



Politechnika Świętokrzyska

WYDZIAŁ MECHATRONIKI I BUDOWY MASZYN



## PROJEKT BADAWCZY POIR. 04.01.02-00-0045/18.

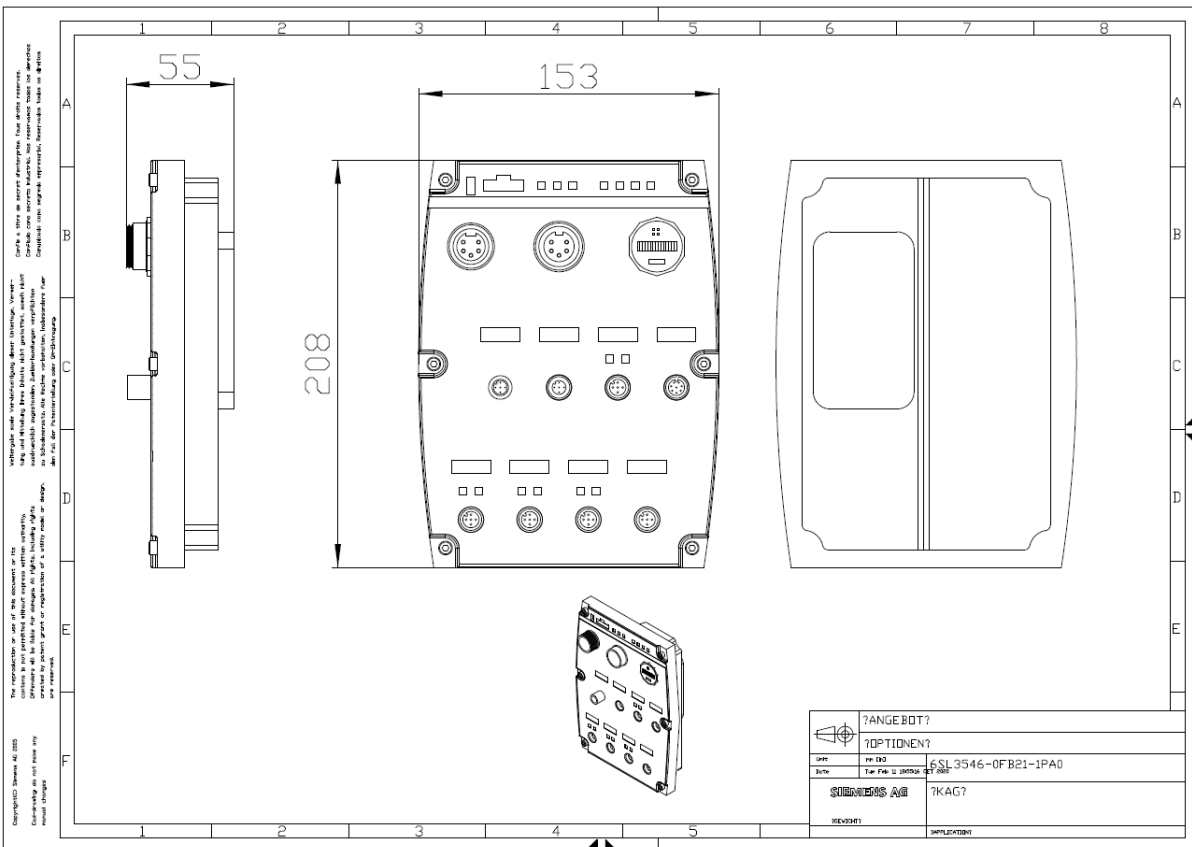
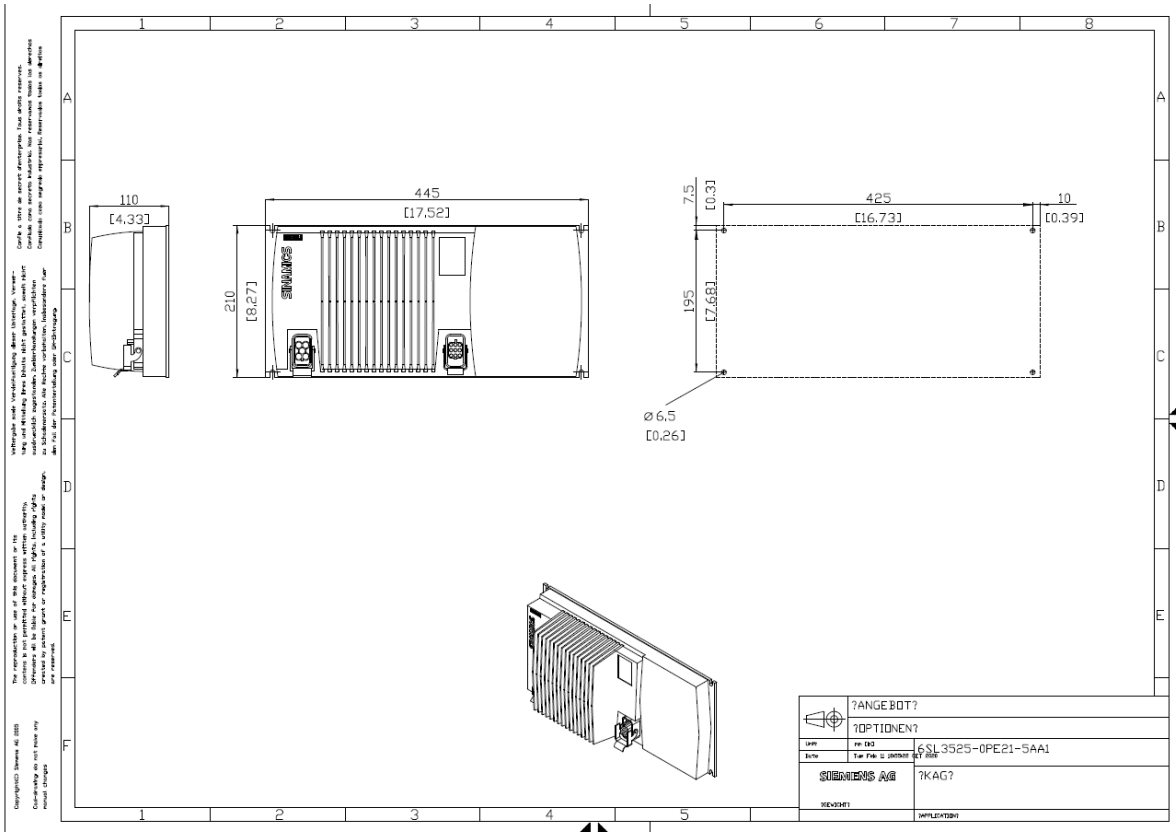
**"Opracowanie i demonstracja zrobotyzowanego systemu murarsko-  
tynkarskiego (ZSMT) do zastosowania w przemyśle budowlanym"  
akronim ZSMT**

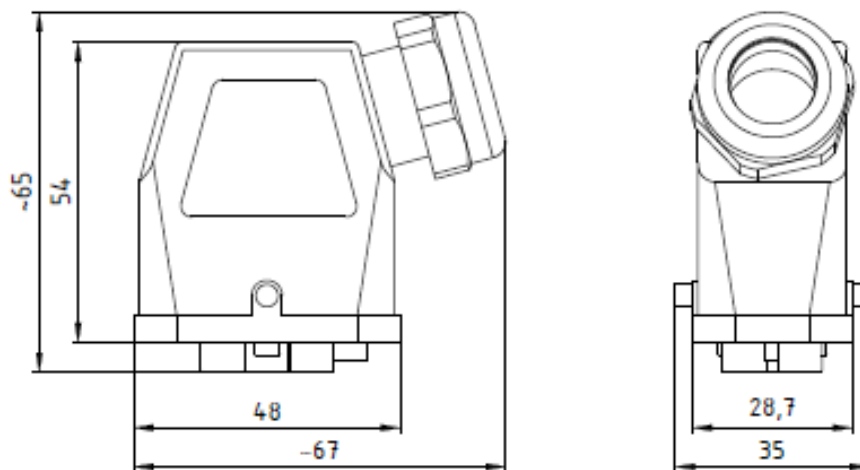
### Zakres obowiązków

- 1) Wykonanie sterowników do sterowania zrobotyzowanego systemu murarskiego (ZSM)

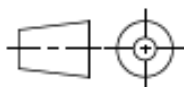
Wykonawca projektu  
Karol Ptaszyński

Kielce, 2019-2021 r.





Alle Bemessungswerte sind in Millimeter (mm) angegeben  
All dimensions are in millimeters (mm)



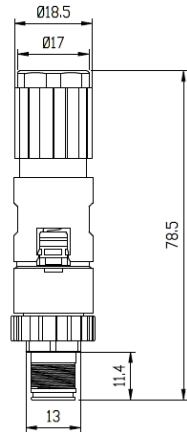
<b>SIEMENS</b>		3RK1911-2BE50	
Date:	Name:	Format/Size: DIN A4	Maßstab/Scale: 1:1



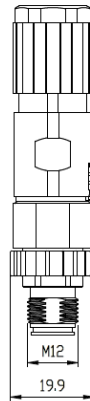
Unten / Bottom



Vorne / Front



Links / Left



Alle Bemessungswerte sind in Millimeter (mm) angegeben.  
All dimensions are in millimeters (mm).



SIEMENS

6GK19010DB206AA0\_001

Format / Size: DIN A4

Maßstab / Scale: 1:1

# SIEMENS

## Data sheet for SINAMICS G120D

MLFB-Ordering data

6SL3525-0PE21-5AA1



Figure similar

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

Rated data		General tech. specifications	
<b>Input</b>		Power factor $\lambda$	0.95
Number of phases	3 AC	Efficiency $\eta$	0.97
Line voltage	380 ... 500 V $\pm 10\%$	Power loss	0.06 kW
Line frequency	47 ... 63 Hz	<b>Ambient conditions</b>	
Rated current	3.80 A	Cooling	Convection
<b>Output</b>		Cooling air requirement	0.005 m <sup>3</sup> /s
Number of phases	3 AC	Installation altitude	1000 m
Rated voltage	400 V	<b>Ambient temperature</b>	
Rated power	1.50 kW	Operation	-10 ... 55 °C (14 ... 131 °F)
Rated current (IN)	4.10 A	Transport	-40 ... 70 °C (-40 ... 158 °F)
Max. output current	8.20 A	Storage	-40 ... 70 °C (-40 ... 158 °F)
Pulse frequency	4 kHz	<b>Relative humidity</b>	
Output frequency for vector control	0 ... 200 Hz	Max. operation	95 % at 40°C (104°F); RH, condensation not permitted
Output frequency for V/f control	0 ... 650 Hz		
In firmware V4.7 and higher, due to legal requirements, the maximum output frequency is restricted to 550 Hz.			

# SIEMENS

## Data sheet for SINAMICS G120D

MLFB-Ordering data

6SL3546-0FB21-1PA0

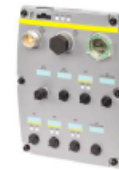


Figure similar

Client order no. :

Order no. :

Offer no. :

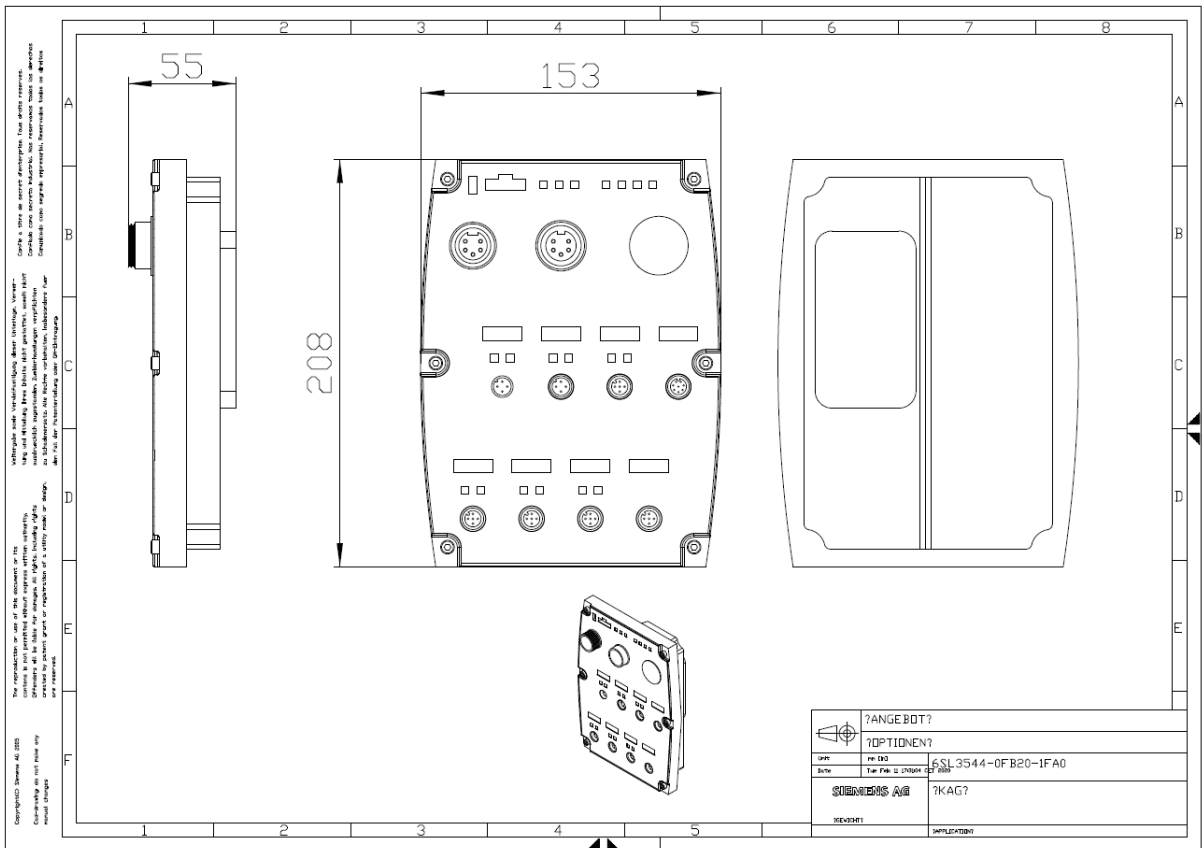
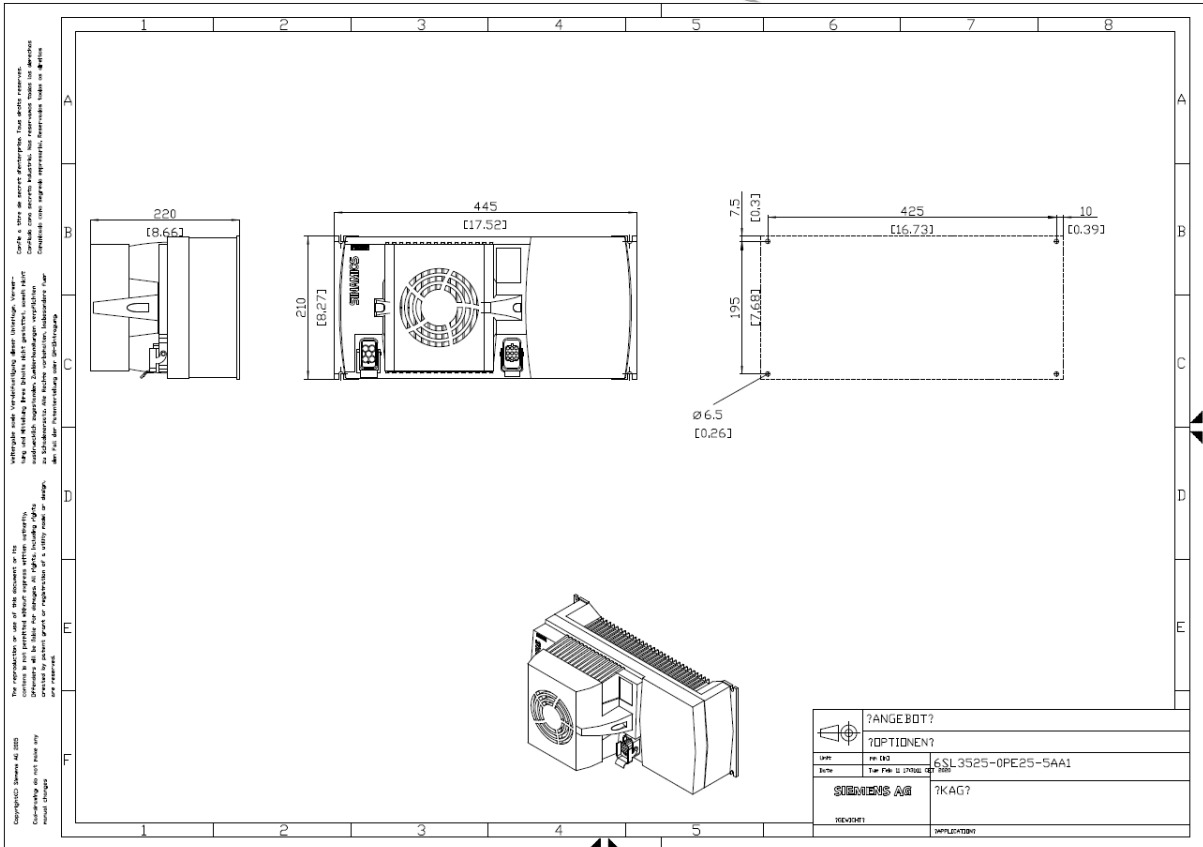
Remarks :

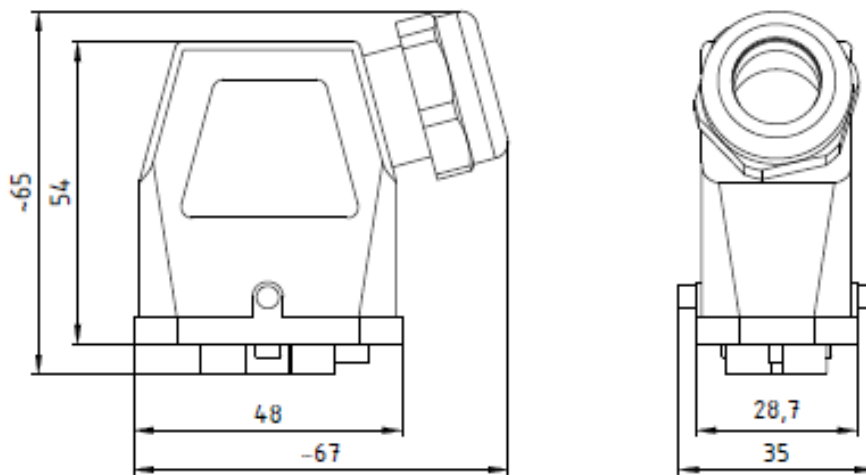
Item no. :

Consignment no. :

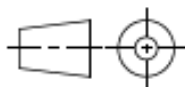
Project :

Electrical data		Ambient conditions	
<b>Operating voltage via</b>		<b>Ambient temperature</b>	
External power supply	DC 24 V	Operation	0 ... 55 °C (32 ... 131 °F)
<b>Inputs / outputs</b>		Storage	-40 ... 70 °C (-40 ... 158 °F)
<b>Standard digital inputs</b>		<b>Relative humidity</b>	
Number	6 (non-isolated)	Max. operation	95 % at 40°C (104°F); RH, condensation not permitted
<b>Fail-safe digital inputs</b>		<b>Communication</b>	
Number	3 (optionally parameterizable as safe inputs)	Communication	PROFIBUS DP, PROFIsave
<b>Digital outputs</b>		<b>Closed-loop control techniques</b>	
Number	2 (0.5 A, fed through switched 24 V DC, isolated)	V/f linear / square-law / parameterizable	Yes
<b>Fail-safe digital outputs</b>		V/f with flux current control (FCC)	Yes
Number	1 (optionally parameterizable as safe digital output)	Sensorless vector control	Yes
		<b>Technology</b>	
		Positioning functionality	Yes
		Design of the interface	M12 plug
		<b>Mechanical data</b>	
		Degree of protection	IP65 / UL type 3
		Net weight	0.8 kg (1.77 lb)
		Width	153 mm (6.02 in)
		Height	208 mm (8.19 in)
		Depth	55 mm (2.17 in)
		<b>Standards</b>	
		Compliance with standards	UL 508C (UL list number E121068), cUL, CE, RCM
		CE marking	Low-voltage directive 2014/35/EC





Alle Bemessungswerte sind in Millimeter (mm) angegeben  
All dimensions are in millimeters (mm)



<b>SIEMENS</b>		3RK1911-2BE50	
Date:	Name:	Format/Size: DIN A4	Masstab/Scale: 1:1



# SIEMENS

## Data sheet for SINAMICS G120D

MLFB-Ordering data

6SL3525-0PE25-5AA1



Figure similar

Client order no. :  
Order no. :  
Offer no. :  
Remarks :

Item no. :  
Consignment no. :  
Project :

Rated data		General tech. specifications	
<b>Input</b>		Power factor $\lambda$	0.95
Number of phases	3 AC	Efficiency $\eta$	0.97
Line voltage	380 ... 500 V $\pm 10\%$	Sound pressure level (1m)	74.5 dB
Line frequency	47 ... 63 Hz	Power loss	0.21 kW
Rated current	12.20 A	<b>Ambient conditions</b>	
<b>Output</b>		Cooling	demand-driven air cooling via integrated fan
Number of phases	3 AC	Cooling air requirement	0.018 m <sup>3</sup> /s
Rated voltage	400 V	Installation altitude	1000 m
Rated power	5.50 kW	<b>Ambient temperature</b>	
Rated current (IN)	13.20 A	Operation	-10 ... 55 °C (14 ... 131 °F)
Max. output current	26.40 A	Transport	-40 ... 70 °C (-40 ... 158 °F)
Pulse frequency	4 kHz	Storage	-40 ... 70 °C (-40 ... 158 °F)
Output frequency for vector control	0 ... 200 Hz	<b>Relative humidity</b>	
Output frequency for V/f control	0 ... 650 Hz	Max. operation	95 % at 40°C (104°F); RH, condensation not permitted
<p>In firmware V4.7 and higher, due to legal requirements, the maximum output frequency is restricted to 550 Hz.</p>			

# SIEMENS

## Data sheet for SINAMICS G120D



Figure 10/11a

MLFB-Ordering|data

6SL3544-0FB20-1FA0

Client order no. :  
Order no. :  
Offer no. :  
Remarks :

Item no. :  
Consignment no. :  
Project :

Electrical data	Ambient conditions										
<b>Operating voltage via</b> <table border="1"> <tr> <td>External power supply</td> <td>DC 24 V</td> </tr> </table>	External power supply	DC 24 V	<b>Ambient temperature</b> <table border="1"> <tr> <td>Operation</td> <td>-10 ... 50 °C (14 ... 122 °F)</td> </tr> <tr> <td>Storage</td> <td>-40 ... 70 °C (-40 ... 158 °F)</td> </tr> </table>	Operation	-10 ... 50 °C (14 ... 122 °F)	Storage	-40 ... 70 °C (-40 ... 158 °F)				
External power supply	DC 24 V										
Operation	-10 ... 50 °C (14 ... 122 °F)										
Storage	-40 ... 70 °C (-40 ... 158 °F)										
Inputs / outputs	Relative humidity										
<b>Standard digital inputs</b> <table border="1"> <tr> <td>Number</td> <td>6 (non-isolated)</td> </tr> </table>	Number	6 (non-isolated)	<table border="1"> <tr> <td>Max. operation</td> <td>95 % at 40°C (104°F); RH, condensation not permitted</td> </tr> </table>	Max. operation	95 % at 40°C (104°F); RH, condensation not permitted						
Number	6 (non-isolated)										
Max. operation	95 % at 40°C (104°F); RH, condensation not permitted										
<b>Fail-safe digital inputs</b> <table border="1"> <tr> <td>Number</td> <td>1 (optionally parameterizable as safe inputs)</td> </tr> </table>	Number	1 (optionally parameterizable as safe inputs)	Communication								
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<b>Digital outputs</b> <table border="1"> <tr> <td>Number</td> <td>2 (0.5 A, fed through switched 24 V DC, isolated)</td> </tr> </table>	Number	2 (0.5 A, fed through switched 24 V DC, isolated)	<table border="1"> <tr> <td>Communication</td> <td>PROFINET / EtherNet/IP</td> </tr> </table>	Communication	PROFINET / EtherNet/IP						
Number	2 (0.5 A, fed through switched 24 V DC, isolated)										
Communication	PROFINET / EtherNet/IP										
<b>Analog inputs</b> <table border="1"> <tr> <td>Number</td> <td>2 (0 ... 10 V)</td> </tr> </table>	Number	2 (0 ... 10 V)	Closed-loop control techniques								
Number	2 (0 ... 10 V)										
	<table border="1"> <tr> <td>V/f linear / square-law / parameterizable</td> <td>Yes</td> </tr> <tr> <td>V/f with flux current control (FCC)</td> <td>Yes</td> </tr> <tr> <td>Sensorless vector control</td> <td>Yes</td> </tr> </table>	V/f linear / square-law / parameterizable	Yes	V/f with flux current control (FCC)	Yes	Sensorless vector control	Yes				
V/f linear / square-law / parameterizable	Yes										
V/f with flux current control (FCC)	Yes										
Sensorless vector control	Yes										
	Technology										
	<table border="1"> <tr> <td>Positioning functionality</td> <td>No</td> </tr> <tr> <td>Design of the interface</td> <td>M12 plug</td> </tr> </table>	Positioning functionality	No	Design of the interface	M12 plug						
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Design of the interface	M12 plug										
	Mechanical data										
	<table border="1"> <tr> <td>Degree of protection</td> <td>IP65 / UL type 3</td> </tr> <tr> <td>Net weight</td> <td>0.8 kg (1.77 lb)</td> </tr> <tr> <td>Width</td> <td>153 mm (6.02 in)</td> </tr> <tr> <td>Height</td> <td>208 mm (8.19 in)</td> </tr> <tr> <td>Depth</td> <td>55 mm (2.17 in)</td> </tr> </table>	Degree of protection	IP65 / UL type 3	Net weight	0.8 kg (1.77 lb)	Width	153 mm (6.02 in)	Height	208 mm (8.19 in)	Depth	55 mm (2.17 in)
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Height	208 mm (8.19 in)										
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	Standards										
	<table border="1"> <tr> <td>Compliance with standards</td> <td>UL 508C (UL list number E121068), cUL, CE, RCM</td> </tr> <tr> <td>CE marking</td> <td>Low-voltage directive 2014/35/EC</td> </tr> </table>	Compliance with standards	UL 508C (UL list number E121068), cUL, CE, RCM	CE marking	Low-voltage directive 2014/35/EC						
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CE marking	Low-voltage directive 2014/35/EC										