

SHORT GUIDE for ISDxxxx/CAN
with D-SUB connectors [rev 1.6]

POWER SUPPLY¹:

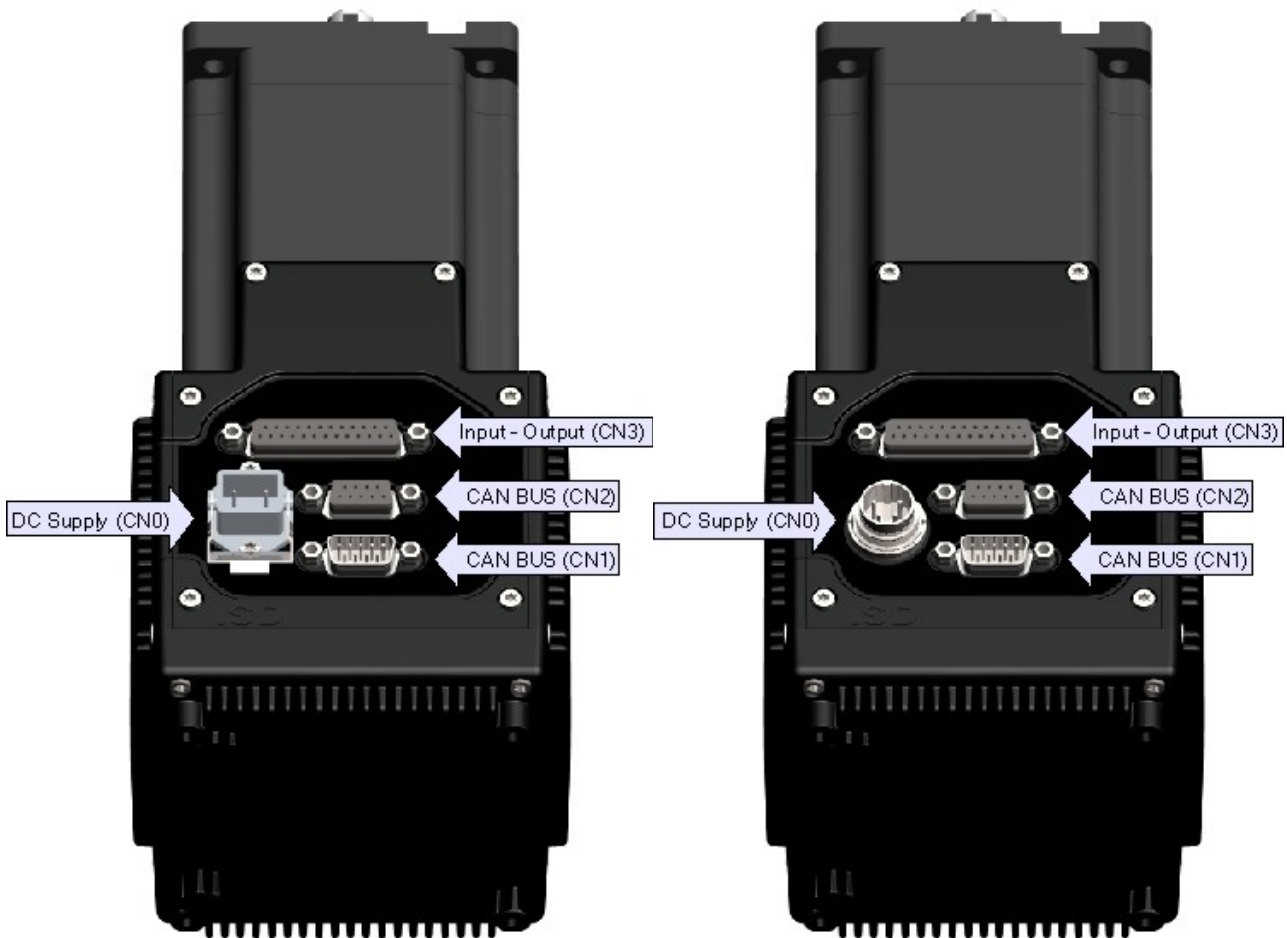
from 65 to 130 Vdc (ONLY DC VOLTAGE)
[nominal 120Vdc]

LOGIC SUPPLY¹:

from 20 to 130 Vdc (ONLY DC VOLTAGE)

CURRENT:

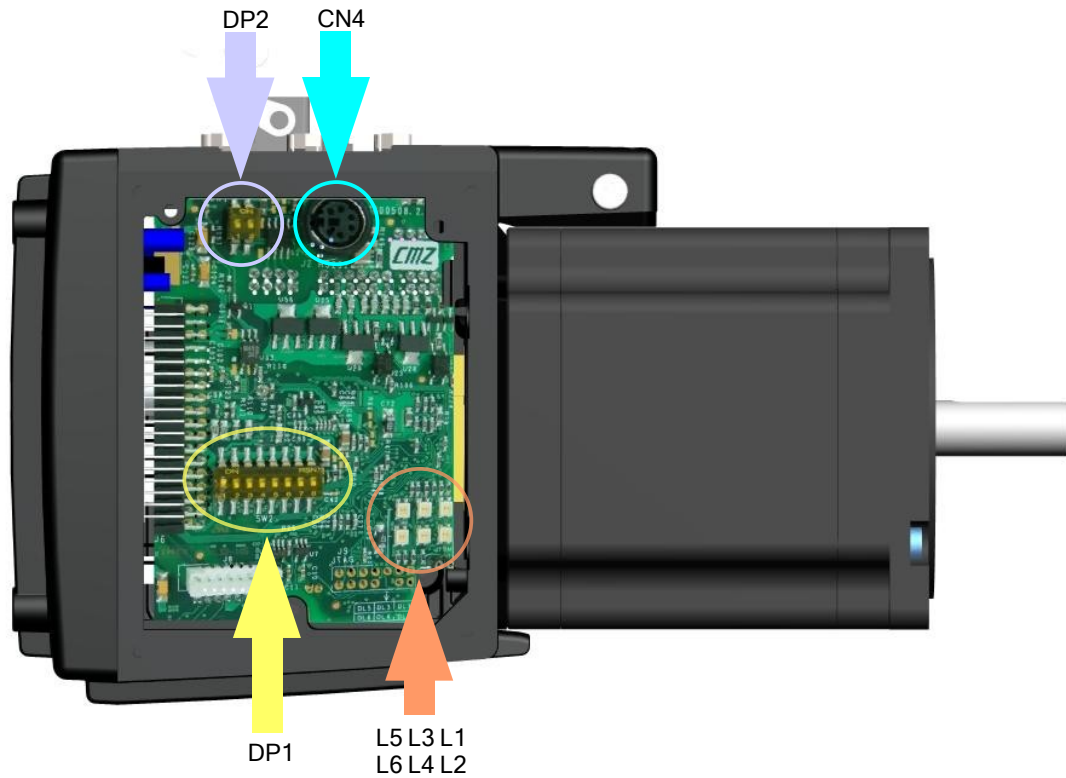
Maximum current internally set (depends on motor)



ISDXXXX/CAN.1X1

ISDXXXX/CAN.3X1

¹ From HW rev. \geq 14



CONNECTORS:

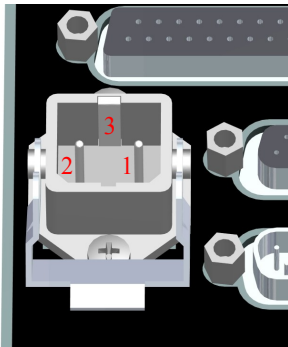
CN0 --> DC supply

CN1 --> CAN bus

CN2 --> CAN bus

CN3 --> input/output - RS232

CN4 --> RS232 serial port (for debug and configuration) *available also on CN3*



CN0 PIN	SIGNAL	DESCRIPTION
1	+HV (dc)	DC Power/Logic Supply
2	GND	GND Power/Logic Supply
3	PE	Protection Earth



CN0 PIN	SIGNAL	DESCRIPTION
1	+VPOW	DC Power Supply
2	GND	GND Power/Logic Supply
3	PE	Protection Earth
4	+VLOG	DC Logic Supply



CNI-CN2 PIN	SIGNAL	DESCRIPTION
1	NC	Not connected
2	CAN-L	CAN Low
3	CAN-GND	CAN Ground
4	NC	Not connected
5	SHIELD	Shield
6	CAN-GND	CAN Ground
7	CAN-H	CAN High
8	NC	Not connected
9	NC	Not connected
Chassis	PE	Protection Earth

- ANALOG INPUT: from -10V to +10V
- 3 optoisolated PNP digital inputs
- 2 optoisolated PNP digital outputs
- 2 bidirectional optoisolated PNP digital IN/OUT
- 2 differential (+24V or +5V/Line driver) digital inputs (used as general purpose, encoder input or step-dir input).

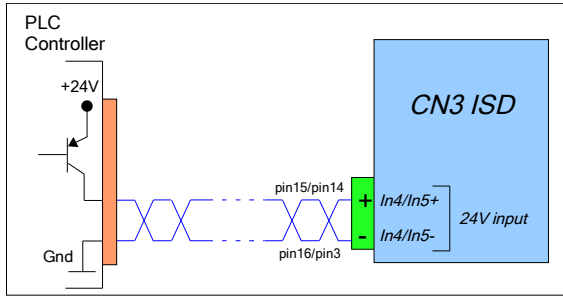
The inputs are protected against reverse polarity.

The power supply for the digital output section (24Vdc) must be provided from outside through pin 9 (+24Vdc) and 21 (Ground of 24Vdc).

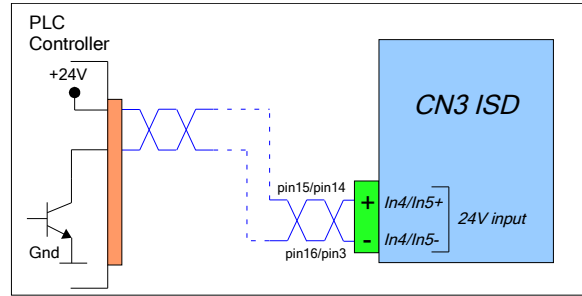
The output are protected against short circuits, over-temperature and reverse polarity.

DIGITAL INPUTS FEATURES	
<i>Max. input</i>	7
<i>Galvanic isolation</i>	with optocouplers
In/Out0, In/Out1, In2, In3, In6	
<i>Type of input</i>	PNP
Input voltage:	
- rated	+24Vdc
- for LOW signal	-30V ÷ +5Vdc
- for HIGH signal	+11V ÷ +30Vdc
<i>Input current (typ)</i> @Vin=24V	4,8 mA
In4 and In5	
<i>Type of input</i>	PNP, NPN, differential, push-pull
Input voltage between IN4 or IN5 (24V input):	
- rated	+24Vdc
- for LOW signal	-30V ÷ +5Vdc
- for HIGH signal	+16V ÷ +30Vdc
<i>Input current (typ)</i> @Vin=24V	9,2 mA
Input voltage between IN4 or IN5 (Line driver/+5V input):	
- for LOW signal	≤ 1,4 Vdc
- for HIGH signal	+3V ÷ +5Vdc
<i>Input current (typ)</i> @Vin=4V	14mA

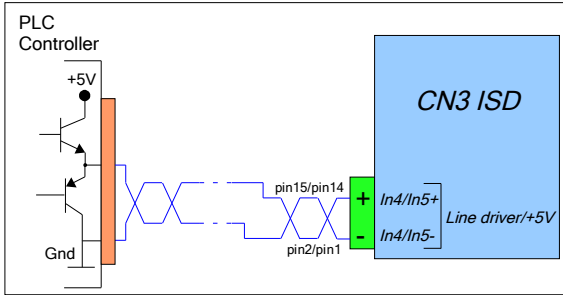
DIGITAL OUTPUTS FEATURES (In/Out0, In/Out1, Out2, Out3)	
<i>Type of output</i>	PNP
<i>Max. output</i>	4
<i>Galvanic isolation</i>	with optocouplers
<i>Output power supply</i>	24V±10%
<i>Rated output current</i>	200mA



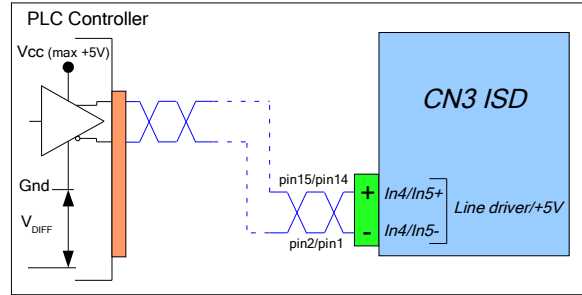
PNP source 24V



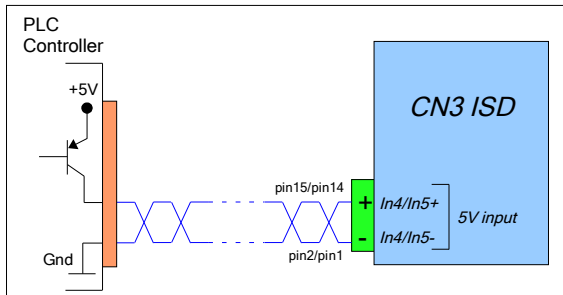
NPN source 24V



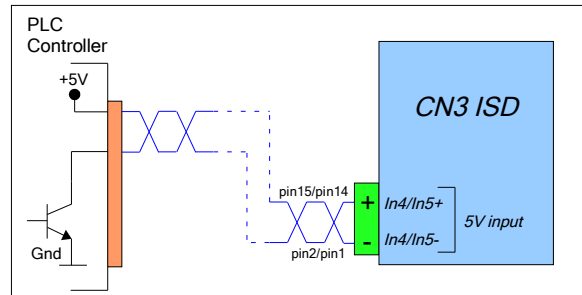
PUSH-PULL source



Differential/Line-driver (DS26x31 compatible)

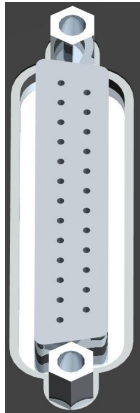


PNP source 5V



NPN source 5V

ATTENTION: never apply voltage exceeding +5Vdc between pin 15-2 (In4 for line driver/+5V input) and pin 14-1 (In5 for line driver/+5V input)



CN3 PIN	SIGNAL	DESCRIPTION	DEFAULT FUNCTION
9	+24V	24V Supply (for Output)	24V SUPPLY
21	GND_24V	Ground of 24V Supply (for Input and Output)	
23	IN/OUT0	Digital Input/Output 0	
10	IN/OUT1	Digital Input/Output 1	
11	IN2	Digital Input 2	
22	IN3	Digital Input 3	
15	IN4+	Digital Input 4 + [only Line driver/+5V]	
2	IN4-	Digital Input 4 - [only Line driver/+5V]	
15	IN4+	Digital Input 4 + [for 24V input]	
16	IN4-	Digital Input 4 - [for 24V input]	
14	IN5+	Digital Input 5 + [only Line driver/+5V]	
1	IN5-	Digital Input 5 - [only Line driver/+5V]	
14	IN5+	Digital Input 5 + [for 24V input]	
3	IN5-	Digital Input 5 - [for 24V input]	
8	IN6+	Digital Input 6 (+)	ENABLE
20	Reserved ¹	Reserved (do not use)	
12	OUT2 ²	Digital Output 2	
24	OUT3 ³	Digital Output 3	
5	RX232	RX RS232	RS232
6	TX232	TX RS232	
18	GND_232	Ground RS232	
13	AN_IN+	Analog Input (+)	ANALOG INPUT
25	AN_IN-	Analog Input (-)	
4	NC	Not connected	
7	NC	Not connected	
17	NC	Not connected	
19	NC	Not connected	
Chassis	PE	Protection Earth	



CN4 PIN	SIGNAL	DESCRIPTION
1	NC	Not connected
2	TX232	TX RS232
3	GND_232	Ground RS232
4	NC	Not connected
5	NC	Not connected
6	RX232	RX RS232

LED:

L1 L2 --> drive status (fault, warning, OK)

L3 L4 --> I²t and auxiliary indications

L5 L6 --> CAN status

blinking: 200ms ON, 200ms OFF (approx.)

1flash: 200ms ON, 1s OFF (approx.) - 2flash: 200ms ON, 200ms OFF, 200ms ON, 1s OFF (approx.)

3flash: 200ms ON, 200ms OFF, 200ms ON, 200ms OFF, 200ms ON, 1s OFF (approx.)

1 Wire this pin to GND_24V for HW REV≤ 4

2 Output available only from HW REV≥ 5

3 Output available only from HW REV≥ 5

<i>Description (drive warning)</i>	<i>LED1 Orange : warning</i>	<i>LED2 Orange : warning</i>
Over Voltage	ON	blinking
Over Temperature Power section	ON	1 flash
Over Temperature Logic section	ON	2 flash
Under Voltage	ON	3 flash
Parameters error	blinking	1 flash
Eeprom failure	blinking	ON
Position following error	1 flash	2 flash
Hardware failure (temperature sensor)	1 flash	3 flash
I ² t limit reached	2 flash	1 flash
I ² t warning level reached	2 flash	2 flash
Capture unit: trigger setup error	2 flash	3 flash
Capture unit: analog level setup error	2 flash	ON
Limit reached	3 flash	ON

<i>Description (drive fault)</i>	<i>LED1 Red : fault</i>	<i>LED2 Red : fault</i>
Over Voltage	ON	blinking
Over Temperature Power section	ON	1 flash
Over Temperature Logic section	ON	2 flash
Under Voltage	ON	3 flash
Short Circuit	ON	ON
Parameters error	blinking	1 flash
Mode error (interpolated position)	blinking	2 flash
Communication error (CAN bus)	blinking	3 flash
Eeprom failure	blinking	ON
Over Current	1 flash	blinking
Axis error	1 flash	1 flash
Position following error	1 flash	2 flash
Hardware failure (temperature sensor)	1 flash	3 flash

<i>Description (drive status)</i>	<i>LED1 Green: OK</i>	<i>LED2 Green: OK</i>
Status OK, Drive enabled	ON	ON
Status OK, Drive disabled	ON	blinking

<i>Description [I²t]</i>	<i>LED3 Red : fault Orange : warning Green : OK</i>
I _{actual} < I _{nominal}	Green ON
I _{actual} > I _{nominal} (I ² t < warning level)	Orange ON
I ² t warning level reached	Orange blinking
I ² t limitation active	Red ON

Description	LED4
Weakening OFF	OFF
Weakening ON	Orange ON

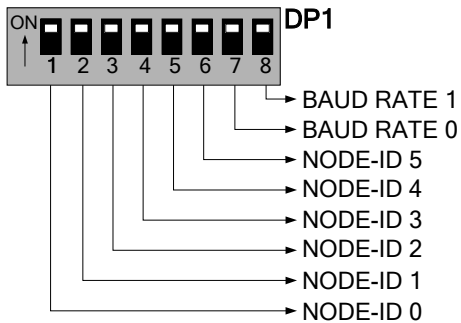
Description (CAN warning - fault)	LED5 (red)
Bus OFF	ON
Warning limit reached	1 flash
Life guard error	2 flash
Sync error	3 flash
NO error	OFF

Description (CAN Status)	LED6 (green)
Operational	ON
Pre-operational	blinking
Stopped	1 flash

DIP SWITCH:

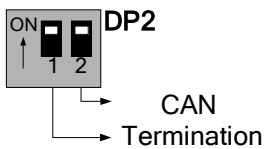
DP1 --> CAN Configuration: NODE-ID [switch 1÷6] and BAUD RATE [switch 7-8]

DP2 --> CAN Termination



DP1-NODE ID [from 1 to 63]

DP1 - BAUD RATE [kbit/s]	SW7	SW8
1000	OFF	OFF
800 ⁴	ON	OFF
500	OFF	ON
250	ON	ON



DP2 - CAN Termination	SW1	SW2
Termination not inserted	OFF	OFF
Termination not inserted	ON	OFF
Termination not inserted	OFF	ON
Termination inserted	ON	ON

4 The maximum cable length at 800kbit/s is at least 50% more than bus at 1000kbit/s.