 6 process data
- Single-axis universal module

*CCU advanced performance class*

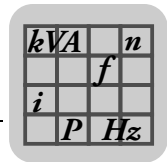
The "CCU advanced" performance class is intended for application modules with single-axis and multi-axis functionality and fast response times. The following application modules are available:

- Single-axis functionality:
  - Speed specification
  - Cam positioning
  - Bus positioning with 6 process data words
  - Single-axis universal module
- Multi-axis functionality:
  - SyncCrane
  - Energy-efficient SRU

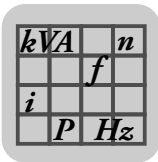


#### 4.28.2 DHE21B/41B electronics data

DHE21B/41B option	
	<b>Part number</b> <ul style="list-style-type: none"> <li>DHE21B option: 1823 607 3</li> <li>DHE41B option: 1821 160 7</li> </ul>
	<b>Electrical supply</b> <p>The following applies to all units (MDX, MX, compact controller):</p> <ul style="list-style-type: none"> <li>You have to supply the binary inputs and outputs separately with DC 24 V (X31:1/2). Installed in MOVIDRIVE® MDX61B:</li> <li>Power consumption: <math>P_{\max} = 6.8 \text{ W}</math></li> <li>Option DHE21B/41B is supplied by MOVIDRIVE® MDX61B via backplane connector.</li> <li>In the case of disconnection from the power supply, continued function is guaranteed by the DC 24 backup mode (external DC 24 V supply to X10:9/10 of MOVIDRIVE® MDX61B required).</li> </ul> <p>Installed in the MOVIAXIS® master module (MXM):</p> <ul style="list-style-type: none"> <li>Power consumption: <math>P_{\max} = 8.5 \text{ W}</math></li> <li><math>U = \text{DC } 24 \text{ V } (-15\% / +20\%)</math></li> <li><math>I_{\max} = 600 \text{ mA}</math></li> <li>Option DHE21B/41B can be supplied from the MOVIAXIS® switched-mode power supply (MXS) or from an external voltage source. To do so, connect X5 between the individual units.</li> <li>If the DHE21B/41B option is supplied with DC 24 V from the MOVIAXIS® switched-mode power supply, then the function of the DHE21B/41B option is ensured when power supply is switched off (external DC 24 V supply at X16 of the MOVIAXIS® switched-mode power supply).</li> </ul>
	<b>Potential levels</b> <p>Option DHE21B/41B has the following potential levels:</p> <ul style="list-style-type: none"> <li>Potential control / CAN 1 / COM1</li> <li>Potential COM2</li> <li>Potential binary inputs and outputs</li> <li>Potential system bus CAN 2</li> </ul>
	<b>Memory</b> <ul style="list-style-type: none"> <li>Retain data: 32 kB</li> <li>System variables (retain): 8 kB</li> </ul> <p>Program memory:</p> <ul style="list-style-type: none"> <li>DHE21B: 2 MB (for application program, incl. IEC libraries)</li> <li>DHE41B: 6 MB (for user program, incl. IEC libraries)</li> </ul> <p>Data memory:</p> <ul style="list-style-type: none"> <li>DHE21B: 4 MB (for IEC application)</li> <li>DHE41B: 8 MB (for IEC application)</li> </ul>



DHE21B/41B option	
<p>CAN 2 system bus X32:1 ... X32:3</p> <p>CAN 1 system bus X33:1 ... X33:3</p>	<ul style="list-style-type: none"> <li>System bus CAN 1 and CAN 2 to CAN specification 2.0, parts A and B, transmission technology to ISO 11898</li> <li>The CAN 2 system bus is electrically isolated</li> <li>Max. 64 stations per CAN system bus</li> <li>Max. 64 SCOM transmit objects / 32 receive objects per CAN system bus</li> <li>Address range 0 – 127</li> <li>Baud rate: 125 kBd - 1 MBd</li> <li>If X32 or X33 is the bus terminator, you must connect a terminating resistor (120 Ω) externally.</li> <li>You can remove connector X32 or X33 without interrupting the system bus.</li> <li>The system bus can be run in layer 2 (SCOM cyclic, acyclic) or in accordance with the SEW MOVILINK® protocol.</li> </ul>
Ethernet 1 X36	System bus, reserved
Ethernet 2 X37	<ul style="list-style-type: none"> <li>TCP/IP</li> <li>Connection options: Engineering PC, other controller, Intranet</li> </ul>
USB	USB 1.0 for connecting an engineering PC (in preparation)
RS485 interface COM1/2 X34:1 ... X34:4	<ul style="list-style-type: none"> <li>For connection of a DOP11A/B operator terminal or a gearmotor with integrated MOVIMOT® frequency inverter</li> <li>I/O standard, 57.6 / 9.6 kBd, max. total cable length 200 m</li> <li>Dynamic terminating resistor with fixed installation</li> </ul>
SD memory card	<ul style="list-style-type: none"> <li>PC-readable</li> <li>Includes: <ul style="list-style-type: none"> <li>Firmware</li> <li>IEC program</li> <li>Data</li> </ul> </li> <li>At least 128 MB memory</li> <li>Designs, part numbers, and functions: <ul style="list-style-type: none"> <li>OMH41B-T0: 1821 204 2 Functions: Handling of speed control, positioning, e.g. with the MPLCMotion_MDX library</li> <li>OMH41B-T1: 1821 205 0 Functions: Additional: cam disk, electronic gear, cam controller, for example</li> <li>OMH41B-T2: 1821 206 9 Functions: Additional: material handling, for example</li> </ul> </li> </ul>
Engineering	<p>Engineering takes place via one of the following interfaces:</p> <ul style="list-style-type: none"> <li>Ethernet 2 (X37)</li> <li>In preparation: USB (X35)</li> </ul> <p>Engineering for all SEW components connected to the MOVI-PLC® <i>advanced</i> DHE41B control card can be performed using the MOVI-PLC® <i>advanced</i> DHE41B control card. Engineering of the MOVI-PLC® <i>advanced</i> DHE41B controller cannot be performed via the inverters.</p> <ul style="list-style-type: none"> <li>MOVITOOLS® MotionStudio engineering software with PLC Editor</li> </ul>



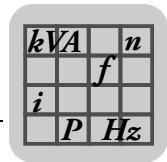
## Technical Data of Options

### DHE/DHF/DHR21 and DHE/DHF/DHR41B controller option

#### 4.28.3 DHF21B/41B electronics data

	<b>INFORMATION</b>
	For connections identical with DHE41B, refer to the "DHE41B electronics data" section.

DHF21B/41B option		
	Part number	<ul style="list-style-type: none"> <li>DHF21B: 1823 608 1</li> <li>DHF41B: 1821 161 5</li> </ul>
	Electrical supply	Installed in MOVIDRIVE® MDX61B: <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 8 \text{ W}</math></li> </ul> Installed in the MOVIAXIS® master module (MXM): <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 10 \text{ W}</math></li> </ul>
	Potential levels	Option DHF21B/41B has the following potential levels: <ul style="list-style-type: none"> <li>Potential control / CAN 1 / COM1</li> <li>Potential COM2</li> <li>Potential binary inputs and outputs</li> <li>Potential system bus CAN 2</li> <li>Potential PROFIBUS</li> </ul>
	PROFIBUS connection X30P:1 – X30P:9	Via 9-pin D-sub connector, pin assignment to IEC 61158
	Bus termination	Not integrated. Implement bus termination with suitable PROFIBUS connector with switchable terminating resistors.
	Automatic baud rate detection	9.6 kBd – 12 MBd
DeviceNet connection X30D:1 – X30D:5	<ul style="list-style-type: none"> <li>2-wire bus and 2-wire supply voltage DC 24 V with 5-pole Phoenix terminal</li> <li>Pin assignment according to DeviceNet specification</li> </ul>	

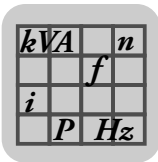


4.28.4 DHR21B/41B electronics data

	<b>INFORMATION</b>
	Connections identical with those of the DHE21B/41B and DHF21B/41B options are described in the chapters "DHE21B/41B option" and "DHF21B/41B option".

DHR21B/41B option									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Part number</b></td> <td> <ul style="list-style-type: none"> <li>DHR21B: 1823 610 3</li> <li>DHR41B: 1821 632 3</li> </ul> </td> </tr> <tr> <td><b>Electrical supply</b></td> <td>                     Installed in MOVIDRIVE® MDX61B:  <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 9.5\text{ W}</math></li> </ul>                     Installed in the MOVIAXIS® master module (MXM):  <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 12\text{ W}</math></li> </ul> </td> </tr> <tr> <td><b>Ethernet connection X30-1, X30-2</b></td> <td>Via RJ45 socket, pin assignment according to IEC 11801 Integrated Ethernet switch with autocrossing and autonegotiation functionality.</td> </tr> <tr> <td><b>Engineering</b></td> <td>Additional engineering access via PROFINET, EtherNet/IP and Modbus TCP/IP interface (X30:1/2)</td> </tr> </table>	<b>Part number</b>	<ul style="list-style-type: none"> <li>DHR21B: 1823 610 3</li> <li>DHR41B: 1821 632 3</li> </ul>	<b>Electrical supply</b>	Installed in MOVIDRIVE® MDX61B: <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 9.5\text{ W}</math></li> </ul> Installed in the MOVIAXIS® master module (MXM): <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 12\text{ W}</math></li> </ul>	<b>Ethernet connection X30-1, X30-2</b>	Via RJ45 socket, pin assignment according to IEC 11801 Integrated Ethernet switch with autocrossing and autonegotiation functionality.	<b>Engineering</b>	Additional engineering access via PROFINET, EtherNet/IP and Modbus TCP/IP interface (X30:1/2)
	<b>Part number</b>	<ul style="list-style-type: none"> <li>DHR21B: 1823 610 3</li> <li>DHR41B: 1821 632 3</li> </ul>							
	<b>Electrical supply</b>	Installed in MOVIDRIVE® MDX61B: <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 9.5\text{ W}</math></li> </ul> Installed in the MOVIAXIS® master module (MXM): <ul style="list-style-type: none"> <li>Power consumption: <math>P_{max} = 12\text{ W}</math></li> </ul>							
	<b>Ethernet connection X30-1, X30-2</b>	Via RJ45 socket, pin assignment according to IEC 11801 Integrated Ethernet switch with autocrossing and autonegotiation functionality.							
<b>Engineering</b>	Additional engineering access via PROFINET, EtherNet/IP and Modbus TCP/IP interface (X30:1/2)								
2859931531									





#### 4.29 BST safety-related brake module option

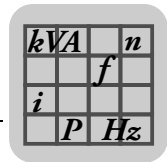
##### 4.29.1 Part numbers

The safety-related brake module is available in three variants:

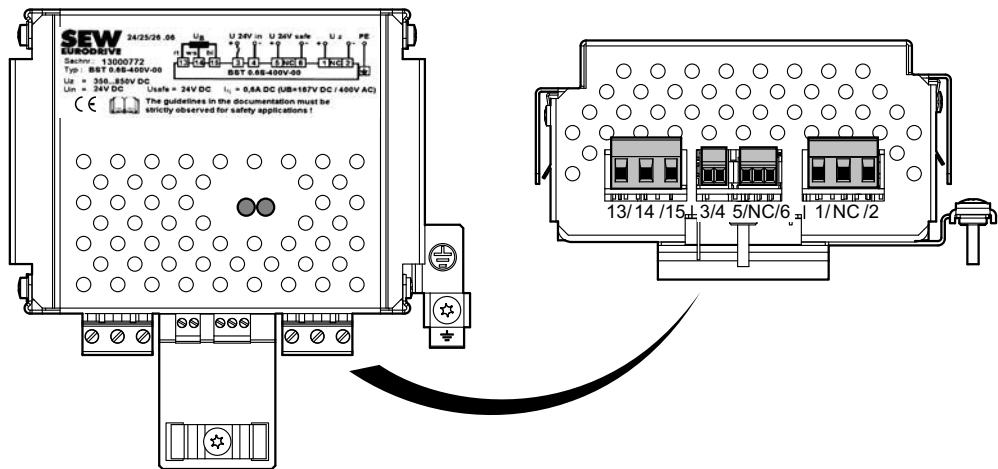
Type designation	Part number	Approved SEW disk brakes
BST 0.6S-460V-00	0 829 971 4	All brake coils with a brake coil voltage of AC 460 V and a coil power $\leq 120$ W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.
BST 0.7S-400V-00	1 300 077 2	All brake coils with a brake coil voltage of AC 400 V and a coil power $\leq 120$ W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.
BST 1.2S-230V-00	1 300 133 7	All brake coils with a brake coil voltage of AC 230 V and a coil power $\leq 120$ W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.

##### 4.29.2 Description

- The safety-relevant BST brake module enables the connection of an external fail-safe safety switching device/safety controller. The safety switching device disconnects the safe control voltage  $V_{24\text{ V safe}}$  when a connected control device (e.g. emergency stop device) is activated.
- Disconnecting the safe control voltage  $V_{24\text{ V safe}}$  means the connected brake is disconnected from the power supply. The power supply required for releasing the connected brake is interrupted safely.
- Instead of separating the brake control galvanically from the power supply using contactors or switches, the disconnection procedure described here prevents the power semiconductors in the safety-relevant BST brake module from being activated, in this way ensuring safe disconnection. This means that all connected brakes are de-energized although the supply voltage is still present at the safety-relevant BST brake module.



4.29.3 Electronics data



Terminal		Function
1	+U <sub>z</sub>	DC link voltage input
2	-U <sub>z</sub>	
5	SVI24	Safety-relevant control voltage V <sub>24 V safe</sub> input Reference potential for safety-relevant control voltage V <sub>24 V safe</sub>
6	SOV24	
3	DBI24	Functional control voltage V <sub>24 V in</sub> input: Reference potential for functional control voltage V <sub>24 V in</sub>
4	DGND	
13	RD	Brake output
14	WH	
15	BU	
⏏		Protective grounding