sLVD

sLVD

Power – terminal block

7 pole terminal (top) X6 "power"	
U	MOTOR PHASE U
V	MOTOR PHASE V
W	MOTOR PHASE W
L1	LIVE 1
L2	LIVE 2
L3	LIVE 3
PE	PE

External braking resistor – terminal block

Terminal 3 pin X7 (optional)	
1	IR
2	CB
3	+AT

CAN + serial line – DB9

DB9 female poles X2 links	
1	TX
2	RX
3	/TX
4	/RX
5	CANH
6	+BR180
7	- BR180
8	CANL
9	0V

SLVD-N

Power – terminal block

Terminal block 7 poles 5,08 step X6 Power	
1	U
2	V
3	W
4	L1
5	L2
6	L3
7	PE

External braking resistor – terminal block

Terminal block 4 poles X7	
1	DC-
2	DC+
3	BRC
4	IN

CAN + serial line – DB15HD

D-Sub 15 male poles HD X1 Serial	
1	RX+
2	RX-
3	0VA
4	Reserved
5	0VA
6	Termination 422
7	TX-
8	Reserved
9	CAN1 H
10	CAN1 L
11	0VA
12	TX+
13	Reserved
14	CAN1 H
15	CAN1 L

Adapter: CAN + serial line – DB9

DB9 female poles **X2 links**	
1	TX
2	RX
3	/TX
4	/RX
5	CANH
6	+BR180
7	- BR180
8	CANL
9	0V

sLVD

Encoder I/O – DB9

DB9 male poles X3 encoder in/out	
1	PHA
2	/PHA
3	PHB
4	/PHB
5	PHC
6	/PHC
7	0V
8	
9	

IN-OUT – terminal block

10 pole terminal (right) X4	
1	ANALOGUE REFERENCE +
2	ANALOGUE REFERENCE -
3	0 V
4	AUXILIARY ANALOGUE INPUT +
5	AUXILIARY ANALOGUE INPUT -
6	V OUT
7	OUT 0 / IN 2
8	OUT 1 / IN 3
9	+ 24 V
10	0 V

SLVD-N

Encoder I/O – DB15HD

D-Sub 15 female poles HD X2 encoder I/O	
1	Enc. IN C+
2	Enc. IN C-
3	0VA
4	Enc. OUT C-
5	Enc. OUT C+
6	0VA
7	Enc. IN A-
8	Enc. IN B-
9	Enc. OUT A-
10	Enc. OUT B-
11	IN2
12	Enc. IN A+
13	Enc. IN B+
14	Enc. OUT A+
15	Enc. OUT B+

Adapter: Encoder I/O – DB9

DB9 male poles **X3_IN encoder in**	
1	PHA_IN
2	/PHA_IN
3	PHB_IN
4	/PHB_IN
5	PHC_IN
6	/PHC_IN
7	0V
8	
9	

Or

DB9 male poles **X3_OUT encoder out**	
1	PHA_OUT
2	/PHA_OUT
3	PHB_OUT
4	/PHB_OUT
5	PHC_OUT
6	/PHC_OUT
7	0V
8	
9	

IN-OUT – terminal block

Terminal block 15 poles 3,5mm step X4 (Phoenix MCVW1,5/15-ST-3,5)	
1	+24VIN
2	0VQ
3	0VA
4	AX-
5	AX+
6	REF-
7	REF+
8	MON
9	0VA
10	IN3
11	IN2
12	IN1
13	IN0
14	OUT1
15	OUT0

sLVD

Feedback + DIGITAL IN – terminal block

10 pole terminal (left) X1	
1	+ ECC
2	- ECC
3	SIN +
4	SIN -
5	COS +
6	COS -
7	0 V
8	0 V
9	IN 0
10	IN 1

SLVD-N

Feedback – DB15HD

D-Sub 15 female poles HD X3 "Feedback"	
1	0VA
2	N.C.
3	Reserved
4	ECC+
5	PTC+
6	CLK+
7	SIN-
8	SIN+
9	CLK-
10	PTC-
11	COS-
12	COS+
13	DATA+
14	DATA-
15	ECC-

Adapter: Feedback – terminal block

10 pole terminal (left) X1	
1	+ ECC
2	- ECC
3	SIN +
4	SIN -
5	COS +
6	COS -
7	0 V
8	0 V
9	NC
10	NC

SPD2,5,8

SPD2,5,8

Power – external braking resistor – terminal block

Power terminal connections SPD2, SPD5 and SPD8

1	L1	LINE
2	L2	
3	L3	
4	Earth I	MOTOR
5	U-I	
6	V-I	
7	W-I	
8	Earth II	N. C.
9	U-II	
10	V-II	
11	W-II	
12	+B	BUS CONFIGURATION AND BREAKING RESISTOR
13	IR	
14	CB	
15	-B	

CAN – DB9

CAN bus (X2)
(DB9 male)

N. Pin	Signal	Description
1	n.c.	
2	CAN_L	Low communication line
3	CAN_GND	CAN ground
4	n.c.	
5	CAN_SHLD	Optional screen connection
6	GND	Optional CAN ground
7	CAN_H	High communication line
8	n.c.	
9	n.c.	

SPD-N

Power – external braking resistor – terminal block

Power terminal connections

1	L1	LINE
2	L2	
3	L3	
4	earth	MOTOR I
5	U-I	
6	V-I	
7	W-I	
8	earth	MOTOR II *(only TWIN-N)*
9	U-II	
10	V-II	
11	W-II	
12	+BUS	BUS CONFIGURATION
13	Int-res	
14	Com-brk	
15	-BUS	

CAN – DB9

X2 CAN bus
(DB9 male)

N. Pin	Signal	Description
1	Reserved	
2	CAN_L	Low communication line
3	CAN_GND	CAN ground
4	Reserved	
5	CAN_SHLD	Shield optional
6	CAN_GND	CAN ground optional
7	CAN_H	High communication line
8	Reserved	
9	Reserved	

SPD2,5,8

Serial line – DB9

Serial 422 / 485 (X3) *(DB9 female)*	
N. Pin	Signal
1	TX
2	RX
3	/TX
4	/RX
5	
6	+BR
7	-BR
8	0 V
9	0 V

SPD-N

Serial line – DB9

X3 Serial 422/485 (DB9 female)	
N. Pin	Signal
1	TX
2	RX
3	/TX
4	/RX
5	reserved
6	+BR
7	reserved
8	reserved
9	0 V

SPD2,5,8

Signal – terminal block

Signal terminal connections (X4)

1	AUX Ref. + (AN1+)	Analogue Ref. + (+REF)	25
2	AUX Ref. – (AN1-)	Analogue Ref. – (-REF)	26
3	0VA (shield)	0VA (shield)	27
4	Vout	+ ECC Resolver	28
5	0VA (shield)	- ECC Resolver	29
6	IN0	+ SIN Resolver	30
7	IN1	- SIN Resolver	31
8	IN2	+ COS Resolver	32
9	IN3	- COS Resolver	33
10	0VQ (0V panel)	0VA (shield)	34
11	OUT0	+ PTC	35
12	OUT1	- PTC	36
13	+A ENCODER OUT	+A ENCODER IN	37
14	-A ENCODER OUT	-A ENCODER IN	38
15	+B ENCODER OUT	+B ENCODER IN	39
16	-B ENCODER OUT	-B ENCODER IN	40
17	+C ENCODER OUT	+C ENCODER IN	41
18	-C ENCODER OUT	-C ENCODER IN	42
19	0VQ (0V panel)	0VE (0V ENCODER)	43
20	+SR + DRIVE ENABLE	+ CK	44
21	-SR - DRIVE ENABLE	- CK	45
22	SC-A FEEDBACK	+ 5VE (SUPPLY ENCODER)	46
23	SC-B FEEDBACK	0VE (0V ENCODER)	47
24	0VQ 0V POWER SUPPLY	+24V IN POWER SUPPLY	48

In green, are equal connections. Change the connection of EnDat or Hiperface interface, and the feedback SC-A, SC-B (in yellow).

SPD-N

Signal – terminal block

I axis terminal connections

1	Rif. AUX +	Rif. Analog +	25
2	Rif. AUX -	Rif. Analog -	26
3	0VA (0V Analog)	0VA (0V Analog)	27
4	Vout	ECC+	28
5	0VA (0V Analog)	ECC-	29
6	IN0	SIN+	30
7	IN1	SIN-	31
8	IN2	COS+	32
9	IN3	COS-	33
10	0VQ (0V Quadro)	0VA (0V Analog)	34
11	OUT0	PTC+	35
12	OUT1	PTC-	36
13	A- ENCODER OUT	A+ ENCODER IN	37
14	A- ENCODER OUT	A- ENCODER IN	38
15	B+ ENCODER OUT	B+ ENCODER IN	39
16	B- ENCODER OUT	B- ENCODER IN	40
17	C+ ENCODER OUT	C+ ENCODER IN	41
18	C- ENCODER OUT	C- ENCODER IN	42
19	0VE (0V Encoder)	0VE (0V Encoder)	43
20	CK+	DATA+	44
21	CK-	DATA-	45
22	IN4	+ 5VE (Supply ENCODER)	46
23	IN5	0VE (0V Encoder)	47
24	0VQ 0V SUPPLY	+24V IN SUPPLY	48

II axis terminal connections (only SPD-N)

22	SC-A FEEDBACK	+ 5VE (Supply. ENCODER)	46
23	SC-B FEEDBACK	0VE (0V Encoder)	47
24	-SR	+SR	48

SPD16,24

SPD16,24

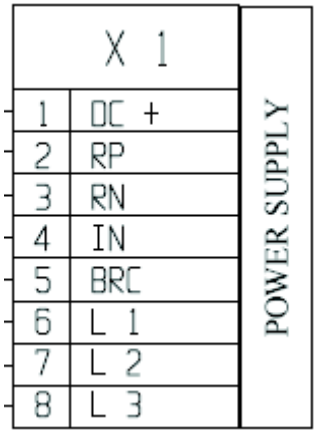
Power-motor – terminal block

Power terminal connections (X4) SPD16 and SPD25

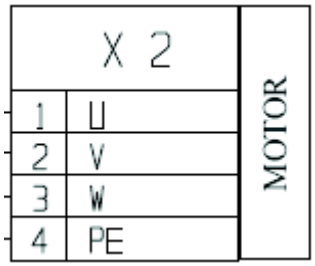
1	L1	LINE
2	L2	
3	L3	
4	Earth	MOTOR
5	U	
6	V	
7	W	
8	+C	BUS CONFIGURATION AND BREAKING RESISTOR
9	+B	
10	IR	
11	CB	
12	-B	

HID16,25

Power + external braking resistor – terminal block



Motor – terminal block



SPD16,24

Signal connection – terminal block

Signal terminal connections (X3)

1	AUX Ref. + (AN1+)	Analogue Ref. + (+REF)	25
2	AUX Ref. – (AN1-)	Analogue Ref. – (-REF)	26
3	0VA (shield)	0VA (shield)	27
4	Vout	+ ECC Resolver	28
5	0VA (shield)	- ECC Resolver	29
6	IN0	+ SIN Resolver	30
7	IN1	- SIN Resolver	31
8	IN2	+ COS Resolver	32
9	IN3	- COS Resolver	33
10	0VQ (0V panel)	0VA (shield)	34
11	OUT0	+ PTC	35
12	OUT1	- PTC	36
13	+A ENCODER OUT	+A ENCODER IN	37
14	-A ENCODER OUT	-A ENCODER IN	38
15	+B ENCODER OUT	+B ENCODER IN	39
16	-B ENCODER OUT	-B ENCODER IN	40
17	+C ENCODER OUT	+C ENCODER IN	41
18	-C ENCODER OUT	-C ENCODER IN	42
19	0VQ (0V panel)	0VE (0V ENCODER)	43
20	+SR + DRIVE ENABLE	+ CK	44
21	-SR - DRIVE ENABLE	- CK	45
22	SC-A FEEDBACK	+ 5VE (SUPPLY ENCODER)	46
23	SC-B FEEDBACK	0VE (0V ENCODER)	47
24	0VQ 0V POWER SUPPLY	+24V IN POWER SUPPLY	48

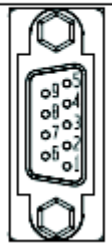
HID16,25

Feedback – DB9

9 poles female Sub-D

X6 "resolver"

1	PTC
2	A GND
3	ECC -
4	SIN -
5	COS -
6	PTC
7	ECC +
8	SIN +
9	COS +

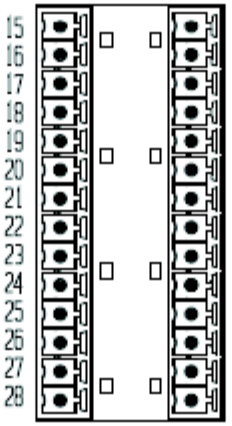


IN/OUT – terminal block

Terminal block

X5

0VQ drive power supply	15	1	– SR drive enabled
+24V drive power supply	16	2	+ SR drive enabled
	17	3	SC B
	18	4	SC A
	19	5	IN 4
GND (DIGITAL)	20	6	0VA
OUT 1	21	7	MON 2
OUT 0	22	8	MON 1
VDC (DIGITAL)	23	9	0VA
GND IN	24	10	– AX
IN 3	25	11	+ AX
IN 2	26	12	0VA
IN 1	27	13	– REF
IN 0	28	14	+ REF

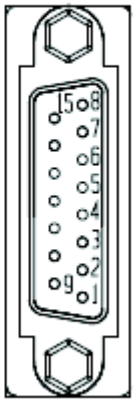


SPD16,24	HID16,25

Absolute Encoder – FBK

15 poles female Sub-D
X7 “sincos”

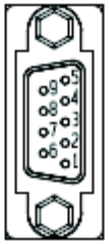
1	PTC
2	SHIELD
3	A GND
4	SENSE +
5	CLK +
6	DATA +
7	B +
8	A +
9	PTC
10	Ve
11	SENSE -
12	CLK -
13	DATA -
14	B -
15	A -



Encoder IN – DB9

9 poles female Sub-D
X9 “encoder input”

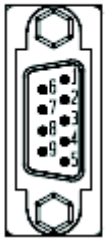
1	EINA +
2	EINA -
3	EINB +
4	EINB -
5	EINC +
6	EINC -
7	0VF
8	SHIELD
9	+5VF



Encoder OUT – DB9

9 poles male Sub-D
X10 “encoder output”

1	EOUTA +
2	EOUTA -
3	EOUTB +
4	EOUTB -
5	EOUTC +
6	EOUTC -
7	0VF
8	Reserved
9	Reserved



SPD16,24

Serial – DB9

Serial 422 / 485 (X2) *(DB9 female)*	
N. Pin	Segnale
1	TX
2	RX
3	/TX
4	/RX
5	
6	+BR
7	-BR
8	0 V
9	0 V

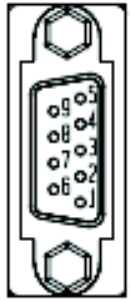
CAN – DB9

CAN bus (X1) *(DB9 male)*		
N. Pin	Signal	Description
1	n.c.	
2	CAN_L	Low communication line
3	CAN_GND	CAN ground
4	n.c.	
5	CAN_SHLD	Optional screen connection
6	GND	Optional CAN ground
7	CAN_H	High communication line
8	n.c.	
9	n.c.	

HID16,25

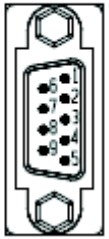
Serial – DB9

9 poles female Sub-D X8 "RS422/485"	
1	TX422 +
2	RX422 +
3	TX422 -
4	RX422 -
5	SHIELD
6	Termination
7	N.C.
8	N.C.
9	0VF



CAN – DB9

9 poles male Sub-D X11 "CAN"	
1	N.C.
2	CAN_A-L
3	GND CAN_A
4	CAN_B-L
5	SHIELD
6	GND CAN_B
7	CAN_A-H
8	N.C.
9	CAN_B-H



TWIN

TWIN

Power – motor – terminal block

Power terminal connections		
1	L1	LINE
2	L2	
3	L3	
4	earth	MOTOR I
5	U-*I*	
6	V-*I*	
7	W-*I*	
8	earth	MOTOR II
9	U-*II*	
10	V-*II*	
11	W-*II*	
12	+BUS	BUS CONFIGURATION
13	Int-res	
14	Com-brk	
15	-BUS	

TWIN-N

Power – motor – terminal block

Power terminal connections		
1	L1	LINE
2	L2	
3	L3	
4	earth	MOTOR I
5	U-I	
6	V-I	
7	W-I	
8	earth	MOTOR II *(only TWIN-N)*
9	U-II	
10	V-II	
11	W-II	
12	+BUS	BUS CONFIGURATION
13	Int-res	
14	Com-brk	
15	-BUS	

TWIN

Signal I – terminal block

I axis terminal connections
(The second axis has the ame terminal board, see silk-screen printing)

1	Ref. AUX +	Ref. Analogue reference +	25
2	Ref. AUX -	Ref. Analogue reference -	26
3	0VA (screen)	0VA (screen)	27
4	Vout	− ECC Resolver	28
5	0VA (screen)	- ECC Resolver	29
6	IN0	− SIN Resolver	30
7	*IN1*	- SIN Resolver	31
8	*IN2*	− COS Resolver	32
9	IN3	- COS Resolver	33
10	0VQ (0V panel)	0VA (screen)	34
11	OUT 0	− PTC	35
12	OUT 1	- PTC	36
13	+A ENCODER OUT	−A Encoder In	37
14	-A ENCODER OUT	-A Encoder In	38
15	+B ENCODER OUT	−B Encoder In	39
16	-B ENCODER OUT	-B Encoder In	40
17	+C ENCODER OUT	−C Encoder In	41
18	-C ENCODER OUT	-C Encoder In	42
19	0VQ (0V panel)	0VE (0V ENCODER)	43
20	+SR + DRIVE ENABLE	+ CK	44
21	-SR - DRIVE ENABLE	- CK	45
22	SC-A FEEDBACK	+ 5VE (ALI.)	46
23	SC-B FEEDBACK	0VE (0V ENCODER)	47
24	0VQ 0V POWER SUPPLY	−24V IN POWER SUPPLY	48

TWIN-N

Signal I – terminal block

I axis terminal connections

1	Rif. AUX +	Rif. Analog +	25
2	Rif. AUX -	Rif. Analog -	26
3	0VA (0V Analog)	0VA (0V Analog)	27
4	Vout	ECC+	28
5	0VA (0V Analog)	ECC-	29
6	IN0	SIN+	30
7	IN1	SIN-	31
8	IN2	COS+	32
9	IN3	COS-	33
10	0VQ (0V Quadro)	0VA (0V Analog)	34
11	OUT0	PTC+	35
12	OUT1	PTC-	36
13	A+ ENCODER OUT	A+ ENCODER IN	37
14	A- ENCODER OUT	A- ENCODER IN	38
15	B+ ENCODER OUT	B+ ENCODER IN	39
16	B- ENCODER OUT	B- ENCODER IN	40
17	C+ ENCODER OUT	C+ ENCODER IN	41
18	C- ENCODER OUT	C- ENCODER IN	42
19	0VE (0V Encoder)	0VE (0V Encoder)	43
20	CK+	DATA+	44
21	CK-	DATA-	45
22	IN4	+ 5VE (Supply ENCODER)	46
23	IN5	0VE (0V Encoder)	47
24	0VQ 0V SUPPLY	+24V IN SUPPLY	48

TWIN	TWIN-N
Signal II – terminal block In green, are equal connections. Change the connection of EnDat or Hiperface interface, and the feedback SC-A, SC-B (in yellow).	Signal II – terminal block

II axis terminal connections (only TWIN-N)

1	Rif. AUX −	Rif. Analog +	25
2	Rif. AUX -	Rif. Analog -	26
3	0VA (0V Analog)	0VA (0V Analog)	27
4	Vout	ECC−	28
5	0VA (0V Analog)	ECC-	29
6	IN0	SIN−	30
7	IN1	SIN-	31
8	IN2	COS−	32
9	IN3	COS-	33
10	0VQ (0V Quadro)	0VA (0V Analog)	34
11	OUT0	PTC−	35
12	OUT1	PTC-	36
13	A+ ENCODER OUT	A− ENCODER IN	37
14	A- ENCODER OUT	A- ENCODER IN	38
15	B+ ENCODER OUT	B+ ENCODER IN	39
16	B- ENCODER OUT	B- ENCODER IN	40
17	C+ ENCODER OUT	C+ ENCODER IN	41
18	C- ENCODER OUT	C- ENCODER IN	42
19	0VE (0V Encoder)	0VE (0V Encoder)	43
20	CK+	DATA+	44
21	CK-	DATA-	45
22	SC-A FEEDBACK	+ 5VE (Supply. ENCODER)	46
23	SC-B FEEDBACK	0VE (0V Encoder)	47
24	-SR	−SR	48

TWIN

Serial line

Serial 422 / 485 *(DB9 female)*	
No. Pin	Signal
1	TX
2	RX
3	/TX
4	/RX
5	
6	+BR
7	-BR
8	0 V
9	0 V

CAN

CAN bus *(DB9 male)*		
No. Pin	Signal	Description
1	n.c.	
2	CAN_L	Low communication line
3	CAN_GND	CAN ground
4	n.c.	
5	CAN_SHLD	Optional screen connection
6	GND	Optional CAN ground
7	CAN_H	High communication line
8	n.c.	
9	n.c.	

TWIN-N

Serial line

X3 Serial 422/485 (DB9 female)	
N. Pin	Signal
1	TX
2	RX
3	/TX
4	/RX
5	reserved
6	+BR
7	reserved
8	reserved
9	0 V

CAN

X2 CAN bus (DB9 male)		
N. Pin	Signal	Description
1	Reserved	
2	CAN_L	Low communication line
3	CAN_GND	CAN ground
4	Reserved	
5	CAN_SHLD	Shield optional
6	CAN_GND	CAN ground optional
7	CAN_H	High communication line
8	Reserved	
9	Reserved	