

Product overview complete Marine approval Note

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Description:

Product: Frequency converter

Model: VLT® HVAC Drive series FC-102
 VLT® AQUA Drive series FC-202
 VLT® Automation Drive FC-300 series FC-301/302

FC-102/202/300: 200-240V						
Power rating [kW]			Enclosure type			
FC-102	FC-202	FC-300	IP20 (*1)	IP21 (*2)	IP55 (*3)	IP66 (*4)
-	0,25	0,25	A2	A2 (*5)	A4+A5	A4+A5
-	0,37	0,37				
-	0,55	0,55				
-	0,75	0,75				
1,1	1,1	1,1				
1,5	1,5	1,5				
2,2	2,2	2,2				
3,0	3,0	3,0				
3,7	3,7	3,7				
5,5	5,5	5,5	B3	B1	B1	B1
7,5	7,5	7,5				
11	11	-				
15	15	11	B4	B2	B2	B2
18.5	18.5	15				
22	22	18.5	C3	C1	C1	C1
30	30	22				
37	37	30	C4	C2	C2	C2
45	45	37				

Table 1

FC-102/202/300: 380-480/500V						
Power rating [kW]			Enclosure type			
FC-102	FC-202	FC-300	IP20 (*1)	IP21 (*2)	IP55 (*3)	IP66 (*4)
-	0,37	0,37	A2	A2 (*5)	A4+A5	A4+A5
-	0,55	0,55				
-	0,75	0,75				
1,1	1,1	1,1				
1,5	1,5	1,5				
2,2	2,2	2,2				
3,0	3,0	3,0				
4,0	4,0	4,0				
5,5	5,5	5,5	A3	A3 (*5)	A5	A5
7,5	7,5	7,5				
11	11	-	B3	B1	B1	B1
15	15	11				
18.5	18.5	15				
22	22	18.5	B4	B2	B2	B2
30	30	22				
37	37	30				
45	45	37	C3	C1	C1	C1
55	55	45				
75	75	55	C4	C2	C2	C2
90	90	75				

Table 2

FC-102/202/300: 525-690V						
Power rating [kW]			Enclosure type			
FC-102	FC-202	FC-300	IP20 (*1)	IP21 (*2)	IP55 (*3)	IP66 (*4)
1,1	1,1	1,1	A3	N/A	N/A	N/A
1,5	1,5	1,5				
2,2	2,2	2,2				
3,0	3,0	3,0				
4,0	4,0	4,0				
5,5	5,5	5,5				
7,5	7,5	7,5				
11	11	-	B4	B2	B2	B2
15	15	11				
18	18	15				
22	22	18				
30	30	22				
37	37	30	C3	C2	C2	C2
45	45	37				
55	55	45				
75	75	55	D3h	C2	C2	C2
90	90	75				

Table 3

(*1) IP20/Panel mount. All IP20 versions can be upgraded to IP21 with optional kit

(*2) IP21/NEMA Type 1

(*3) IP55/NEMA Type 12

(*4) IP66/NEMA Type 4X

(*5) IP20/Panel with IP21 upgrade kit

N/A: Not Applicable

H1; H2; H3; H4 and H5 RFI comply with IACS E10 requirements except radiated and conducted emissions.

Ruggedized boards, selection "R" in character 20, or H5 in character 16-17 must be selected where applicable

Limitations: Converters which exceed the limits for radiated and conducted emissions of IACS E10 can be installed in "special power distribution zone" according to IEC60533. For installations in "general power distribution zone" measures must be taken to attenuate the effects on the distribution system Planned EMC measures according to IEC60533 shall be assessed prior to installation on board.

Selection types for Type Codes for FC 102, 202 and 300

----- (character 24 – 39 software + options)

1 4 7 11 13 16 23

Basic string definitions:

Product Group (character 1-3)

FC- : Adjustable Frequency Converters

VLT series (character 4-6)

- 102: VLT HVAC Drive – Advanced version
- 202: VLT AQUA Drive – Advanced version
- 301: VLT Automation Drive - Standard version
- 302: VLT Automation Drive - Advanced version

Power size (character 7-10)

PK25: 0.25 kW / 0.33 HP ... N90K: 90 KW / 125 HP

Voltage: (character 11-12)

- T2 : Three phase 200-240 VAC
- T4 : Three phase 380-480 VAC
- T5 : Three phase 380-500 VAC
- T7 : Three Phase 525-690 VAC

Enclosure (character 13-15)

- E20 : IP20 / Chassis
- E21 : IP21 / Type 1
- E55 : IP55/ Type 12
- E66 : IP66 / Type 4X

Hardware (character 16-23)

Hardware, RFI filter (character 16-17)

H1; H2; H3; H4; H5 RFI comply with IACS E10 requirements except radiated and conducted emissions

Hardware, Brake & Stop (character 18)

Hardware, Display (character 19)

Hardware, Coating (character 20)

C: Coated PCB

R: Coated PCB + Ruggedized

Hardware, Mains options (character 21)

Hardware, adaptation A (character 22)

Hardware, adaptation B (character 23)

Software (character 24-28)

Options – A (character 29-30)

Options – B (character 31-32)

Options – C (character 33-37)

Options – D (character 38-39)

Brand labelling and customer specific definitions

Brand labelling and customer specific drives are following the type codes except the characters 1-6 for product group and VLT series. Character 1-6 are used for customer specific definitions.

Basic string definitions for brand labelling and customer specific drives:**Product Group and VLT series (character 1-6)**

AF-600	Equal to FC-102
AKD102	Equal to FC-102
FC-103	Equal to FC-102
ADS102	Equal to FC-102
IVS102	Equal to FC-102
TR-200	Equal to FC-102
ITT102	Equal to FC-102
CUE202	Equal to FC-202
FC-322	Equal to FC-202
LD-302	Equal to FC-302
IR-302	Equal to FC-302
IRV302	Equal to FC-302
CD-302	Equal to FC-302
MWU302	Equal to FC-302
CDS302	Equal to FC-302
DV-302	Equal to FC-302
3G3DV	Equal to FC-302
LB-302	Equal to FC-302
AFE302	Equal to FC-302
AF-650	Equal to FC-302
FCK302	Equal to FC-302
FC-312	Equal to FC-302
FC-311	Equal to FC-301

Product: Frequency converter

Model: VLT® HVAC Drive series FC-102
 VLT® AQUA Drive series FC-202
 VLT® Automation Drive series FC-302

FC-102/202/302: 380-480/500V									
Power rating [kW]			Enclosure type						
			6-pulse		12-pulse	Low Harmonic Drive (LHD)			
FC-102	FC-202	FC-302	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)				
110	110	90	D3h	N/A	D1h/D5h/D6h	N/A	N/A		
132	132	110					D1n		
160	160	132					D2n		
200	200	160	D4h		E2	E1/E1h	F8/F9	E9	
250	250	200							
315	315	250							
355	355	315	E3h	N/A	F1/F3/E2h	F10/F11	F18		
400	400	355						F1/F3/E2h	
450	450	400						F1/F3	
500	500	450	E4h		N/A		F1/F3	F12/F13	N/A
560	560	500	E4h						
630	630	560	N/A						
710	710	630	N/A	N/A	F2/F4	F12/F13	N/A		
800	800	710	N/A						
1M0	1M0	800	N/A						

Table 4

FC-102/202/302: 525-690V						
Power rating [kW]			Enclosure type			
			6-pulse			12-pulse
FC-102	FC-202	FC-302	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)	
75	75	55	D3h	N/A	D1h/D5h/D6h	N/A
90	90	75				
110	110	90				
132	132	110				
160	160	132				
200	200	160	D4h	N/A	D2h/D7h/D8h	N/A
250	250	200				
315	315	250				
400	400	315				
450	450	355	E3h	E2	E1/E1h	F8/F9
500	500	400				
560	560	500				
630	630	560				
710	710	630	E4h	N/A	F1/F3/E2h	F10/F11
800	800	710	E4h		F1/F3/E2h	
900	900	800	N/A		F1/F3	
1M0	1M0	900	N/A	N/A	F2/F4	F12/F13
1M2	1M2	1M0				
1M4	1M4	1M2				

Table 5

(*1) IP00/IP20/Panel mount.

(*2) IP21/NEMA Type 1; IP54/NEMA Type 12

N/A: Not Applicable

Limitations: Converters which exceed the limits for radiated and conducted emissions of IACS E10 can be installed in "special power distribution zone" according to IEC60533. For installations in "general power distribution zone" measures must be taken to attenuate the effects on the distribution system Planned EMC measures according to IEC60533 shall be assessed prior to installation on board.

Ruggedized boards, selection "R" in character 20, must be selected where applicable

Selection types for Type Codes for FC-102/202/302

----- (character 24 – 39 software + options)
1 4 7 11 13 16 23

Basic string definitions:

Product Group (character 1-3)

FC- : Adjustable Frequency Converters

VLT series (character 4-6)

102: VLT HVAC Drive – Advanced version
202: VLT AQUA Drive – Advanced version
302: VLT Automation Drive - Advanced version

Power size (character 7-10)

N55K: 55kW / 75 HP P1M4: 1400kW / 1900 HP

Voltage: (character 11-12)

T4: Three phase 380-480 VAC
T5: Three phase 380-500 VAC
T7: Three Phase 525-690 VAC

Enclosure (character 13-15)

“C” units with corrosion resistant back channel:

C00: IP00 / Chassis
C20: IP20 / Chassis
C21: IP21 / (NEMA) Type 1
C2H: IP21 / (NEMA) Type 1 + heater
C54: IP54 / (NEMA) Type 12
C5H: IP54 / (NEMA) Type 12 + heater
C2M: IP21 / (NEMA) Type 1 + Mains Shield
C5M: IP54 / (NEMA) Type 12 + Mains Shield

“E” & “H” units denote standard sized variants:

E00: IP00 / Chassis
E20: IP20 / Chassis
E21: IP21 / (NEMA) Type 1
E54: IP54 / (NEMA) Type 12
E5S: IP54 / (NEMA) Type 12 Stainless Steel screws + heater
E2M: IP21 / (NEMA) Type 1 + mains shield
E5M: IP54 / (NEMA) Type 12 + mains shield
H21: IP21 / (NEMA) Type 1 + heater
H54: IP54 / (NEMA) Type 12 + heater

Hardware (character 16-23)

Hardware, RFI filter (character 16-17)

H2: 6 Pulse Drive RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

H4: 6 Pulse Drive RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

B2: 12 Pulse Drive with RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

B4: 12 Pulse Drive with RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

N2: Low Harmonic Drive with RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

N4: Low Harmonic Drive with RFI for Maritime (complies with IACS E10 requirements except radiated and conducted emissions)

Hardware, Brake & Stop (character 18)

Hardware, Display (character 19)

Hardware, Coating (character 20)

C: Coated PCB

R: Coated PCB + Ruggedized

Hardware, Mains options (character 21)

Hardware, adaptation A (character 22)

Hardware, adaptation B (character 23)

Software (character 24-28)**Options – A (character 29-30)****Options – B (character 31-32)****Options – C (character 33-37)****Options – D (character 38-39)**

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Brand labelling and customer specific drives are following the type codes except the characters 1-6 for product group and VLT series. Character 1-6 are used for customer specific definitions.

Basic string definitions for brand labelling and customer specific drives:**Product Group and VLT series (character 1-6)**

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TR-200	Equal to FC-102
ITT102	Equal to FC-102
CUE202	Equal to FC-202
FC-322	Equal to FC-202
LD-302	Equal to FC-302
IR-302	Equal to FC-302
IRV302	Equal to FC-302
CD-302	Equal to FC-302
MWU302	Equal to FC-302
CDS302	Equal to FC-302
DV-302	Equal to FC-302
3G3DV	Equal to FC-302
LB-302	Equal to FC-302
AFE302	Equal to FC-302
AF-650	Equal to FC-302
FCK302	Equal to FC-302

Product: Advanced Active Filter

Model: VLT® Advanced Active Filter series AAF006

AAF006: 380-480V				
Current rating [Amps]	Enclosure type			RFI filter
	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)	Type (*3)
190	NA	NA	D14	HX
250				
310			E1	
400				

Table 6

(*1) IP00/IP20 Panel mount.

(*2) IP21/NEMA Type 1; IP54/NEMA Type 12

(*3) HX: Active Filter RFI for Maritime complies with IACS E10 requirements except radiated and conducted emissions.

Limitations: Filters which exceed the limits for radiated and conducted emissions of IACS E10 can be installed in “special distribution zone” according to IEC 60533. For installations in “general power distribution zone” measures must be taken to attenuate the effects on the distribution system. Planned EMC measures according to IEC 60533 shall be assessed prior to installation on board.

Selection types for Type Codes for AAF006 Active Filters

____ _ (character 24 – 39 software + options)

1 4 7 11 13 16 23

Basic string definitions:

Product Group (character 1-3)

AAF: Active Filters

VLT series (character 4-6)

006: VLT Active Filter – Series 6

Current Rating (character 7-10)

A190: 190 Amp

Voltage: (character 11-12)

T4: Three phase 380-480 VAC

Enclosure (character 13-15)

E21: IP21 / Type 1

E54: IP54/ Type 12

E2M: IP21 / Type 1 with mains shield

E5M: IP54 / Type 12 with mains shield

Hardware (character 16-23)

Hardware, RFI filter (character 16-17)

HX: Active Filter complies with IACS E10 requirements except radiated and conducted emissions

Hardware, Not Used X (character 18)

Hardware, Display (character 19)

Hardware, Coating and Ruggedized (character 20)

Hardware, Mains options (character 21)

Hardware, Reserved for Future (character 22)

Hardware, Reserved for Future (character 23)

Software (character 24-28)

Options – A (character 29-30)

Options – B (character 31-32)

Options – C (character 33-37)

Options – D (character 38-39)