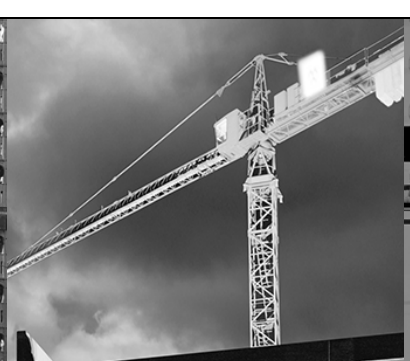
SEW EURODRIVE

Data Sheet

Encoder and Encoder Cable Comparison
MOVIDRIVE® MDX 61B
DT..- / DV.. Motors vs. DR.. Motors

Edition 02/2010

16900413 / EN




KKFU 144794 3
42G1

1 Encoder Comparison – DT../DV.. Motors vs. DR.. Motors

The following table shows the encoders of the DT../DV.. motors in comparison to the encoders of the DR.. motors:

Encoder type	Electrical design	DT/DV motor reference encoder	Size DT.. / DV..	Part number	New encoder	DR.. size	Part no. without cover	Part no. with cover
Incremental encoder	sin/cos	ES1S	71-100	0 186 049 6	ES7S	71-132	1 361 656 0	1 361 595 5
		ES2S	112-132S	0 186 050 X	ES7S	71-132	1 361 656 0	1 361 595 5
		EV1S	71-132ML	0 185 707 X	ES7S	71-132	1 361 656 0	1 361 595 5
		EV1S	160-225	0 185 707 X	EG7S	160-225	1 362 186 6	1 361 884 9
		EV2S	71-132ML	0 187 927 8	ES7S	71-132	1 361 656 0	1 361 595 5
		EV2S	160-225	0 187 927 8	EG7S	160-225	1 362 186 6	1 361 884 9
Incremental encoder	HTL	ES1C	71-100	0 185 866 1	ES7C	71-132	1 362 157 2	1 362 190 4
		ES2C	112-132S	0 185 867 X	ES7C	71-132	1 362 157 2	1 362 190 4
		EV1C	71-132ML	0 185 599 9	ES7C	71-132	1 362 157 2	1 362 190 4
		EV1C	160-225	0 185 599 9	EG7C	160-225	1 362 207 2	1 362 162 9
		EV2C	71-132ML	0 187 924 3	ES7C	71-132	1 362 157 2	1 362 190 4
		EV2C	160-225	0 187 924 3	EG7C	160-225	1 362 207 2	1 362 162 9
Incremental encoder DC 5 V voltage supply	TTL	ES1T[1)]	71-100	0 185 248 5	ES7C	71-132	1 362 157 2	1 362 190 4
		ES2T[1)]	112-132S	0 185 460 7	ES7C	71-132	1 362 157 2	1 362 190 4
		EV1T[1)]	71-132ML	0 185 708 8	ES7C	71-132	1 362 157 2	1 362 190 4
		EV1T[1)]	160-225	0 185 708 8	EG7C	160-225	1 362 207 2	1 362 162 9
		EV2T[1)]	71-132ML	0 187 928 6	ES7C	71-132	1 362 157 2	1 362 190 4
		EV2T[1)]	160-225	0 187 928 6	EG7C	160-225	1 362 207 2	1 362 162 9
Incremental encoder DC 24 V voltage supply	TTL	ES1R	71-100	0 186 060 7	ES7R	71-132	1 362 158 0	1 362 191 2
		ES2R	112-132S	0 186 061 5	ES7R	71-132	1 362 158 0	1 362 191 2
		EV1R	71-132ML	0 185 711 8	ES7R	71-132	1 362 158 0	1 362 191 2
		EV1R	160-225	0 185 711 8	EG7R	160-225	1 362 209 9	1 362 163 7
		EV2R	71-132ML	0 187 925 1	ES7R	71-132	1 362 158 0	1 362 191 2
		EV2R	160-225	0 187 925 1	EG7R	160-225	1 362 209 9	1 362 163 7
Absolute encoder	SSI	AV1Y	71-132ML	0 198 889 1	AS7Y[2)]	71-132	1 362 159 9	1 362 192 0
		AV1Y	160-225	0 198 889 1	AG7Y[2)]	160-225	1 362 210 2	1 362 164 5
Absolute encoder	Hiperface®				W encoder			
		AS3H	71-100	0 188 000 4	AS7W [2) 3)]	71-132	1 362 160 2	1 362 193 9
		AS4H	112-132S	0 188 001 2	AS7W [2) 3)]	71-132	1 362 160 2	1 362 193 9
		AV1H	71-132ML	0 187 189 7	AS7W [2) 3)]	71-132	1 362 160 2	1 362 193 9
		AV1H	160-225	0 187 189 7	AG7W [2) 3)]	160-225	1 362 212 9	1 361 166 1
		AV6H	71-132ML	0 594 513 5	AS7W [2) 3) 4)]	71-132	1 362 160 2	1 362 193 9
		AV6H	160-225	0 594 513 5	AG7W [2) 3) 4)]	160-225	1 362 212 9	1 361 166 1
					Built-in encoder			
Proximity sensor	HTL	NV11/21	71-132S	Selection via Configurator	EI71	71-132	Selection via Configurator	Selection via Configurator
		NV12/22	71-132S		EI72	71-132		
		NV16/26	71-132S		EI76	71-132		
		–	–	–	EI7C	71-132		

1) **Notice:** In case of DC 5 V power supply, a DC 5 V signal level is issued. In case of DC 12 V power supply, a DC 12 V signal level is issued. This could damage the TTL input of the encoder evaluation. When employing the E.7C as E..T encoder, you must use a cable with a sense line.

2) Note that you need the latest unit firmware and the current version of MOVITOOLS® MotionStudio to startup and evaluate the encoders A.7W and A.7Y.

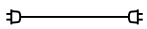
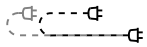
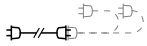
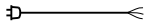
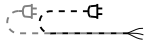
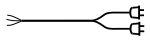
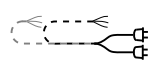
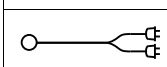
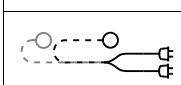
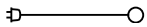
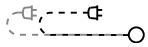
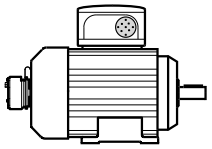
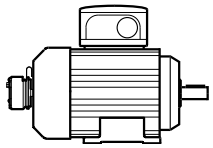
3) The A.7W encoders have a different identification compared to A.7H, and can be started up once the Hiperface® interface in the inverter has been adapted. This adaptation has been carried out for MOVIDRIVE® as of firmware 1 822 091 6.11.

4) Only available as of version 10/2009

2 Encoder Cable Comparison MOVIDRIVE® MDX 61B – DT../DV.. Motors vs. DR.. Motors

2.1 Meaning of the symbols

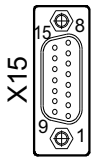
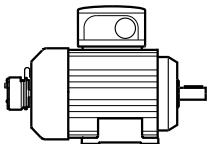
The connection cables are assigned a part number and a symbol. The symbols have the following meaning:

Symbol	Meaning
	Connection cable connector → connector for fixed installation
	Extension connection cable connector → connector for fixed installation
	Connection cable connector → connector for cable carrier installation
	Extension connection cable connector → connector for cable carrier installation
	Connection cable connector → conductor end sleeves for fixed installation
	Connection cable connector → conductor end sleeves for cable carrier installation
	Connection cable conductor end sleeves → Y-cable with connector for fixed installation
	Connection cable conductor end sleeve → Y-cable with connector for cable carrier installation
	Connection cable encoder connection cover → Y-cable with connector for fixed installation
	Connection cable encoder connection cover → Y-cable with connector for cable carrier installation
	Connection cable connector → encoder connection cover for fixed installation
	Connection cable connector → encoder connection cover for cable carrier installation
	Connection via plug connector on the motor side
	Connection via encoder connection cover on the motor side

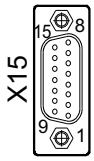
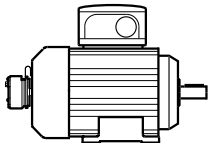
2.2 Sin/cos incremental encoder and TTL encoder (DC 24 V)

- Sin/cos encoder: ES1S / ES2S / EV1S / EV2S → ES7S / EG7S
- TTL encoder: ES1R / ES2R / EV1R / EV2R → ES7R / EG7R

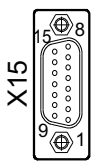
DT.. / DV.. and CT.. / CV..

Encoder end with connection type		Cable combinations	Motor end with connection type	
DEH11B **DEH21B** 	SUB-D15	1332 459 4	Cores	
	SUB-D15	1332 458 6	Cores	

DR..

Encoder end with connection type							Motor end with connection type	
DEH11B **DEH21B** 	SUB-D15			1362 202 1			Cores	
	SUB-D15			1362 204 8			Cores	
	SUB-D15			1361 762 1			Cover	
	SUB-D15			1361 764 8			Cover	
	SUB-D15	1362 1998 8	M23	1362 319 2[1)]	M23	1362 318 4	Cores	
			M23	1362 1971[1)]	M23	1362 196 3	Cover	

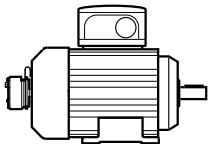
1) optional, as extension

Connector pin (SUB-D15 frequency inverter end		Color coding		Conductors / encoder connection motor/encoder end
		DT.. / DV.. and CT.. / CV..	DR..	
	1	YE	RD	A (cos+)
	9	GN	BU	/A (cos-)
	2	RD	YE	B (sin+)
	10	BU	GN	/B (sin-)
	3	PK	BN	C
	11	GY	WH	/C
	15	WH and BK	RD-BU and GY	UB
	8	BN and VT	GY-PK and PK	GND
	4	–	BK	D +
	12	–	VT	D -

2.3 Incremental encoder with HTL design

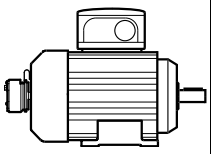
- ES1C / ES2C / EV1C / EV2C → ES7C / EG7C

DT.. / DV.. and CT.. / CV..

Encoder end with connection type		Cable combinations			Motor end with connection type	
DEH11B **DEH21B** X15 (15, 8, 9, 1)	SUB-D15	188 180 9 DWE12B	SUB-D9	198 829 8	Cores	
			SUB-D9	198 828 X	Cores	

As an alternative to the ES7C or EG7C encoder, you can use the ES7R or EG7R encoder for new plants.

DR..

Encoder end with connection type		Cable combinations							Motor end with connection type	
DEH11B **DEH21B** X15 (15, 8, 9, 1)	SUB-D15	188 180 9 DWE12B	SUB-D9	1362 321 4					Cores	
			SUB-D9	1362 322 2					Cover	
			SUB-D9	1362 323 0	M23	1362 319 2 [1]	M23	1362 318 4	Cores	
			SUB-D9	1362 324 9	M23	1362 197 1 [1]	M23	1362 196 3	Cover	

1) optional, as extension

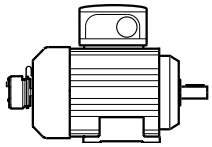
Assignment DT.. / DV.. and CT.. / CV.. to DR..

Connector pin (SUB-D15 frequency inverter end		**Color coding**		**Conductors / encoder connection motor/encoder end**
		DT.. / DV.. and CT.. / CV..	**DR..**	
X15 (15, 8, 9, 1)	1	YE	RD	A (cos+)
	9	GN	BU	/A (cos-)
	2	RD	YE	B (sin+):
	10	BU	GN	/B (sin-)
	3	PK	BN	C
	11	GY	WH	/C
	15	WH	RD-BU and GY	UB
	8	BN	GY-PK and PK	GND
	4	–	BK	D +
	12	–	VT	D -

2.4 Incremental encoder with TTL design (DC 5 V)

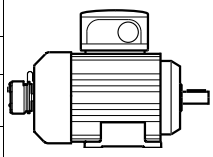
- ES1T / ES2T / EV1T / EV2T → ES7C / EG7C

DT.. / DV.. and CT.. / CV..

Encoder end with connection type		Cable combinations						Motor end with connection type
DEH11B X15 (15 8 / 9 1)	SUB-D15	817 957 3	SUB-D9	DWI11A 0822 759 4 (X1: MOVIDRIVE / X2: Encoder)	SUB-D9	198 829 8	Cores	
					SUB-D9	198 828 X	Cores	

As an alternative to the ES7C or EG7C encoder, you can use the ES7R or EG7R encoder for new plants.

DR..

Encoder end with connection type		Cable combinations							Motor end with connection type
DEH11B / DEH21B X15 (15 8 / 9 1)	SUB-D15	188 180 9 DWE12B	SUB-D9	1362 321 4				Cores	
			SUB-D9	1362 322 2				Cover	
			SUB-D9	1362 323 0	M23	1362 319 2 [1]	M23	1362 318 4	Cores
			SUB-D9	1362 324 9	M23	1362 197 1 [1]	M23	1362 196 3	Cover

1) optional, as extension

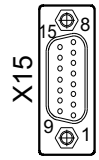
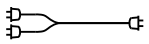
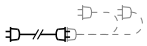
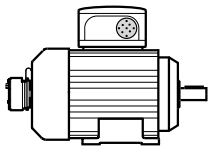
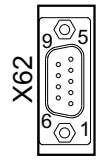
Assignment DT.. / DV.. and CT.. / CV.. to DR..

Connector pin (SUB-D15 frequency inverter end)		Color coding		Conductors / encoder connection motor/encoder end
		DT.. / DV.. and CT.. / CV..	DR..	
X15 (15 8 / 9 1)	1	YE	RD	A (cos+)
	9	GN	BU	/A (cos-)
	2	RD	YE	B (sin+):
	10	BU	GN	/B (sin-)
	3	PK	BN	C
	11	GY	WH	/C
	15	WH	RD-BU and GY	UB
	8	BN	GY-PK and PK	GND
	4	–	BK	D +
	12	–	VT	D -

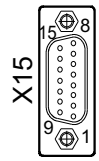
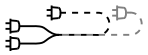
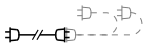
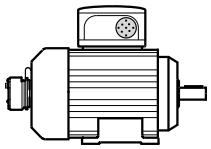
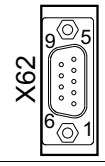
2.5 Absolute encoder with SSI design

- AV1Y → AS7Y / AG7Y

DT.. / DV.. and CT.. / CV..

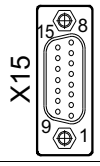
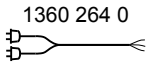
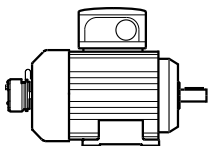
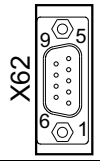
Encoder end with connection type		Cable combinations			Motor end with – connection type	
DEH11B **DEH21B** 	SUB-D15	1332 813 1 	M23	0593 968 2[1)] 	M23	
DIP11B **DEH21B** 	SUB-D9					

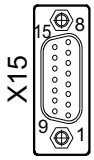
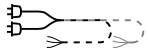
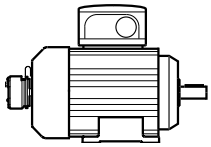
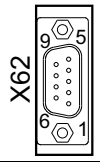
1) optional, as extension

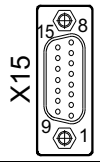
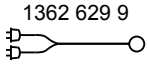
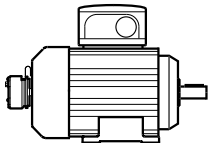
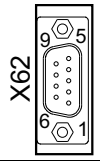
Encoder end with connection type		Cable combinations			Motor end with – connection type	
DEH11B **DEH21B** 	SUB-D15	1332 812 3 	M23	0593 968 2[1)] 	M23	
DIP11B **DEH21B** 	SUB-D9					

1) optional, as extension

DR..

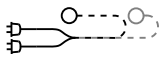
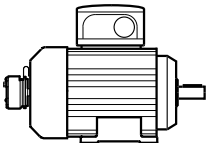
Encoder end with connection type		Cable combinations	Motor end with connection type	
DEH11B **DEH21B** 	SUB-D15	1360 264 0 	Cores	
DIP11B **DEH21B** 	SUB-D9			

Encoder end with connection type		Cable combinations	Motor end with connection type	
DEH11B **DEH21B** 	SUB-D15	1362 326 5 	Cores	
DIP11B **DEH21B** 	SUB-D9			

Encoder end with connection type		Cable combinations	Motor end with connection type	
DEH11B **DEH21B** 	SUB-D15	1362 629 9 	Cover	
DIP11B **DEH21B** 	SUB-D9			

Encoder Cable Comparison MOVIDRIVE® MDX 61B – DT../DV.. Motors

Absolute encoder with SSI design

Encoder end with connection type		Cable combinations	Motor end with – connection type	
DEH11B **DEH21B** X15	SUB-D15	1362 630 2 	Cover	
DIP11B **DEH21B** X62	SUB-D9			

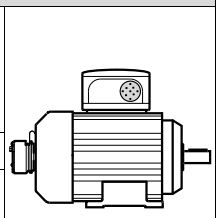
Assignment DT.. / DV.. and CT.. / CV.. to DR..

Connector pin (SUB-D15 / Sub-D-9) frequency inverter end		Color coding		Conductors / encoder connection motor/encoder end
		DT.. / DV.. and CT.. / CV..	DR..	
X15	1	YE	RD	A (cos+)
	9	GN	BU	/A (cos-)
	2	RD	YE	B (sin+):
	10	BU	GN	/B (sin-)
X62	3	PK	BN	T+
	8	GY	WH	T-
	9	WH	RD-BU and GY	UB
	5	BN	GY-PK and PK	GND
	1	BK	BK	D +
	6	VT	VT	D -

2.6 Absolute encoder with Hiperface® design

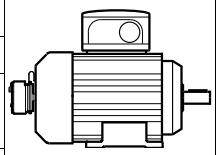
- AS3H / AS4H / AV1H / AV6H → AS7W / AG7W

DT.. / DV.. and CT.. / CV..

Encoder end with connection type		Cable combinations			Motor end with connection type	
DEH11B **DEH21B** X15 (15 8 / 9 1)	SUB-D15	1332 453 5	M23	199 539 1 [1]	M23	
	SUB-D15	1332 455 1	M23	199 540 5 [1]	M23	

1) optional, as extension

DR..

Encoder end with connection type		Cable combinations					Motor end with connection type	
DEH11B **DEH21B** X15 (15 8 / 9 1)	SUB-D15	1362 202 1					Cores	
	SUB-D15	1362 204 8					Cores	
	SUB-D15	1361 762 1					Cover	
	SUB-D15	1361 764 8					Cover	
	SUB-D15	1362 199 8	M23	1362 319 2 [1]	M23	1362 318 4	Cores	
			M23	1362 197 1 [1]	M23	1362 196 3	Cover	

1) optional, as extension

Assignment DT.. / DV.. and CT.. / CV.. to DR..

Connector pin (SUB-D15 frequency inverter end)		Color coding		Conductors / encoder connection motor/encoder end
		DT.. / DV.. and CT.. / CV..	DR..	
X15 (15 8 / 9 1)	1	PK	RD	A (cos+)
	9	BK	BU	/A (cos-)
	2	WH	YE	B (sin+):
	10	BN	GN	/B (sin-)
	3	–	BN	C
	11	–	WH	/C
	15	RD	RD-BU and GY	UB
	8	BU	GY-PK and PK	GND
	4	GY	BK	D +
	12	GN	VT	D -

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