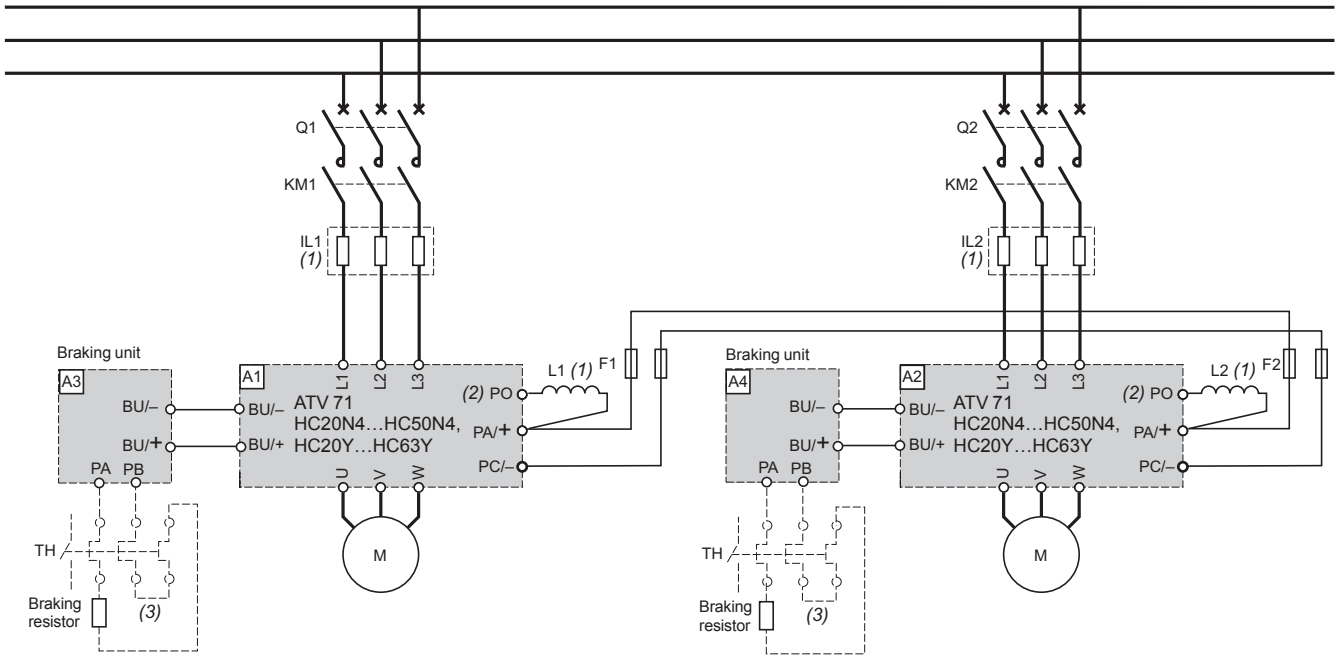
Drives combined with a braking unit and wired onto the same DC bus

ATV 71HC20N4…HC50N4, ATV 71 HC20Y…HC63Y

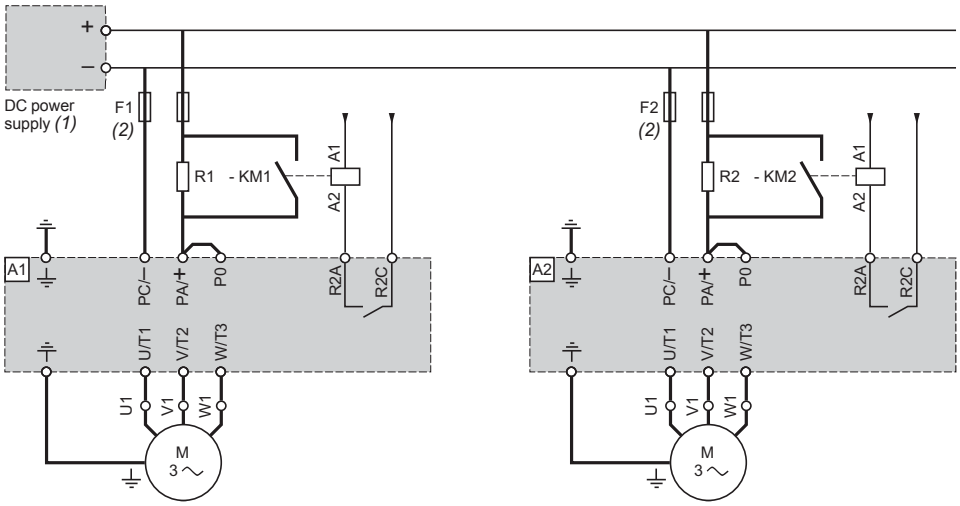


Item	Description
A1, A2	ATV 71 drives, see pages 23 and 25.
A3, A4	Braking units, see pages 134 and 135.
F1, F2, F3	Fast-acting semi-conductor fuses, see page 239. The function of the fuses is to protect the DC bus wiring in the event of a drive short-circuit.
IL1, IL2 *(1)*	Mandatory line chokes for ATV 71HC20Y…HC63Y drives; to be ordered separately, see page 160.
KM1, KM2	Line contactors. Rating: see motor starters on pages 244 to 249.
L1, L2 *(1)*	Mandatory DC chokes for ATV 71HC20N4…HC63N4 drives; supplied as standard with these drives. Not used for ATV 71HC20Y…HC63Y drives. These drives require the presence of line chokes (IL●)
Q1, Q2	Circuit-breakers. Rating: see motor starters on pages 244 to 249.

(1) The use of line chokes or DC chokes depends on the drive type, see table above.
(2) There is no PO terminal on ATV 71HC20Y…HC63Y drives.
(3) A thermal overload relay can be added; its contact must then be integrated into the control circuit.

Drives powered by external DC power supply

ATV 71HD18M3X…HD45M3X, ATV 71●D22N4…●D75N4, ATV 71●U22Y…HD90Y



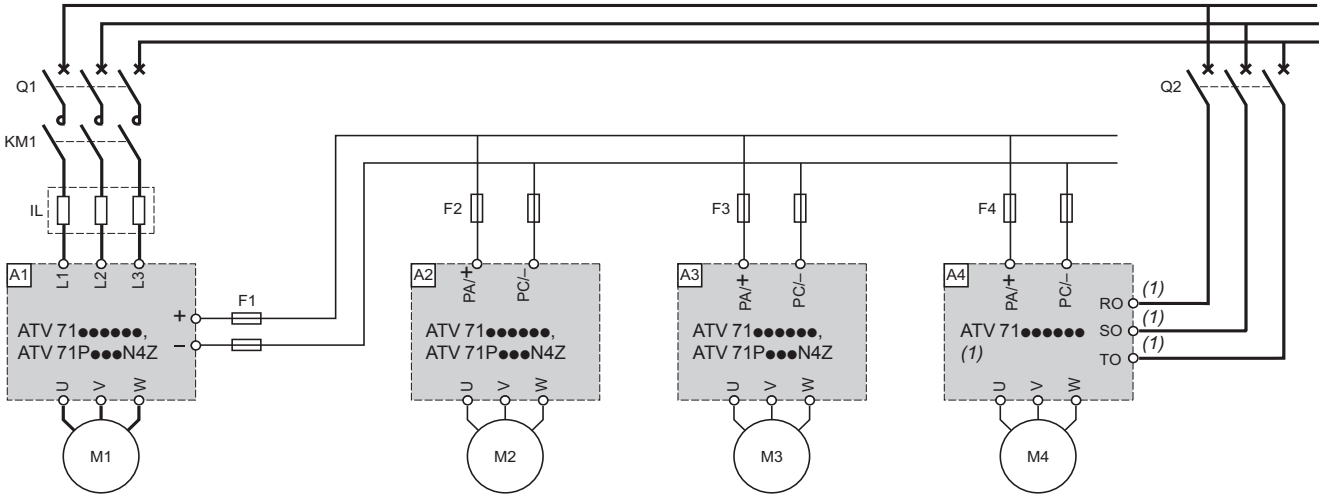
For drives A1, A2	Precharge resistors R1, R2		Contactors (3) KM1, KM2
	Value	Reference	
	Ω		
ATV 71HD18M3X	5	VW3 A7 707	LC1 D32●●
ATV 71HD22M3X	5	VW3 A7 707	LC1 D40●●
ATV 71HD30M3X	5	VW3 A7 707	LC1 D65●●
ATV 71HD37M3X	5	VW3 A7 707	LC1 D80●●
ATV 71HD45M3X	5	VW3 A7 707	LC1 D80●●
ATV 71HD22N4, WD22N4	5	VW3 A7 707	LC1 D25●●
ATV 71HD30N4, WD30N4	5	VW3 A7 707	LC1 D32●●
ATV 71HD37N4, WD37N4	5	VW3 A7 707	LC1 D38●●
ATV 71HD45N4, WD45N4	5	VW3 A7 707	LC1 D40●●
ATV 71HD55N4, WD55N4	5	VW3 A7 707	LC1 D50●●
ATV 71HD75N4, WD75N4	5	VW3 A7 707	LC1 D80●●
ATV 71HU22Y	8	VW3 A7 706	LC1 D09●●
ATV 71HU30Y	8	VW3 A7 706	LC1 D09●●
ATV 71HU40Y	8	VW3 A7 706	LC1 D12●●
ATV 71HU55Y	8	VW3 A7 706	LC1 D12●●
ATV 71HU75Y	8	VW3 A7 706	LC1 D18●●
ATV 71HD11Y	8	VW3 A7 706	LC1 D18●●
ATV 71HD15Y	8	VW3 A7 706	LC1 D25●●
ATV 71HD18Y	8	VW3 A7 706	LC1 D32●●
ATV 71HD22Y	8	VW3 A7 706	LC1 D32●●
ATV 71HD30Y	8	VW3 A7 706	LC1 D40●●
ATV 71HD37Y	8	VW3 A7 706	LC1 D40●●
ATV 71HD45Y	8	VW3 A7 706	LC1 D65●●
ATV 71HD55Y	8	VW3 A7 706	LC1 D65●●
ATV 71HD75Y	8	VW3 A7 706	LC1 D80●●
ATV 71HD90Y	8	VW3 A7 706	LC1 D80●●

(1) DC power supply not included.
(2) Fast-acting semi-conductor fuses, see page 239. The function of the fuses is to protect the DC bus wiring in the event of a drive short-circuit.
(3) See our catalogue "Motor starter solutions. Control and protection components".

***Note:** ATV 71H●●●M3, ATV 71HD11M3X, HD15M3X, ATV 71●075N4…●D18N4 and ATV 71P●●●N4Z drives have an integrated pre-charge circuit. This is used to connect the DC power supply directly to the drive without the need for an external pre-charge circuit.*

Connection schemes for several drives in parallel on the DC bus

Drives with different ratings

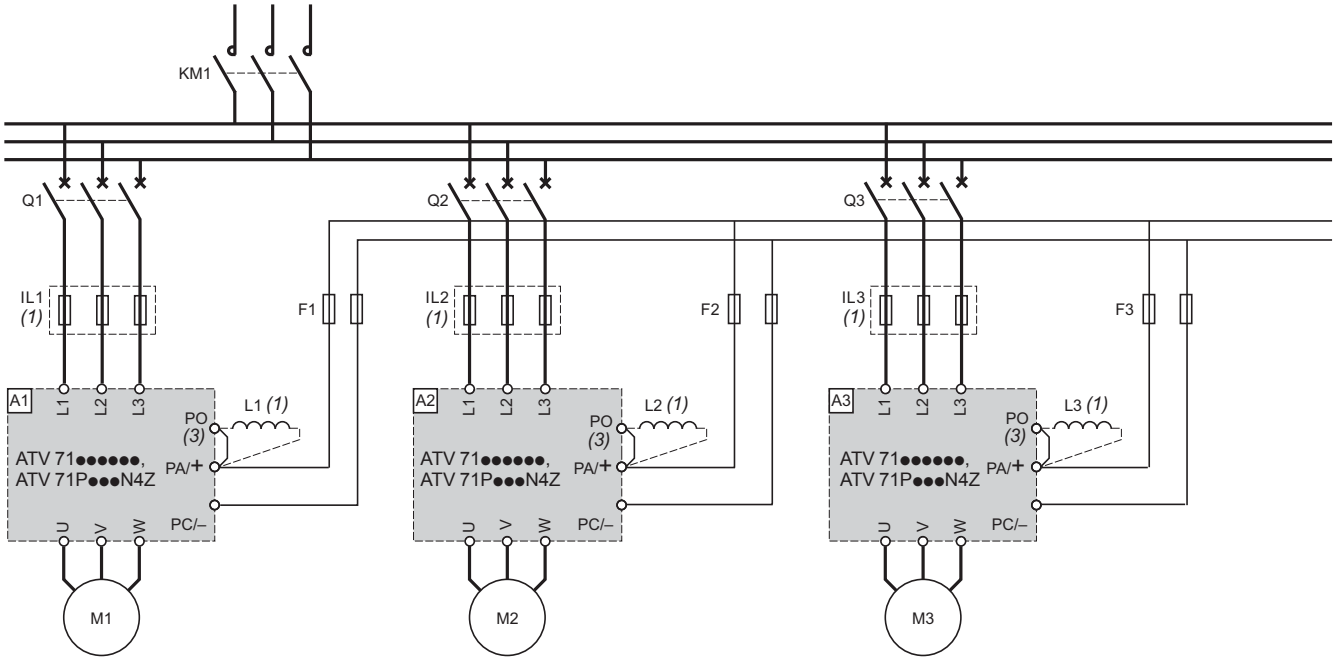


Item	Description
A1	ATV 71 drive, see pages 22 to 25. Drive power = ∑ motor power ratings M1 + M2 + M3 + M4 + …
A2, A3, A4	ATV 71 drives powered by the DC bus. They must be protected using fast-acting semi-conductor fuses. Contactors on the DC circuit are ineffective as the switching action may cause the fuses to blow owing to the high load current.
F1	Fast-acting semi-conductor fuses, see page 239. Drive A1 powered by the AC supply with an output bus. The function of the fuses is to protect the internal diode bridge in the event of a short-circuit on the external DC bus.
F2, F3, F4	Fast-acting semi-conductor fuses, see page 239. Drives A2, A3 and A4 are powered by their DC bus and are not connected to the AC input. The function of the fuses is to protect the DC bus wiring in the event of a drive short-circuit.
IL	Mandatory line chokes for ATV 71HC20Y…HC63Y drives; to be ordered separately, see page 160.
KM1	Line contactors. Rating: see motor starters on pages 243 to 249.
Q1	Circuit-breakers. Rating: see motor starters on pages 243 to 249.

(1) For ATV 71HD55M3X, HD75M3X and ATV 71HD90N4…HC50N4 drives, provide the fan power supply connection.

Connection schemes for several drives in parallel on the DC bus (continued)

Drives with equivalent ratings



Item	Description
A1, A2, A3	ATV 71 drives, see pages 22 to 25. The power difference between the drives connected in parallel must not exceed one rating.
F1, F2, F3	Fast-acting semi-conductor fuses, see page 239. Drives A1, A2 and A3 powered by the AC supply with an output bus. The function of the fuses is to protect the internal diode bridge in the event of a short-circuit on the external DC bus.
IL1, IL2, IL3 *(1)*	Mandatory line chokes for ATV 71H●●●Y drives; to be ordered separately, see page 160.
KM1	When using a common line contactor, all the Altivar 71 drive load circuits operate in parallel and cannot therefore be overloaded.
L1, L2, L3 *(1)*	Mandatory DC chokes for ATV 71H●●●M3, ATV 71H●●●M3X, ATV 71●●●●N4 and ATV 71P●●●N4Z drives; to be ordered separately (see page 155) except for drives ATV 71HD55M3X, HD75M3X and ATV 71HD90N4…HC50N4 which are supplied as standard with a DC choke. Not used for ATV 71H●●●Y drives. These drives require the presence of line chokes (IL●).
Q1, Q2, Q3	Circuit-breakers on the line supply side to protect drives against overloads. Use trip contacts on the “external fault” logic input or the line contactor. The line contactor must only be activated if all three circuit-breakers are closed, as otherwise there is a risk of damage to the drives.

(1) The use of line chokes or DC chokes depends on the drive type, see table above.
(2) There is no PO terminal on ATV 71HC11Y…HC63Y drives.

Size of DC bus fuses (F1, F2, F3 and F4) depending on the drive rating

For drives	Fast-acting semi-conductor fuses *(1)*
	A
ATV 71H037M3…HU15M3	25
ATV 71HU22M3…HU40M3	50
ATV 71HU55M3, HU75M3	100
ATV 71HD11M3X…HD18M3X	160
ATV 71HD22M3X, HD30M3X	250
ATV 71HD37M3X, HD45M3X	350
ATV 71HD55M3X	500
ATV 71HD75M3X	630
ATV 71H075N4…HU22N4 ATV 71W075N4…WU22N4 ATV 71P075N4Z…PU22N4Z	25
ATV 71HU30N4, HU40N4 ATV 71WU30N4, WU40N4 ATV 71PU30N4Z, PU40N4Z	50
ATV 71HU55N4…HD11N4 ATV 71WU55N4…WD11N4 ATV 71PU55N4Z, PU75N4Z	80
ATV 71HD15N4…HD22N4 ATV 71WD15N4…WD22N4	100
ATV 71HD30N4, HD37N4 ATV 71WD30N4, WD37N4	160
ATV 71HD45N4 ATV 71WD45N4	200
ATV 71HD55N4 ATV 71WD55N4	250
ATV 71HD75N4 ATV 71WD75N4	350
ATV 71HD90N4	315
ATV 71HC11N4, HC13N4	400
ATV 71HC16N4	500
ATV 71HC20N4	630
ATV 71HC25N4, HC28N4	800
ATV 71HC31N4	1000
ATV 71HC40N4, HC50N4	1250
ATV 71HU22Y…HU55Y	25
ATV 71HU75Y…HD15Y	40
ATV 71HD18Y…HD30Y	63
ATV 71HD37Y…HD55Y	125
ATV 71HD75Y, HD90Y	200
ATV 71HC11Y	250
ATV 71HC13Y	315
ATV 71HC16Y	350
ATV 71HC20Y	450
ATV 71HC25Y	630
ATV 71HC31Y	800
ATV 71HC40Y	900
ATV 71HC50Y	1250
ATV 71HC63Y	1500

(1) Nominal voltage of fast-acting semi-conductor fuse:

Line supply voltage	Nominal voltage of fast-acting semi-conductor fuse
V ∼	V
230, 400	690
440, 460, 480	800
500, 600, 690	1000