IDBS07 and IDBM07
Wiring Manual

Preliminary

February 2008

Power Supply IDBM07-PS/U

J3 24V Output
Phoenix: 18 73 058 (1 Abgang pro Pol)
Phoenix: 19 62 600 (2 Abgänge pro Pol)

J4 Power Supply Fault Signal
Phoenix: 18 81 338

J1 24V Input
Phoenix: 18 73 058 (1 Abgang pro Pol)
Phoenix: 19 62 600 (2 Abgänge pro Pol)

J2 Power Supply Control Signal
Phoenix: 18 81 367

J11 Main Power Input and Recovery Resistor

J1 24V Input

Pin	Function
1	Input 24VDC
2	GND

Connector 2 pins, PHOENIX type FKC 2,5/2-ST-5,08 cod.1873058 (cod. MOOG AK4808)

J2 Power Supply Control Signals

Pin	Function
1	Output 24VDC
2	GND
3	Output DC-Bus low signal
4	Output Common 0 V
5	Input DC-Bus 'keep charged'' 24 VDC
6	Input Common 0 V

Connector 6 Pin, PHOENIX type FK-MC 0,5/ 6-ST-2,5 cod.1881367

J3 24V Output (Connect to IDBM07 Card J3)

Pin	Function
1	Output 24VDC
2	GND

Connector 2 pins, PHOENIX type FKC 2,5/2-ST-5,08 cod.1873058 (cod. MOOG AK4808)

J4 Power Supply Fault Signal (Connect to IDBM07 Card J4)

Pin	Function
1	Over temperature Power Supply
2	Recovery not ok
3	GND

Connector 3 Pin, PHOENIX type FK-MC 0,5/ 3-ST-2,5 cod.1881338

J11 Main Power Input and Recovery Resistor

Pin	Function
U1■	U1 phase - Three-phase plant supply input
V1	V1 phase - Three-phase plant supply input
W1	W1 phase - Three-phase plant supply input
⏚	⏚ - Ground input
RR1	Recovery Resistor
RR2	Recovery Resistor

Drive IDBM07 (3 Axis Master Card)

J3 24V Input
Phoenix: 18 73 058 (1 Abgang pro Pol)
Phoenix: 19 62 600 (2 Abgänge pro Pol)

J4 Power Supply Fault Signal
Phoenix: 18 81 338
S1 Address Switch

J5 Dual CAN

J6 RS232

J2 X.BUS

J3C Analog Input

J1C Anlog Output

J2C Digital In-/Output
Phoenix: 18 81 406
J4C Resolver

J3B Analog Input

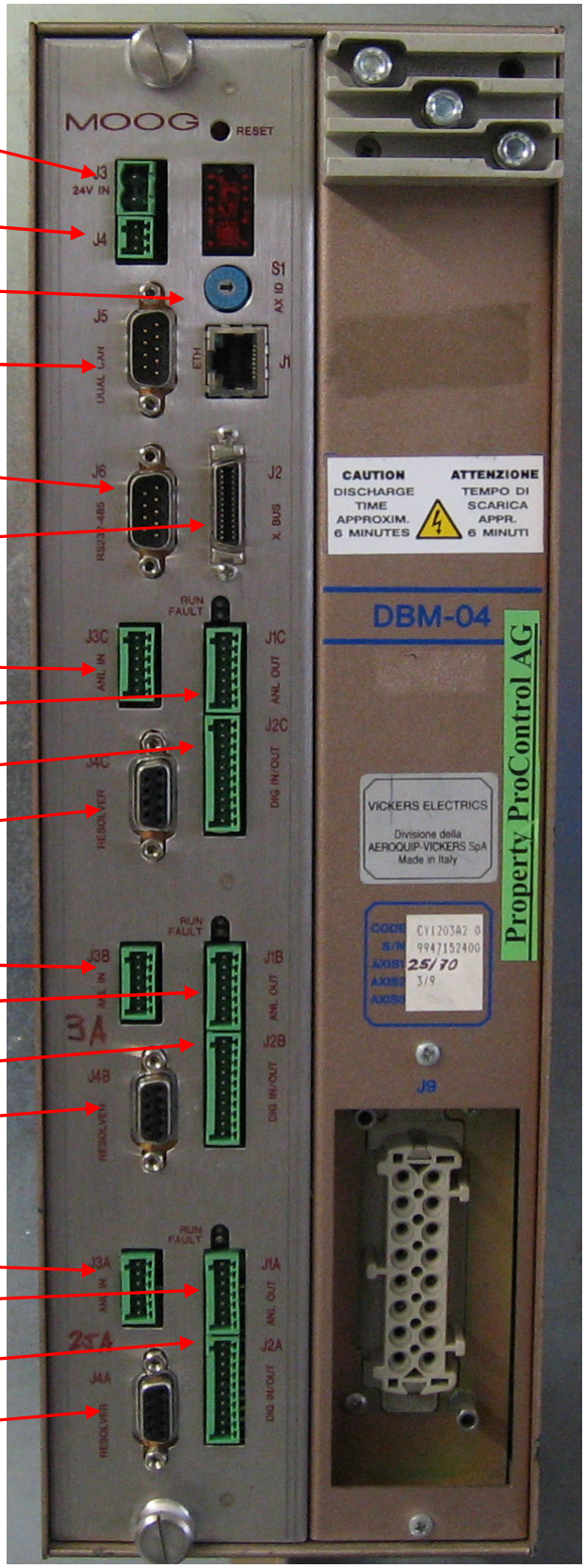
J1B Anlog Output

J2B Digital In-/Output
Phoenix: 18 81 406
J4B Resolver

J3A Analog Input

J1A Anlog Output

J2A Digital In-/Output
Phoenix: 18 81 406
J4A Resolver



Drive IDBS07 (1 Axis Master Card)

J3 24V Input
Phoenix: 18 73 058 (1 Abgang pro Pol)
Phoenix: 19 62 600 (2 Abgänge pro Pol)

S1 Address Switch

J5 Dual CAN

J6 RS232

J2 X.BUS

J3C Analog Input

J1C Analog Output

J2C Digital In-/Output
Phoenix: 18 81 406

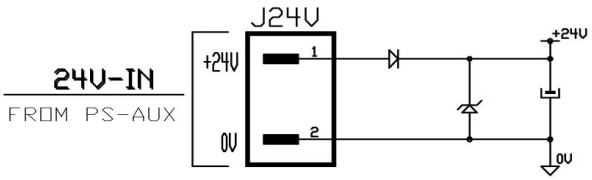
J4C Resolver

Connectors Pin Assignments

J2 X.BUS
Connect to IDBM07 or IDBS07 Slave Card (If available)

S1 Address Switch
Set to address 1

J3 24V Input

Position	*Function*
1	+24 V_{dc} Power Supply Input
2	0 V
	
Mating connector: 2 pins, PHOENIX type FKC 2,5/2-ST-5,08 cod.1873058 (cod. MOOG AK4808)	

Bemerkung:

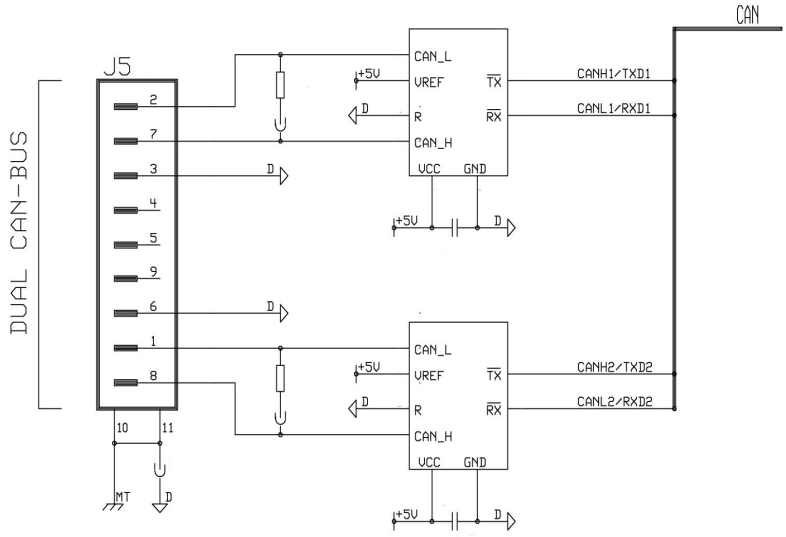
- *Diese Spannung muss beim IDBS07 Drive durch die USV gestuetzt sein, um die „Anti-Free-Wheeling" Funktion zu gewaehrleisten.*
- *Beim IDBM07 Drive muss dieser Eingang mit dem 24V Ausgang (J3) vom Power Supply verbunden sein.*

J4 Power Supply Fault Signal (Connect to IDBM07-PS/U Card J4)

Pin	**Function**
1	Over temperature Power Supply
2	Recovery not ok
3	GND

J5 Dual CAN

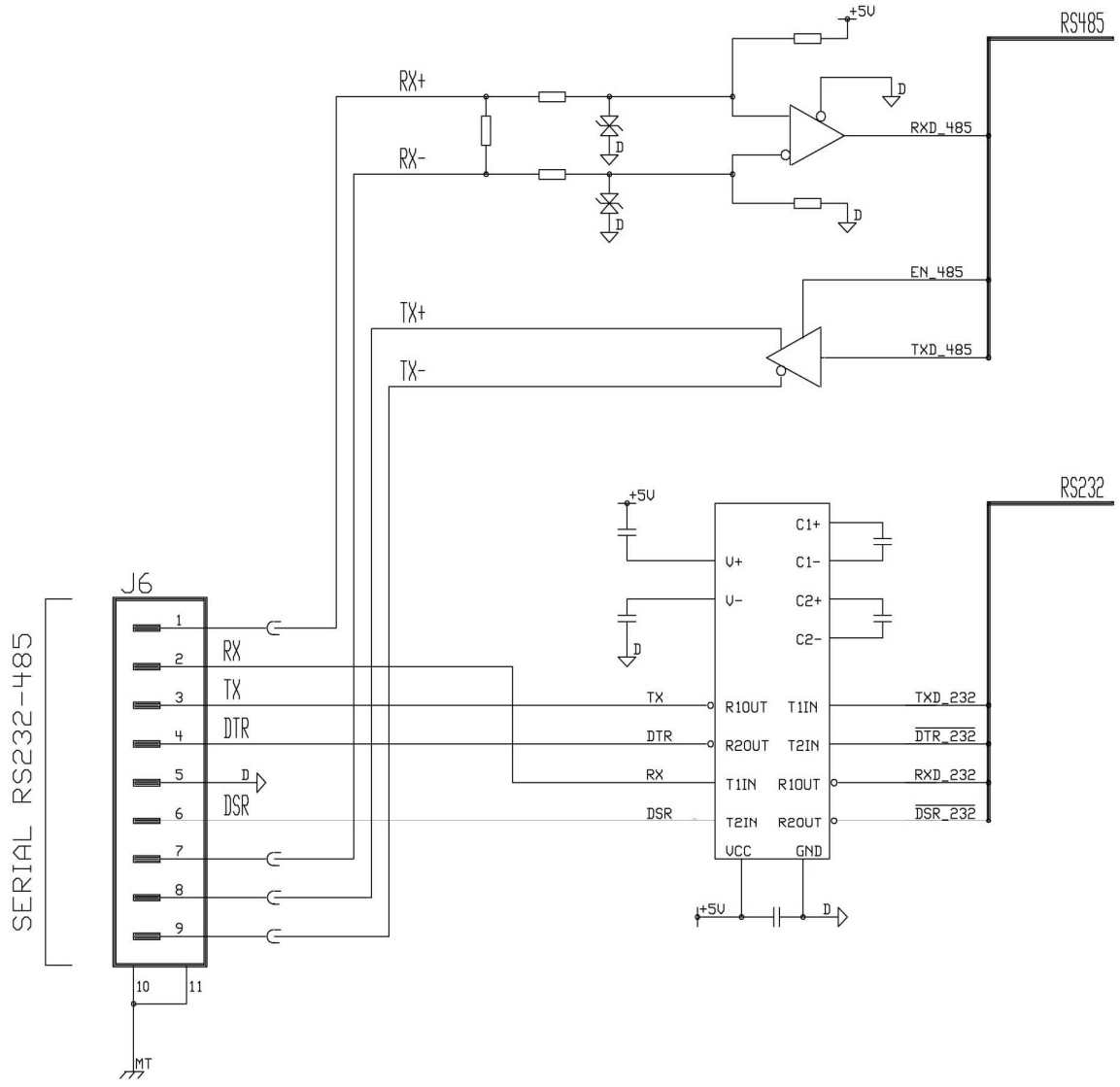
Position	*Function*
1	CAN 2 (low): differential CAN 2 signal
2	CAN 1 (low): differential CAN 1 signal
3	0 V logic circuit
4	Not Connected
5	Not Connected
6	0 V logic circuit
7	CAN 1 (high): differential CAN 1 signal
8	CAN 2 (high): differential CAN 2 signal
9	Not Connected



Mating connector:
9 pins, Sub-D cup connector HARTING cod. 09670094704 (cod. MOOG AK4751)
+ hood AMPHENOL cod. 17D TZK 9K (cod. MOOG AK5234)

J6 RS232

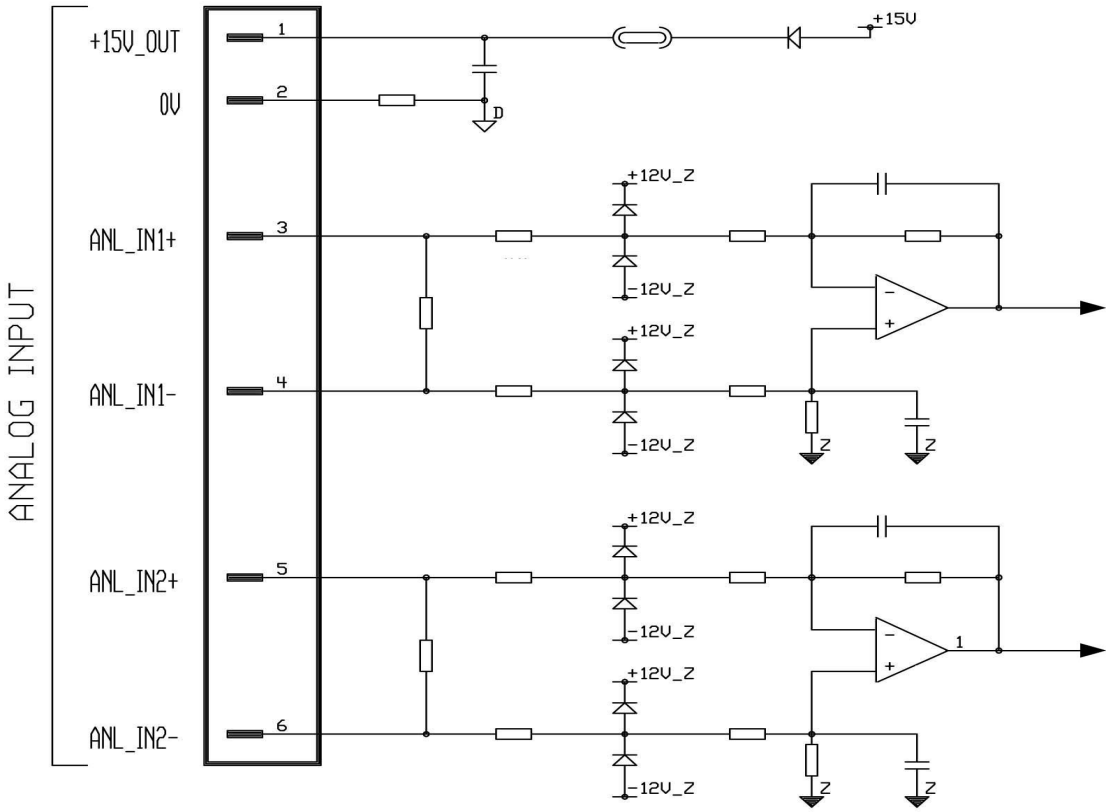
Position	*Function*
1	Not Connected
2	RXD: data receive input
3	TXD: data transmit output
4	DTR: data terminal ready
5	0 V logic circuit
6	DSR: data set ready
7	Not Connected
8	Not Connected
9	Not Connected



Mating connector:
9 pins, Sub-D cup connector HARTING cod. 09670094704 (cod. MOOG AK4751)
+ hood AMPHENOL cod. 17D TZK 9K (cod. MOOG AK5234)

J3X Analog Input

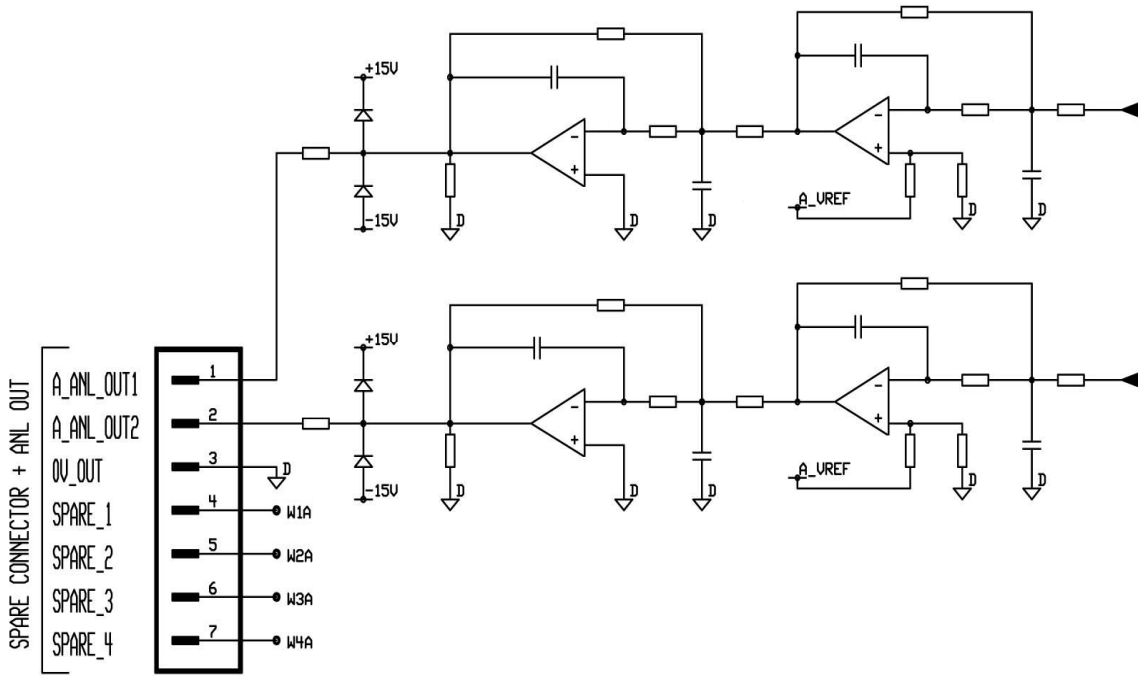
Position	*Function*
1	+15 VDC output power supply (Imax = 125 mA)
2	0 V
3	Analog input 1 (+)
4	Analog input 1 (-)
5	Analog input 2 (+)
6	Analog input 2 (-)



Mating connector:
6 pins, PHOENIX type FK-MC 0,5/6-ST-2,5 cod.1881367 (cod. MOOG AK4716)

J1X Analog Output

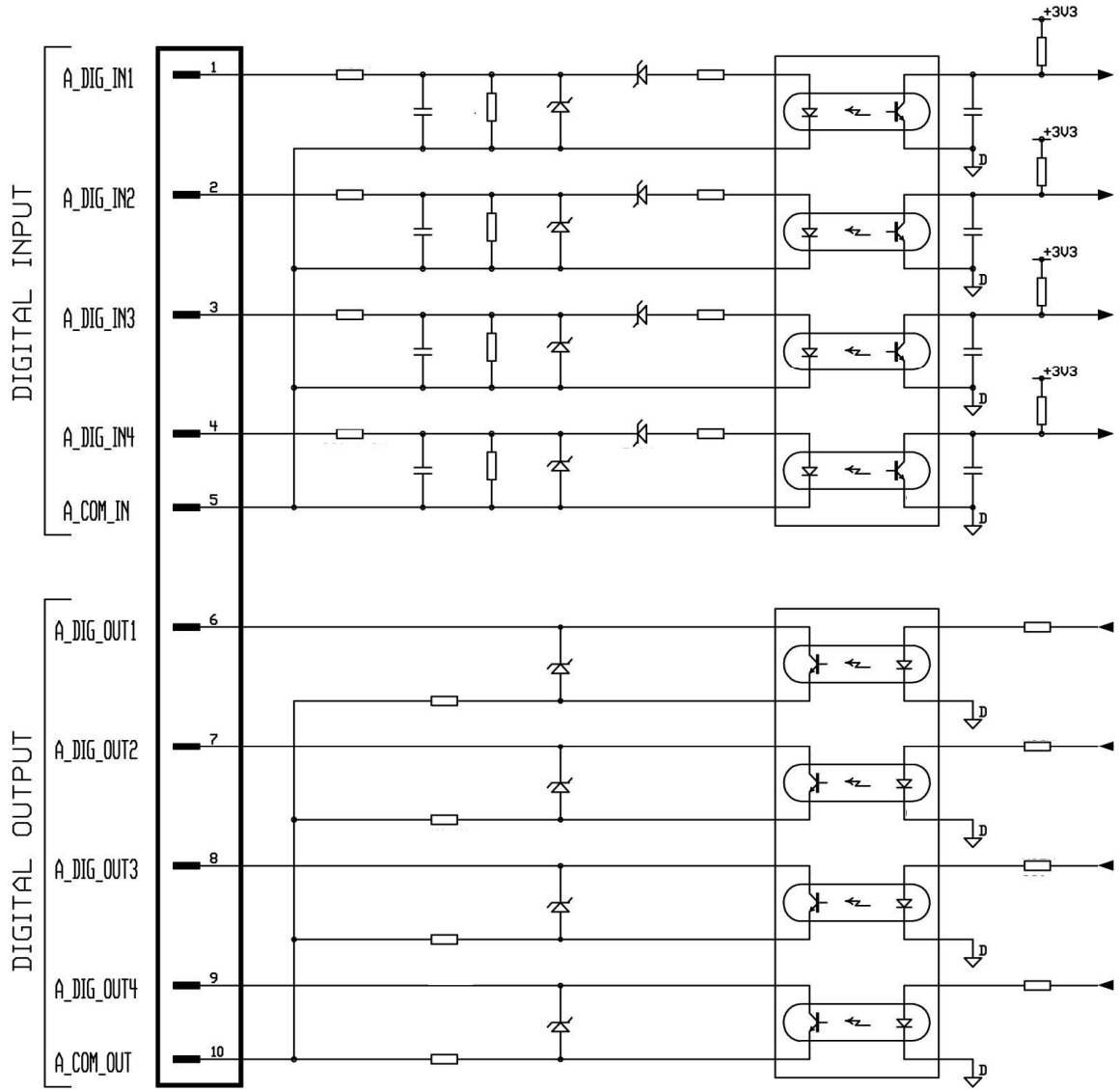
Position	*Function*	
1	Analog output 1 referred to ANALOG GND	±10 V range
2	Analog output 2 referred to ANALOG GND	±10 V range
3	Analog Ground for pin 1..2	
4	Spare 1	
5	Spare 2	
6	Spare 3	
7	Spare 4	



Mating connector:
7 pins, PHOENIX type FK-MC 0,5/7-ST-2,5 cod.1881370 (cod. MOOG AK4717)

J2X Digital In-/Output

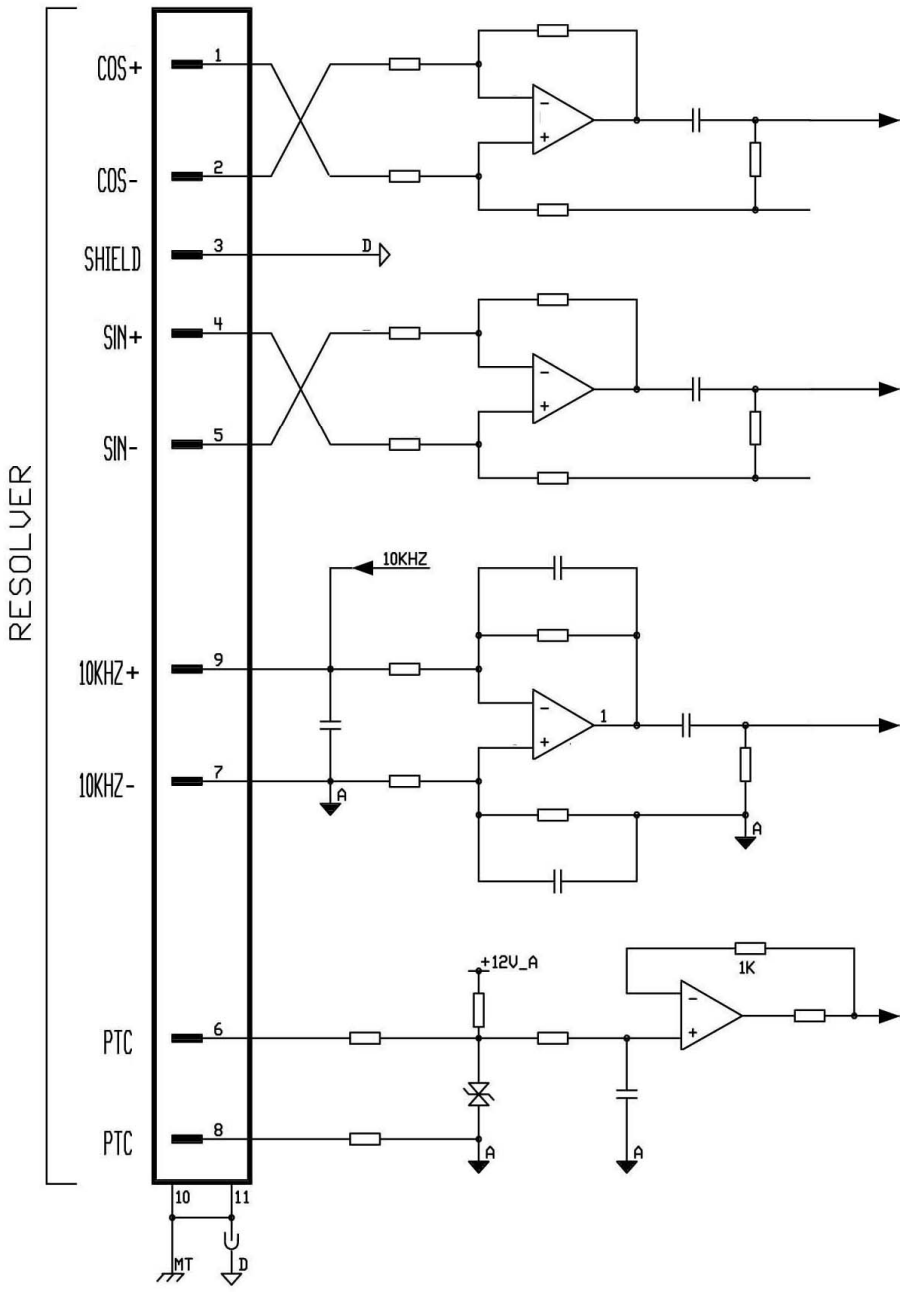
Position	*Function*	
1	Digital input signal 1	STATE 0 : 0V to 5V ± 5% STATE 1 : 11V to 24V ± 5% Z input min : 1.6 kΩ
2	Digital input signal 2	
3	Digital input signal 3	
4	Digital input signal 4	
5	Digital input common for DI 1..4 0 V	
6	Digital output signal 1 (opto-isolated)	V nom : 24V V max : 30V Z output : 1 kΩ
7	Digital output signal 2 (opto-isolated)	
8	Digital output signal 3 (opto-isolated)	
9	Digital output signal 4 (opto-isolated)	
10	Digital output common for DO 1..4 0 V	



Mating connector:
10 pins, PHOENIX type FK-MC 0,5/10-ST-2,5 cod.1881406 (cod. MOOG AK4720)

J4X Resolver

Position	*Function*
1	Differential COS signal input non-inverted
2	Differential COS signal input inverted
3	Shield of twisted cable
4	Differential SIN signal input non-inverted
5	Differential SIN signal input inverted
6	Motor winding PTC resistor input
7	(-) carrier frequency for supplying primary resolver winding
8	Motor winding PTC resistor input
9	(+) carrier frequency for supplying primary resolver winding



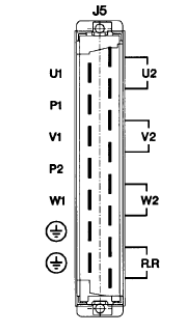
Mating connector:
9 pins, Sub-D cup connector AMPHENOL cod. 017SDE-9P (cod. MOOG AK5220)
+ hood AMPHENOL cod. 17D TZK 9K (cod. MOOG AK5234)

Tab. 2.10 - J5 Power Connector for IDBS 3/9, 6/15, 8/22, 15/42
Panel side: male, type Harting 09.06.015.2912 (code AK5955)
Wiring side: female, type Harting 09.06.215.2871 (code AK4961)

Name	Function
U1	"L1" phase, three-phase input voltage 400Vac (or 460Vac)
P1	Internal recovery resistance. See P2
V1	"L2" phase, three-phase input voltage 400Vac (or 460Vac)
P2	Internal recovery resistance. The female connector has a jumper between P1 and P2 (factory setting) which connects a 56Ω/240W internal resistor to +HV. To use an external resistor this jumper must be disconnected. See Fig.2.2
W1	"L3" phase, three-phase input voltage 400Vac (or 460Vac)
⏚	Protective bonding
⏚	Motor ground
U2*	"U2" phase, three-phase output voltage to motor
V2*	"V2" phase, three-phase output voltage to motor
W2*	"W2" phase, three-phase output voltage to motor
R.R.	External recovery resistor, if applicable. In this case the
R.R.	the jumper between P1 and P2 must be disconnected.

* only one wire and one pin per phase shall be used

Fig. 2.7 - J5 Power Connector for IDBS 3/9, 6/15, 8/22, 15/42



IDBS 3/9,6/15,8/22,15/42

***CAUTION**: the jumper between P1 and P2 must be disconnected before connecting an external recovery resistance on small IDBS drives (see Fig.2.2)*

3.3 Wiring And Grounding

All the following cables must be shielded, with 85% minimum shielding coverage:

- power motor cable (see Fig.3.1 and 3.2)

NOTES: if a power terminal board is used at motor side, the shield must be RF connected to a metallic PG gland.
- connectors at motor side can have a threaded clamp. Cable shield must be grounded in the same way as in Fig.3.2

- resolver cable (see Fig.2.5 and 3.2 motor side)

The shields of the cables must be connected at both ends to the proper housing via full circumferential bond to metallic connectors or hose clamps.
In case of Sub-D connector, cable shield must be grounded to the metallic hood.
When there is not connector at drive side, a kit with stand-off, screws and hose clamps is provided.
The shield of the cable must be uncovered from insulation coating and RF connected to the stand-off through the hose clamp, as in Fig.3.3 .

Fig. 3.3 - Grounding Of Shield Without Connector

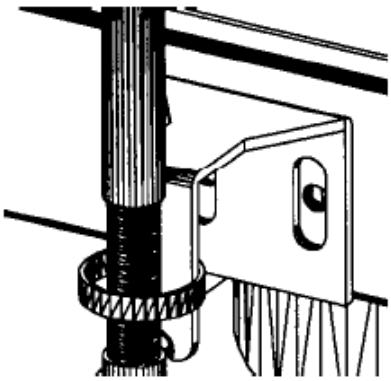


Fig. 3.2 - Grounding Of Shield To Connectors At Motor Side

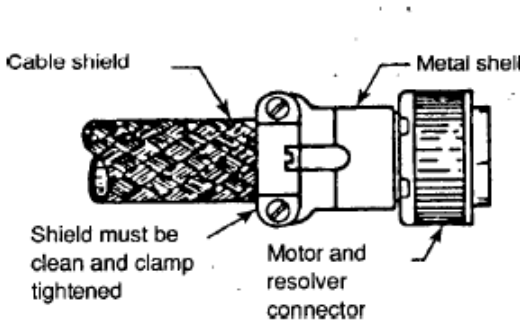
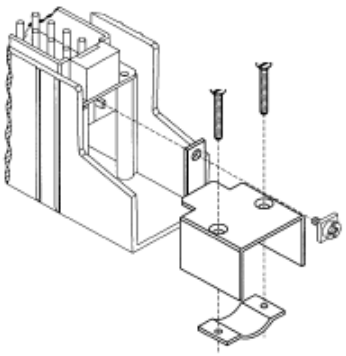


Fig. 3.1 - Grounding Of Shield To Motor Connector At Drive Side



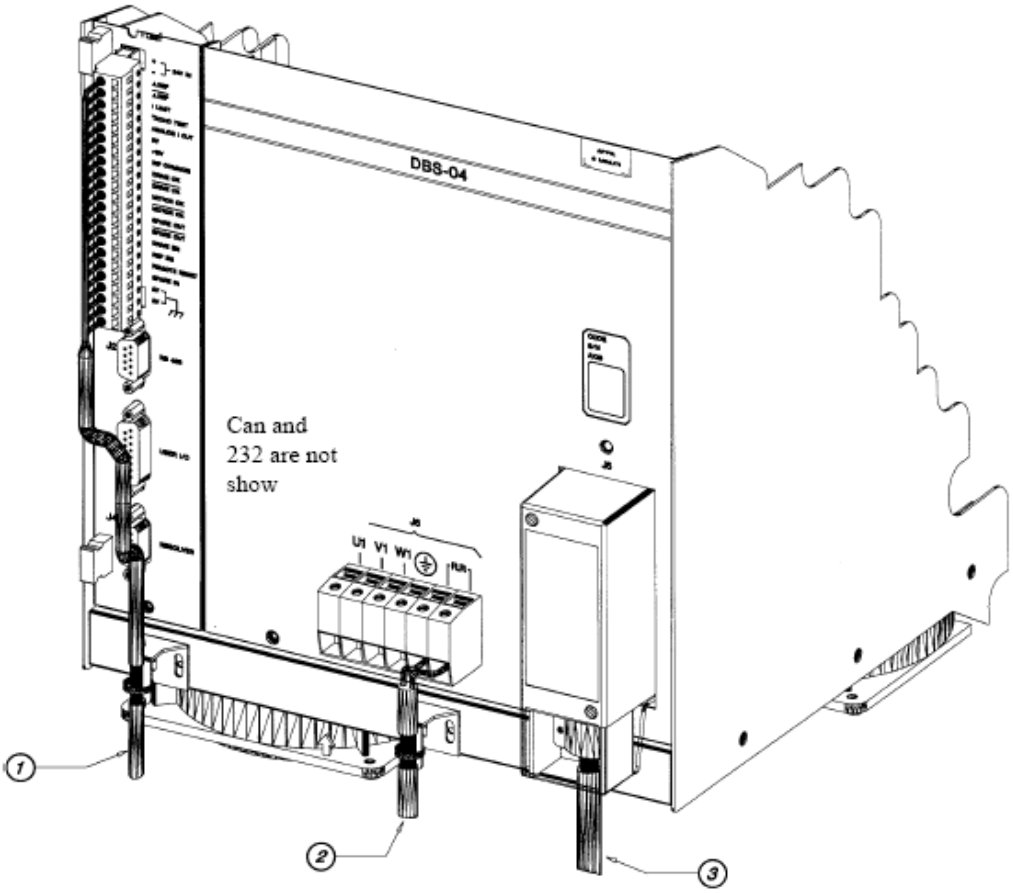
- external recovery resistor cable
CAUTION: *the unshielded cable provided with the drive is only for test purposes and not EMC compliant.*

- Reference, Enable and OK cable

- RS485 cable

- Simulated encoder cable (if applicable)

Fig. 3.4 - Grounding At Drive Side



1 = Reference, Enable, OK cable
2 = Recovery resistor cable
3 = Motor power cable

Sub-D and unshielded cables not shown

It is not necessary to shield the input power wires.

(The above shown control board does not match with the previously shown new IDB07 board)

REMARKS:

- the shields of cables inside the cabinet must be 360° clamped to the cabinet wall (see Fig. 3.5).

- "noisy" cables must be kept away from "sensitive" cables by at least 30 cm (12 in). Noisy cables include input-power wires, motor power and brake wiring. Sensitive cables include analog or digital signal cables: resolver cable; reference, enable and OK cable; RS485 serial link; simulated encoder wiring.

- where noisy cables must cross power cables, this must be done with angles as near to 90° as possible.

FIG. 3.5 - Backpanel Connection

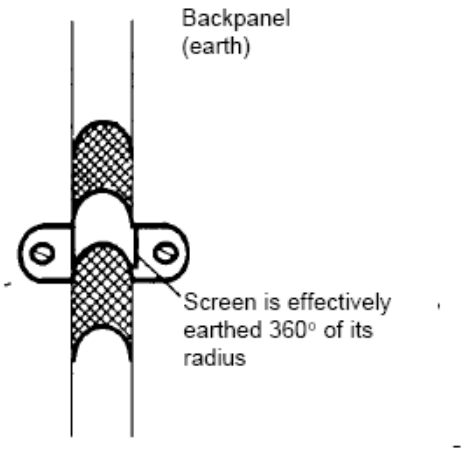
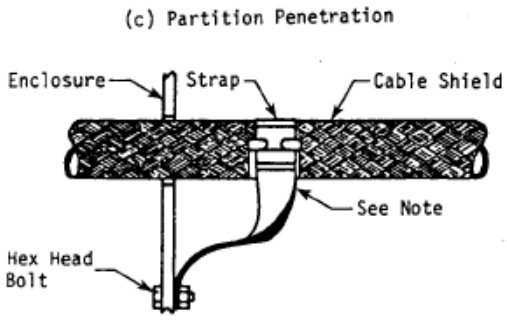


FIG. 3.6 - Partition Penetration



the crossing of the cabinet should be accomplished with a low impedance connection between cable shield and enclosure. If a connector is not involved, the shortest practical lengths of connecting strap should be used (see Fig.3.6).