

Substitution of obsolete drive

Drive obsolete	Voltage supply	General characteristics	PLC	BUS	Drive suggest	Voltage supply	General characteristics	PLC	BUS (*)	Progr. Param.	option
LVD	230	8IN-6OUT(+relay)	64	SBC	SLVD-N	230	4IN-2OUT	256	S,C,D,E5	Similar	-
HPD	400	8IN-6OUT(+relay)	64	SBC	HID	230 400	5IN(+en)-2OUT(+relay)	256	S,D,E5	Different	I/O
HPD H3	400	8IN-6OUT(+relay)	64	SBC	HID-X	230 400	5IN(+en)-2OUT(+relay)	256	S,D,E5	Different	I/O
HPD + EC4 (**)	400	8IN-6OUT(+relay) + EC4	64	SBC	HID (after verification)	230 400	5IN(+en)-2OUT(+relay)	256	S,D,E5	Different	I/O + LL
sLVD	230	2IN-2OUT	128	CAN/SBC	SLVD-N	230	4IN-2OUT	256	S,C,D,E5	Equal	Adapter
SPD2,5,8	230 400	4IN-2OUT	128	CAN/SBC	SPD-N2,5,8	230 400	4IN(+2)-2OUT	256	S,C,D,E5	Equal	-
SPD16,24	400	4IN-2OUT	128	CAN/SBC	HID	230 400	5IN(+en)-2OUT(+relay)	256	S,D,E5	Different	-
TWIN2,5,8	230 400	4IN-2OUT	128	CAN/SBC	TWIN-N2,5,8	230 400	4IN(+2)-2OUT	256	S,C,D,E5	Equal	-

(*) **S**: SBCCAN; **C**: CANopen DS301; **D**: CANopen DS402; **E5**: EtherCAT

(**) special application; to substitute the obsolete drive is required a study

LVD

LVD

Power – terminal block

Terminal Board X10 "Power"	
1	LIVE 1
2	LIVE 2
3	LIVE 3
4	MOTOR PHASE U
5	MOTOR PHASE V
6	MOTOR PHASE W

CAN – DB9

DB9 male X2 "CanBus"	
1	NC
2	CANBUS L
3	0 V
4	
5	0 V
6	0 V
7	CANBUS H
8	
9	

Serial link – DB9

DB9 female X3 "Serial Link"	
1	TX
2	RX
3	/TX
4	/RX
5	
6	+ BR
7	- BR
8	0 V
9	0 V

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

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

LVD

Encoder OUT – DB9

DB9 male X4 "Encoder Out"	
1	PHA
2	/PHA
3	PHB
4	/PHB
5	PHC
6	/PHC
7	0V
8	
9	

Encoder IN – DB9

DB9 female X5 "Encoder In"	
1	A
2	/A
3	B
4	/B
5	-BRA
6	+BRB
7	0 V
8	-BRB
9	+BRA

OUTputs – DB15

X6 "Outputs"	
1	DIGITAL OUTPUT 0
2	DIGITAL OUTPUT 2
3	DIGITAL OUTPUT 4
4	DIGITAL OUTPUT 6 A
5	0 V
6	0 V
7	AUX ANALOG OUTPUT
8	TACHO OUTPUT
9	DIGITAL OUTPUT 1
10	DIGITAL OUTPUT 3
11	DIGITAL OUTPUT 5
12	DIGITAL OUTPUT 6 B
13	+10V / 10mA MAX
14	-10V / 10mA MAX
15	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+

IN-OUT – terminal block

LVD

Inputs – DB15

X7 "Inputs"	
1	ENABLE
2	DIGITAL INPUT 2
3	DIGITAL INPUT 4
4	DIGITAL INPUT 6
5	+24V= OUT / 200mA MAX
6	AUX. ANALOG INPUT +
7	0 V
8	ANALOG REFERENCE -
9	DIGITAL INPUT 1
10	DIGITAL INPUT 3
11	DIGITAL INPUT 5
12	DIGITAL INPUT 7
13	0 V
14	AUX. ANALOG INPUT -
15	ANALOG REFERENCE +

SLVD-N

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

Feedback – DB9

DB9 female X9 "resolver"	
1	N.U.
2	0 V
3	Ecc -
4	Sin -
5	Cos -
6	N.U.
7	Ecc +
8	Sin +
9	Cos +

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-

HPD

HPD

Power + motor + extern. Brak. Resistor – terminal block

Terminal board X4	
1	L 1
2	L 2
3	L 3
4	U PHASE
5	V PHASE
6	W PHASE
7	AB
8	BB
9	EB
10	IB
11	+ DC BUS
12	- DC BUS

HID

Power + external braking resistor – terminal block

X 1		POWER SUPPLY
1	DC +	
2	RP	
3	RN	
4	IN	
5	BRC	
6	L 1	
7	L 2	
8	L 3	

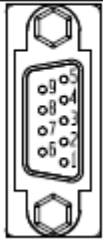
Motor – terminal block

X 2		MOTOR
1	U	
2	V	
3	W	
4	PE	

Feedback – terminal block

Terminal board X1	
1	motor PTC + (24 V)
2	motor PTC -
3	resolver, EXCT +
4	resolver, EXCT -
5	resolver, SIN +
6	resolver, SIN -
7	resolver, COS +
8	resolver, COS -
9	0 V
10	0 V

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 +	

HPD

Outputs – terminal block

Terminal board X2	
1	reference high +
2	reference low -
3	0 V
4	Aux reference high +
5	Aux reference low -
6	0 V
7	Aux. analogue output
8	0 V
9	tacho output
10	0 V
11	digital out 0
12	digital out 1
13	digital out 2
14	digital out 3
15	digital out 4
16	digital out 5
17	digital out 6 A
18	digital out 6 B
19	+ 24 Vdc - OUT 200 mA
20	0 V

Inputs – terminal block

Terminal board X3	
1	+ 10 V - 10 mA max
2	0 V
3	- 10 V - 10 mA max
4	0 V
5	+ 24 V - IN
6	0 V
7	0 V
8	+ V backup
9	- V backup
10	0 V
11	drive enable
12	digital input 1
13	digital input 2
14	digital input 3
15	digital input 4
16	digital input 5
17	digital input 6
18	digital input 7
19	+ 24 V - OUT 200 mA
20	0 V

HID

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
	20		6	0VA
	21		7	MON 2
	22		8	MON 1
GND (DIGITAL)	23		9	0VA
OUT 1	24		10	- AX
OUT 0	25		11	+ AX
VDC (DIGITAL)	26		12	0VA
GND IN	27		13	- REF
IN 3	28		14	+ REF
IN 2				
IN 1				
IN 0				

I/O option – terminal block

Terminal box I/O card				
	12		24	0V
	11		23	
	10		22	
IN 7	9		21	OUT 7
IN 6	8		20	OUT 6
IN 5	7		19	OUT 5
IN 4	6		18	OUT 4
IN 3	5		17	OUT 3
IN 2	4		16	OUT 2
IN 1	3		15	OUT 1
IN 0	2		14	OUT 0
24Vdc	1		13	
LED				LED

HPD

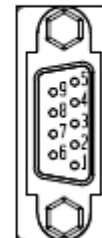
Serial – DB9

DB9 female type X5	
1	TX
2	RX
3	/TX
4	/RX
5	
6	+BR
7	-BR
8	0 V
9	0 V

HID

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

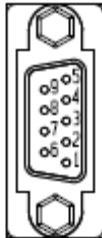


Encoder IN – DB9

D DB9 female type X6	
1	A
2	/A
3	B
4	/B
5	-BRA
6	+BRB
7	0 V
8	-BRB
9	+BRA

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

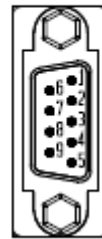


Encoder OUT – DB9

DB9 male type X7	
1	PHA
2	/PHA
3	PHB
4	/PHB
5	PHC
6	/PHC
7	0 V
8	
9	

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



sLVD

sLVD	SLVD-N																																																																									
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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	

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

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

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

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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 Hyperface 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	BUS CONFIGURATION AND BREAKING RESISTOR
8	+C	
9	+B	
10	IR	
11	CB	
12	-B	

HID16,25

Power + external braking resistor – terminal block

X 1		POWER SUPPLY
1	DC +	
2	RP	
3	RN	
4	IN	
5	BRC	
6	L 1	
7	L 2	
8	L 3	

Motor – terminal block

X 2		MOTOR
1	U	
2	V	
3	W	
4	PE	

SPD16,24

Signal connection – terminal block

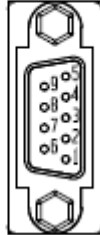
Signal terminal connections (X3)

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
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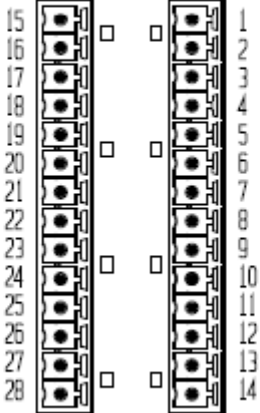
HID16,25

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

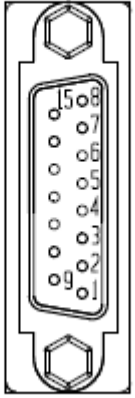
Terminal block X5				
0VQ drive power supply	15		1	- SR drive enabled
+24V drive power supply	16		2	+ SR drive enabled
	17		3	SC B
	18		4	SC A
	19	5	IN 4	
GND (DIGITAL)	20	6	0VA	
OUT 1	21	7	MON 2	
OUT 0	22	8	MON 1	
VDC (DIGITAL)	23	9	0VA	
GND IN	24	10	- AX	
IN 3	25	11	+ AX	
IN 2	26	12	0VA	
IN 1	27	13	- REF	
IN 0	28	14	+ REF	

SPD16,24

HID16,25

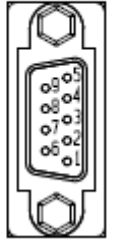
Absolute Encoder – FBK

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 -



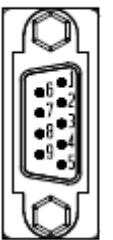
Encoder IN – DB9

9 poles female Sub-D X9 “encoder input”	
1	EINA +
2	EINA -
3	EINB +
4	EINB -
5	EINC +
6	EINC -
7	OVF
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	OVF
8	Reserved
9	Reserved



SPD16,24

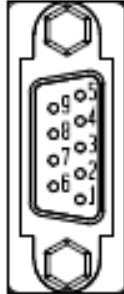
Serial – DB9

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

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

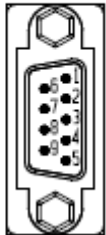


CAN – DB9

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.	

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	MOTOR II
8	earth	
9	U-II	
10	V-II	BUS CONFIGURATION
11	W-II	
12	+BUS	
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	MOTOR II <i>(only TWIN-N)</i>
8	earth	
9	U-II	
10	V-II	BUS CONFIGURATION
11	W-II	
12	+BUS	
13	Int-res	
14	Com-brk	
15	-BUS	

TWIN

Signal I – terminal block

I axis terminal connections (The second axis has the same 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	Signal II – terminal block																																																																																																
	II axis terminal connections (only TWIN-N)																																																																																																
	<table border="1"> <tr><td>1</td><td>Rif. AUX +</td><td>Rif. Analog +</td><td>25</td></tr> <tr><td>2</td><td>Rif. AUX -</td><td>Rif. Analog -</td><td>26</td></tr> <tr><td>3</td><td>0VA (0V Analog)</td><td>0VA (0V Analog)</td><td>27</td></tr> <tr><td>4</td><td>Vout</td><td>ECC+</td><td>28</td></tr> <tr><td>5</td><td>0VA (0V Analog)</td><td>ECC-</td><td>29</td></tr> <tr><td>6</td><td>IN0</td><td>SIN+</td><td>30</td></tr> <tr><td>7</td><td>IN1</td><td>SIN-</td><td>31</td></tr> <tr><td>8</td><td>IN2</td><td>COS+</td><td>32</td></tr> <tr><td>9</td><td>IN3</td><td>COS-</td><td>33</td></tr> <tr><td>10</td><td>0VQ (0V Quadro)</td><td>0VA (0V Analog)</td><td>34</td></tr> <tr><td>11</td><td>OUT0</td><td>PTC+</td><td>35</td></tr> <tr><td>12</td><td>OUT1</td><td>PTC-</td><td>36</td></tr> <tr><td>13</td><td>A+ ENCODER OUT</td><td>A+ ENCODER IN</td><td>37</td></tr> <tr><td>14</td><td>A- ENCODER OUT</td><td>A- ENCODER IN</td><td>38</td></tr> <tr><td>15</td><td>B+ ENCODER OUT</td><td>B+ ENCODER IN</td><td>39</td></tr> <tr><td>16</td><td>B- ENCODER OUT</td><td>B- ENCODER IN</td><td>40</td></tr> <tr><td>17</td><td>C+ ENCODER OUT</td><td>C+ ENCODER IN</td><td>41</td></tr> <tr><td>18</td><td>C- ENCODER OUT</td><td>C- ENCODER IN</td><td>42</td></tr> <tr><td>19</td><td>0VE (0V Encoder)</td><td>0VE (0V Encoder)</td><td>43</td></tr> <tr><td>20</td><td>CK+</td><td>DATA+</td><td>44</td></tr> <tr><td>21</td><td>CK-</td><td>DATA-</td><td>45</td></tr> <tr><td>22</td><td>SC-A FEEDBACK</td><td>+ 5VE (Supply ENCODER)</td><td>46</td></tr> <tr><td>23</td><td>SC-B FEEDBACK</td><td>0VE (0V Encoder)</td><td>47</td></tr> <tr><td>24</td><td>-SR</td><td>+SR</td><td>48</td></tr> </table>	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
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In green, are equal connections. Change the connection of EnDat or Hiperface interface, and the feedback SC-A, SC-B (in yellow).																																																																																																	

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

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

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.	

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	