

CD1-k-230 series

CD1-k-400 series

Mains operating power supply voltage	230 Vac +10 % / -15% mono-phase or three-phase 50 to 60 Hz	400 to 480 Vac +10 % / -15% 3 – phase, TN or TT system with earthed neutral point 50 to 60 Hz (phase-earth voltage must be balanced)
Auxiliary logic	24 Vdc +/- 15% - 320 mA without brake	24 Vdc +/- 15% - 320 mA without brake
Motor phase-phase output voltage	200 Vrms	380 Vrms to 460 Vrms depending on the mains
Integrated braking system	External, X9 connector table reference	External, X9 connector table reference
Minimum inductance between phases	1 mH	2 mH
Regulation loops : current, speed	Digital	Digital
Mains filter on power supply	Integrated in the amplifier	Integrated in the amplifier
Common mode filter on auxiliary supply	Integrated in the amplifier	Integrated in the amplifier
Common mode filter on driving brake supply	Integrated in the amplifier	Integrated in the amplifier
Position sensor	Trasmitter resolver	Trasmitter resolver
Power stage protections	Phase/phase - Phase/earth short-circuit Auxiliary and power overvoltage/undervoltage Power stage overtemperature Fan and braking system fault Motor brake short-circuit	Phase/phase - Phase/earth short-circuit Auxiliary and power overvoltage/undervoltage Power stage overtemperature Fan and braking system fault Motor brake short-circuit
Driving brake control	1.5 A max with 24 Vdc	1.5 A max with 24 Vdc
Max. current ratings	4.5 / 10.5 Arms	2.7 / 7.2 / 14 / 30 / 45 Arms
Interface:		
- CANopen	1 MBit, 500 Kbit, 250 Kbit , 125 Kbit (deep- switch selection)	1 MBit, 500 Kbit, 250 Kbit , 125 Kbit (deep- switch selection)
- RS232	4800, 9600, 19200 Bauds	4800, 9600, 19200 Bauds
- addressing	6 bits (deep- switch selection)	6 bits (deep- switch selection)
- Logic output (ready variator)	Relay	Relay
- Logic Inputs (Inhibit, FC+,FC-,CI,CV0, (Speed limitation)	24 V optocoupled	24 V optocoupled
- Logic output (Nb = 4)		
Error diagnostic	LED, RS-232, CANopen	LED, RS-232, CANopen
Servo control features:		
- PWM frequency	8 KHz	8 KHz
- digital current loops		
- digital speed loop	P, P1,P1 ² regular	P, P1,P1 ² regular
- auto-phasing	Resolver/motor adjustment matching	Resolver/motor adjustment matching
- auto-tuning	3 bands, 2 filters	3 bands, 2 filters
BUS communication	CANopen protocol (DS 301 – DSP 402)	CANopen protocol (DS 301 – DSP 402)
Motor and application parameter setting	RS232 / CANopen	RS232 / CANopen
Dimensions (mm)	4.5 / 10.5 Arms 200 (h) x 200 (d) x 65 (w)	2.7 / 7.2 Arms 228(h) x 230 (d) x 65 (w) 14 Arms 258(h) x 234 (d) x 83 (w) 30 / 45 Arms 288(h) x 234 (d) x 110 (w)
Conformity with the standards: CE certification	EN60204-1 / CEI 1000-4-2, 3, 4, 5 /EN 55011 Group 1, Class A according to EN61800-3	EN60204-1 / CEI 1000-4-2, 3, 4, 5 /EN 55011 Group 1, Class A according to EN61800-3
Conformity with the standards: CE listing «360°» shield; equipotential according to the wiring rules.	EMC standards: Electrical standards for industrial machines:	- Immunity: EN 61000.4-2-3-4-5. - Conduced and radiated disturbances: EN 55011, Group 1, class A. - EN 60204.1: Insulator 1500 VAC/1 min. - Leakage current > 30 mA (EMI filters).
Conformity with the standards: UL listing «360°» shield; equipotential according to the wiring rules.		The CD1-k –400/I series have been “cULus” listed according to UL508C, and UL840 regarding the insulator . The CD1-k-400/I series was evaluted to: - the Second Edition of UL508C, the UL Standard for Power Conversion Equipment, dated November 27, 1996 for the UL Listing (USL), - the CSA Standard for industrial Control Equipment, C22 N° 14-95, dated August 1995 for the Canadian UL Listing (CNL)



CD1-k-230/400 CONNECTIONS

X6, X7 CONNECTORS: CANopen Sub D 9 pins male and female

Pin	Symbol	Description
2	CAN - L	CAN - L line (dominant low)
3	CAN - GND	CAN Ground
7	CAN - H	CAN - H line (dominant low)

X5 CONNECTOR: RS-232 Sub D 9 pins male

Pin	Symbol	Description
3	TXD	Transmit data RS-232
2	RDX	Receive data RS-232
5	0 Volt	GND (shield connection if no "360" on the connector)

X1 CONNECTOR: RESOLVER Sub D 15 pins female

Pin	Symbol	Description
1	Shield connection	SIN, COS, EXTC shield couple together
2	COS +	CMZ-SMB Motor
3	SIN -	CMZ-SMB Motor
4	EXTC -	CMZ-SMB Motor
5	EXTC +	CMZ-SMB Motor
10	COS -	CMZ-SMB Motor
11	SIN +	CMZ-SMB Motor
12	PTC	If motor thermal switch connected to X1
13	PTC	If motor thermal switch connected to X1

X2 CONNECTOR: INPUTS-OUTPUTS Sub D 15 pins male

Pin	Symbol	I/O	Description
1	ENABLE	I	Positive logic – Galvanic insulation
2	GND	I	For the shield connection in no "360" connection
3	FC+ (Limit switch+)	I	Positive logic – Galvanic insulation
4	FC - (Limit switch -)	I	Positive logic – Galvanic insulation
5	Output 3	O	Optocoupled logic output; = 100mA
6	Speed limitation	I	Positive logic – Galvanic insulation
7	Index	I	Positive logic – Galvanic insulation
8	Capture	I	Positive logic – Galvanic insulation
9,10	DRIVE READY	O	Relay contact open if error Pmax =10W with Umax= 50V or Imax=100mA
11	Output 0	O	Optocoupled logic output; = 100mA
12	Output 1	O	Optocoupled logic output; = 100mA
13	Output 2	O	Optocoupled logic output; = 100mA
14	+ 24 external	I	To be wired if the logic output are used
15	Reference (ext. 0V)	I	

X9 CONNECTOR: MAINS, MOTOR, BRAKING RESISTOR 10 pins male connector

Pin	Symbol	I/O	Function	Description	
				CD1-k-230 series	CD1-k-400 series
1	RB	O	Energy dissipation at the motor braking with high inertia and high speed *	100 Ω / 100 W (dp 100/100)	2.7 / 7.2 Arms 200 Ω / 100 W * (dp 200/100)
2	RB	O			14 Arms 50 Ω / 200 W * (dp 50/200)
3	DC -	I/O		Parallel connection of the DC bus	Not available
4	L1	I	Mains input intergrated mains filter	230 Vac single-phase or three-phase	400 to 480 Vac three-phase
5	L2	I			
6	L3	I			
7	DC +	I/O	Parallel connection of the DC bus	Not available	Available
8	W	O	Motor W phase	Motor cable with grounded connection by means of Faston socket and "360" shield connection on grounded collar	
9	V	O	Motor V phase		
10	U	O	Motor U phase		

X8 CONNECTOR: AUXILIARY SUPPLY 4 pins male connector

Pin	Symbol	I/O	Function	Description
1	GND	I	Potential reference of 24 Vdc supply	Ground potential reference
2	+ 24 Vdc	I	24 Vdc auxiliary supply isolated from the mains	24 Vdc +/- 15% - 0.3 A without brake. Regulation with load: 3% UL : Protection by 4A UL fuse
3	Brake + 24 V	O	Motor brake supply with 24 Vdc	Powerless brake : 24 Vdc /1,5 A
4	Brake -	O	Direct motor brake control Imax = 1,5 A	Open collector output protected against load short-circuits

SMB Motor CONNECTOR: RESOLVER

Signal	Pin		
	Mil Connector	Interconnectron connector	Clip Box
SIN +	F	2	6
SIN -	E	1	5
COS +	D	11	4
COS -	C	12	3
EXCT +	A	10	1
EXCT -	B	7	2
PTC	K	8	7
PTC	J	9	8
Shield	G/H	4	N.C.

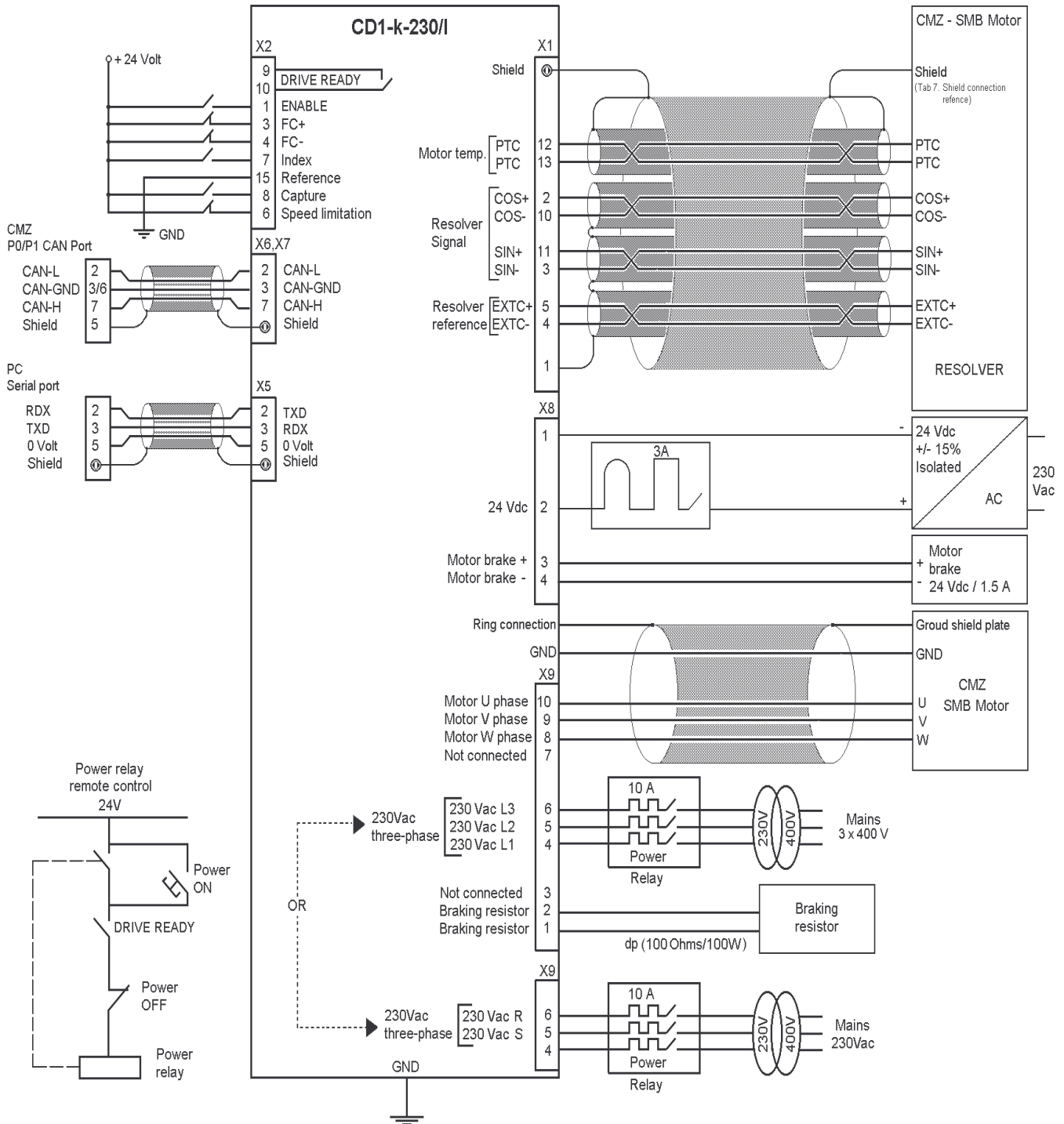
SMB Motor CONNECTOR: POWER SUPPLY

Signal	Pin		
	Mil Connector	Interconnectron connector	Clip Box
U	A	1	A
V	B	2	B
W	C	6	C
Ground	D/E	3	D
Brake+ 24V	G	4	9 **
Brake - 24V	F	5	10 **

Nota:
* braking resistors must be ordered separately
** connected pin in the resolver clip box



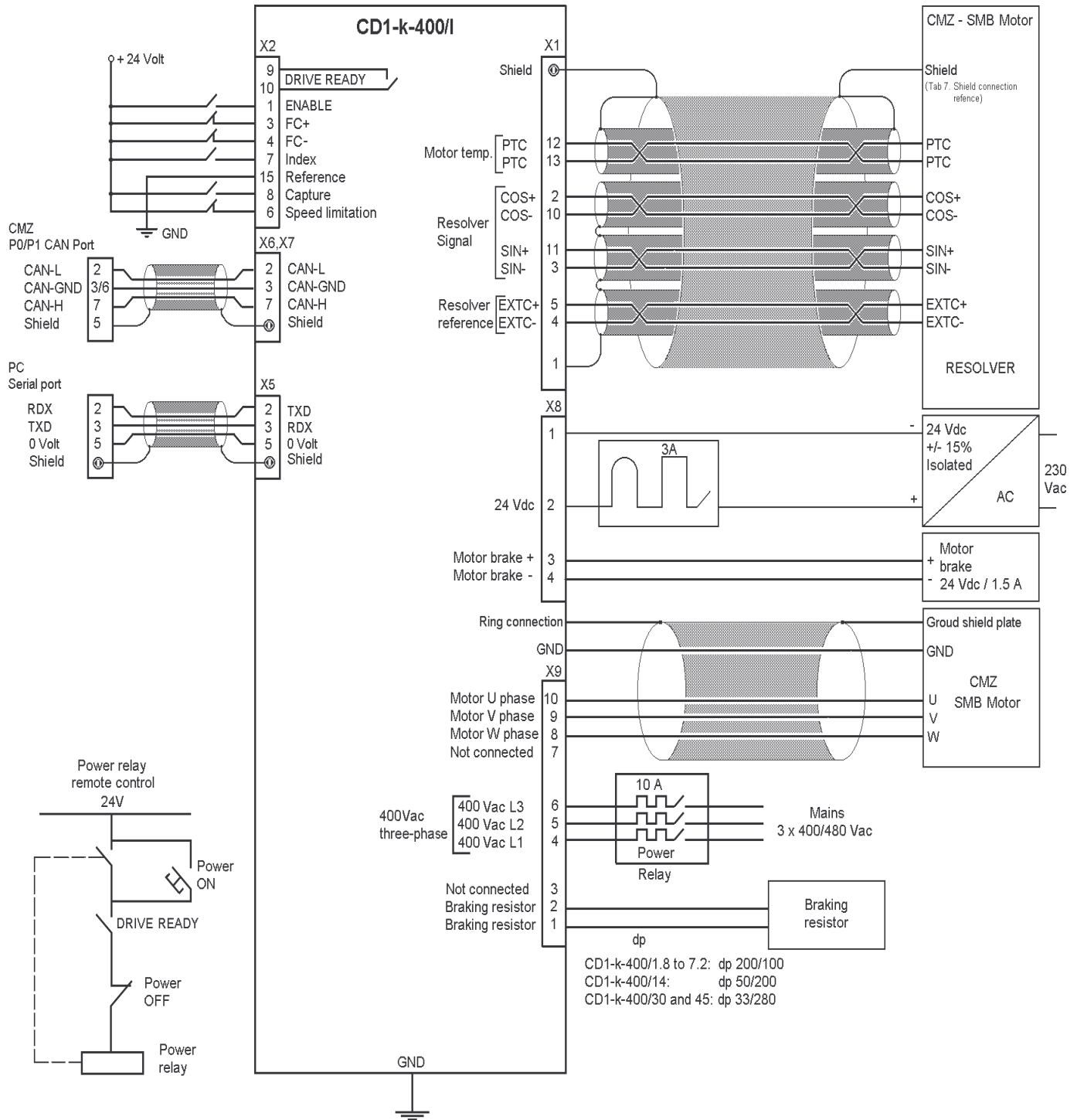
CD1-k-230 CONNECTION DIAGRAMS



IMPORTANT

- The installer of the drives has to use a UL listed quick connect for ground connection (0.250 inches or 6.35 mm wide nominal).
- Field wiring terminals must use copper conductors only.
- Torque value to field wiring terminals: according to the Recognized terminal block used.
- The 24 Volt and power supplies protection, on source side, must be made by the user

CD1-k-400 CONNECTION DIAGRAMS



IMPORTANT

- The installer of the drives has to use a UL listed quick connect for ground connection (0.250 inches or 6.35 mm wide nominal).
- Field wiring terminals must use copper conductors only.
- Torque value to field wiring terminals: according to the Recognized terminal block used.
- The 24 Volt and power supplies protection, on source side, must be made by the user