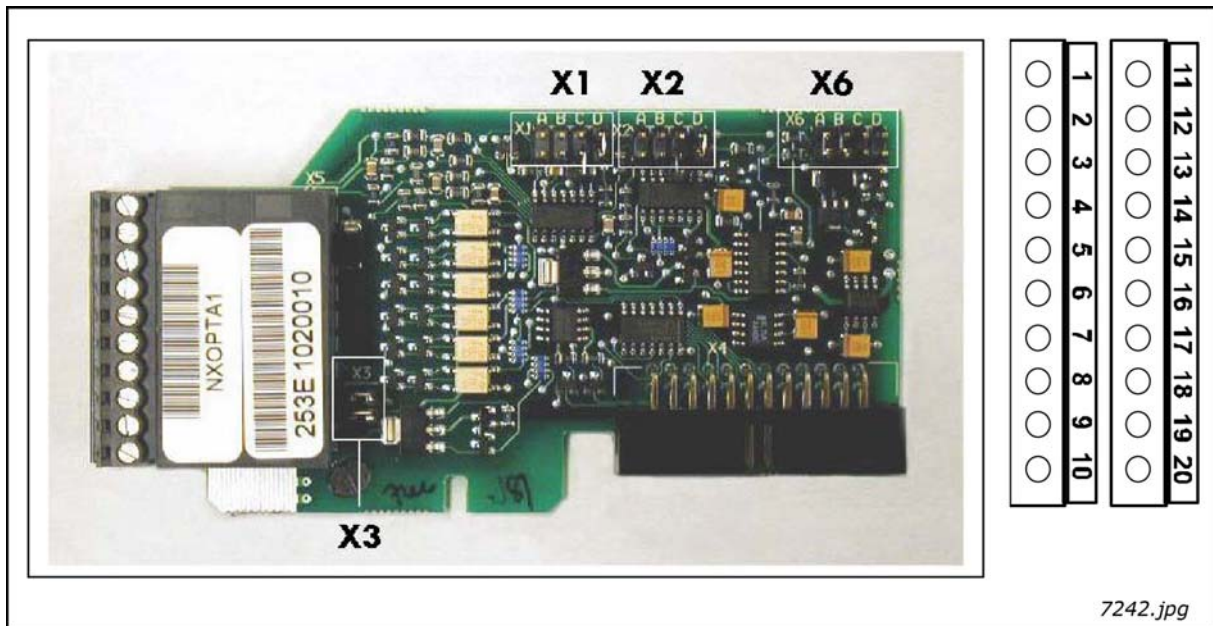### 3.1.1   OPTA1

Figure 11. VACON® OPTA1 option board

Description:	Standard I/O board with digital inputs/outputs and analogue inputs/outputs
Allowed slots:	A
Type ID:	16689
Terminals:	Two terminal blocks (coded = mounting of blocks in wrong order prevented, terminals #1 and #12); Screw terminals (M2.6)
Jumpers:	4; X1, X2, X3 and X6 (See Figure 12)
Board parameters:	Board parameters:Yes (See page 21)

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I/O terminals on OPTA1 (coded terminals painted black)

Table 5. OPTA1 I/O terminals

Terminal		Parameter reference on keypad and NCDrive	Technical information
1	+10 Vref		Reference output +10V; Maximum current 10 mA
2	AI1+	An.IN:A.1	Selection V or mA with jumper block X1 (see page 20): Default: 0– +10V (Ri = 200 kΩ) (-10V..+10V Joy-stick control, selected with ajumper) 0– 20mA (Ri = 250 Ω) Resolution 0.1%; Accuracy ±1%
3	AI1–		Differential input if not connected to ground; Allows ±20V differential mode voltage to GND
4	AI2+	An.IN:A.2	Selection V or mA with jumper block X2 (see page 20): Default: 0– 20mA (Ri = 250 Ω) 0– +10V (Ri = 200 kΩ) (-10V..+10V Joy-stick control, selected with a jumper) Resolution: 0.1%; Accuracy ±1%
5	AI2–		Differential input if not connected to ground; Allows ±20V differential mode voltage to GND
6	24 Vout (bi-directional)		24V auxiliary voltage output. Short-circuit protected. ±15%, maximum current 150 mA, see 1.4.4. +24Vdc external supply may be connected. Galvanically connected to terminal #12.
7	GND		Ground for reference and controls Galvanically connected to terminals #13,19.
8	DIN1	DigIN:A.1	Digital input 1 (Common CMA); R_i = min. 5kΩ
9	DIN2	DigIN:A.2	Digital input 2 (Common CMA); R_i = min. 5kΩ
10	DIN3	DigIN:A.3	Digital input 3 (Common CMA); R_i = min. 5kΩ
11	CMA		Digital input common A for DIN1, DIN2 and DIN3. Connection by default to GND. Selection with jumper block X3 (see page 20):
12	24 Vout (bi-directional)		Same as terminal #6 Galvanically connected to terminal #6.
13	GND		Same as terminal #7 Galvanically connected to terminals #7 and 19
14	DIN4	DigIN:A.4	Digital input 4 (Common CMB); R_i = min. 5kΩ
15	DIN5	DigIN:A.5	Digital input 5 (Common CMB); R_i = min. 5kΩ
16	DIN6	DigIN:A.6	Digital input 6 (Common CMB); R_i = min. 5kΩ
17	CMB		Digital input common B for DIN4, DIN5 and DIN6. Connection by default to GND. Selection with jumper block X3 (see page 20):
18	AO1+	AnOUT:A.1	Analogue output Output signal range: Current 0(4)–20mA, R_L max 500Ω or
19	AO1–		Voltage 0—10V, R_L >1kΩ Selection with jumper block X6 (see page 20): Resolution: 0.1% (10 bits); Accuracy ±2%
20	DO1	DigOUT:A.1	Open collector output Maximum U_{in} = 48VDC Maximum current = 50 mA

Jumper selections

There are four jumper blocks on the OPTA1 board. The factory defaults and other available jumper selections are presented below.
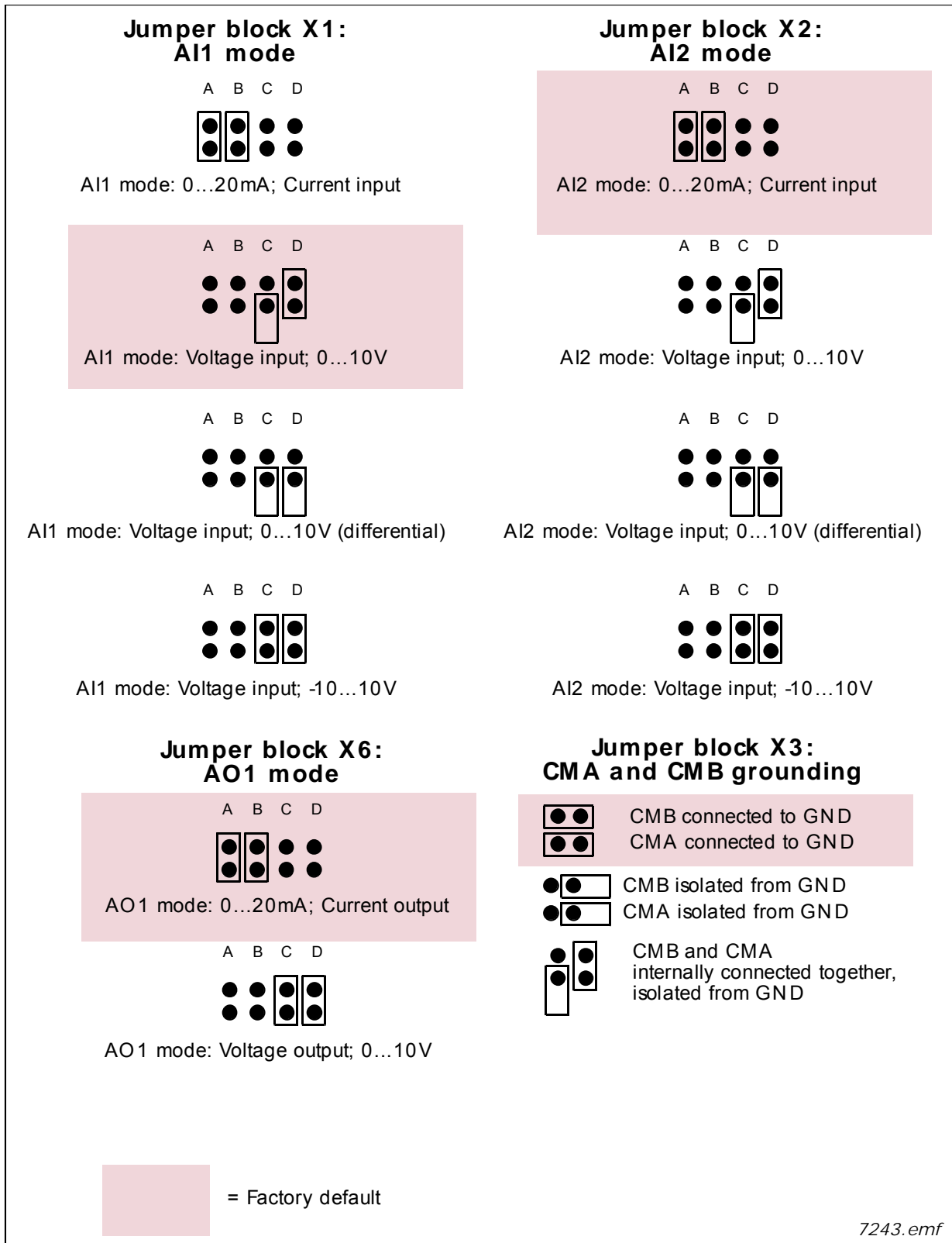

Jumper block X1:
AI1 mode

A B C D

AI1 mode: 0...20mA; Current input

A B C D

AI1 mode: Voltage input; 0...10V

A B C D

AI1 mode: Voltage input; 0...10V (differential)

A B C D

AI1 mode: Voltage input; -10...10V

Jumper block X2:
AI2 mode

A B C D

AI2 mode: 0...20mA; Current input

A B C D

AI2 mode: Voltage input; 0...10V

A B C D

AI2 mode: Voltage input; 0...10V (differential)

A B C D

AI2 mode: Voltage input; -10...10V

Jumper block X6:
AO1 mode

A B C D

AO1 mode: 0...20mA; Current output

A B C D

AO1 mode: Voltage output; 0...10V

Jumper block X3:
CMA and CMB grounding

CMB connected to GND
CMA connected to GND

CMB isolated from GND
CMA isolated from GND

CMB and CMA
internally connected together,
isolated from GND

= Factory default

7243.emf

Figure 12. Jumper block selection on OPTA1

Local contacts: http://drives.danfoss.com/danfoss-drives/local-contacts/

OPTA1 parameters

Table 6. OPTA1 board-related parameters

Number	Parameter	Min	Max	Default	Note
1	AI1 mode	1	5	3	1 = 0...20mA 2 = 4...20mA 3 = 0...10V 4 = 2...10V 5 = -10...+10V
2	AI2 mode	1	5	1	1 = 0...20mA 2 = 4...20mA 3 = 0...10V 4 = 2...10V 5 = -10...+10V
3	AO1 mode	1	4	1	1 = 0...20mA 2 = 4...20mA 3 = 0...10V 4 = 2...10V

3