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ASFIFF11 VACON NXP Air Cooled User Manual

vacon
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user's manual
nx frequency converters



fire mode pid application
asfiff11

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INTRODUCTION

The application is functionally the same as the PID application (ASFIFF05) with the addition of the fire mode features. Fire mode is selected via a digital input (programmable). The frequency is set according to logic in Figure 1. When fire mode is active, a fire mode warning (A81) is brought up on the display. When running in fire mode, the converter is programmed to enable the user to run the converter until either the digital input is removed or the converter is damaged.

Additional features when fire mode is selected:

- Run enable always active
- Run request always active
- Direction change not allowed
- Fault signal on digital outputs inactive
- Possible to connect fire mode signal to digital outputs
- Software generated faults are changed to warnings (Drive does not stop)
- Forced reset of hardware system faults (Delay time is set with parameter P2.10.5)
- Fire Mode frequency reference can be PID-output or two selectable preset speeds
- Monitor value V1.22 is stored if fire mode have been used (Counter)

FIRE MODE PID APPLICATION – PARAMETER LISTS

On the next pages you will find the lists of parameters within the respective parameter groups. The parameter descriptions are given on pages 9.

Column explanations:

Code	Location indication on the keypad; Shows the operator the present parameter number
Parameter	Name of parameter
Min	Minimum value of parameter
Max	Maximum value of parameter
Unit	Unit of parameter value; Given if available
Default	Value preset by factory
Cust	Customer's own setting
ID	ID number of the parameter (used with PC tools)
	On parameter code: Parameter value can only be changed after the frequency converter has been stopped.

2.1 Monitoring values (Control keypad: menu M1)

The monitoring values are the actual values of parameters and signals as well as statuses and measurements. Monitoring values cannot be edited.

See Vacon NX User's Manual, Chapter 7 for more information.

Code	Parameter	Unit	ID	Description
V1.1	Output frequency	Hz	1	Output frequency to motor
V1.2	Frequency reference	Hz	25	Frequency reference to motor control
V1.3	Motor speed	rpm	2	Motor speed in rpm
V1.4	Motor current	A	3	
V1.5	Motor torque	%	4	
V1.6	Motor power	%	5	Motor shaft power
V1.7	Motor voltage	V	6	
V1.8	DC link voltage	V	7	
V1.9	Unit temperature	°C	8	Heatsink temperature
V1.10	Voltage input	V	13	AI1
V1.11	Current input	mA	14	AI2
V1.12	Analogue input 3		27	AI3
V1.13	Analogue input 4		28	AI4
V1.14	DIN1, DIN2, DIN3		15	Digital input statuses
V1.15	DIN4, DIN5, DIN6		16	Digital input statuses
V1.16	DO1, RO1, RO2		17	Digital and relay output statuses
V1.17	Analogue I_{out}	mA	26	AO1
V1.18	PID Reference	%	20	In percent of the maximum frequency
V1.19	PID Actual value	%	21	In percent of the max actual value
V1.20	PID Error value	%	22	In percent of the max error value
V1.21	PID Output	%	23	In percent of the max output value
V1.22	Fire mode used	x	1510	Counter, how many times fire mode ha ve been in use

Table 1. Monitoring values

2.2 Input signals (Control keypad: Menu M2 ⇒G2.2)

Code	Parameter	Min	Max	Unit	Default	Cust	ID	Note
P2.2.1	DIN2 function	0	15		1		319	0=Not used 1=External fault cc 2=External fault oc 3=Run enable 4=Acc/Dec time selection 5=CP: I/O terminal 6=CP: Keypad 7=CP: Fieldbus 8=Forward/Reverse 9=Jogging frequency (cc) 10=Fault reset (cc) 11=Acc/Dec prohibit (cc) 12=DC braking command 13=Motor pot. UP (cc) 14=Fire Mode 15=Fire mode preset reference selection, 1 (oc) or 2 (cc)
P2.2.2	DIN3 function	0	15				301	0=Not used 1=External fault cc 2=External fault oc 3=Run enable 4=Acc/Dec time selection 5=CP: I/O terminal 6=CP: Keypad 7=CP: Fieldbus 8=Forward/Reverse 9=Jogging frequency (cc) 10=Fault reset (cc) 11=Acc/Dec prohibit (cc) 12=DC braking command 13=Motor pot.DOWN (cc) 14=Fire Mode 15=Fire mode reference selection, PID or Preset

P2.2.3	DIN5 function	0	15				330	0=Not used 1=External fault cc 2=External fault oc 3=Run enable 4=Acc/Dec time selection 5=CP: I/O terminal 6=CP: Keypad 7=CP: Fieldbus 8=Forward/Reverse 9=Jogging frequency (cc) 10=Fault reset (cc) 11=Acc/Dec prohibit (cc) 12=DC braking command 13=Enable PID reference 14=Fire Mode 15=Fire mode reference selection, PID or Preset

Table 2. Digital input functions, G2.2

2.3 Output signals (Control keypad M2⇒G2.3)

Code	Parameter	Min	Max	Unit	Default	Cust	ID	Note

P2.3.6	Digital output 1 function	0	21		1		312	0=Not used 1=Ready 2=Run 3=Fault 4=Fault inverted 5=FC overheat warning 6=Ext. fault or warning 7=Ref. fault or warning 8=Warning 9=Reversed 10=Preset speed 11=At speed 12=Mot. regulator active 13=OP freq. limit superv. 1 14=OP freq. limit superv. 2 15=Torque limit superv. 16=Ref. limit supervision 17=External brake control 18=Control place: IO 19=FC temp. limit superv. 20=Unrequested direction 21=Ext. brake control inv. 22=Thermistor Fault/Warn. 23=Fieldbus digital input. 24=Fire mode selected.
P2.3.7	Relay output 1 function	0	21		2		313	As parameter 2.3.6
P2.3.8	Relay output 2 function	0	21		3		314	As parameter 2.3.6

Table 3. Digital output functions, G2.3

2.4 Fire Mode (Control keypad M2 -> G2.10)

Code	Parameter	Min	Max	Unit	Default	Cust	ID	Note
P2.10.1	Fire mode functi on	0	1		0		1501	0=Closing contact 1=Opening contact
P2.10.2	Fire mode prese t reference selec tion	0	1		0		1502	0=Not inverted 1=Inverted
P2.10.3	Fire mode min fr equency	Par 2.1 .1	Par. 2.1. 2	Hz	15,00		1503	Min frequency when in fi re mode
P2.10.4	Fire mode prese t frequency 1	Par 2.1 .1	Par 2.1. 2	Hz	35,00		1504	Fire mode preset freque ncy reference 1
P2.10.5	Fire mode prese t frequency 2	Par 2.1 .1	Par 2.1. 2	Hz	50,00		1505	Fire mode preset freque ncy reference 2
P2.10.6	Fire mode force d reset delay	0,50	10,00	s	5,00		1506	Delay time for forced res et when in fire mode

Table 4. Fire Mode parameters, G2.10

Tel. +358 (0)201 2121 • Fax +358 (0)201 212 205

DESCRIPTION OF PARAMETERS

3.1 Fire mode parameters

2.10.1 Fire mode function
0 Closing contact
1 Opening contact
2.10.2 Fire mode preset reference selection
0 Not inverted
1 Inverted
2.10.3 Fire mode min frequency
Sets the min frequency when the Fire Mode is active
2.10.4 Fire mode preset frequency 1
Parameter value is automatically limited between the minimum ad maximum frequencies (P2.1.1, P2.1.2)
2.10.5 Fire mode preset frequency 2
Parameter value is automatically limited between the minimum ad maximum frequencies (P2.1.1, P2.1.2)
2.10.6 Fire mode forced reset delay
Time delay before forced reset after a hardware generated fault.

FREQUENCY REFERENCE SIGNAL LOGIC IN FIRE MODE PID APPLICATION

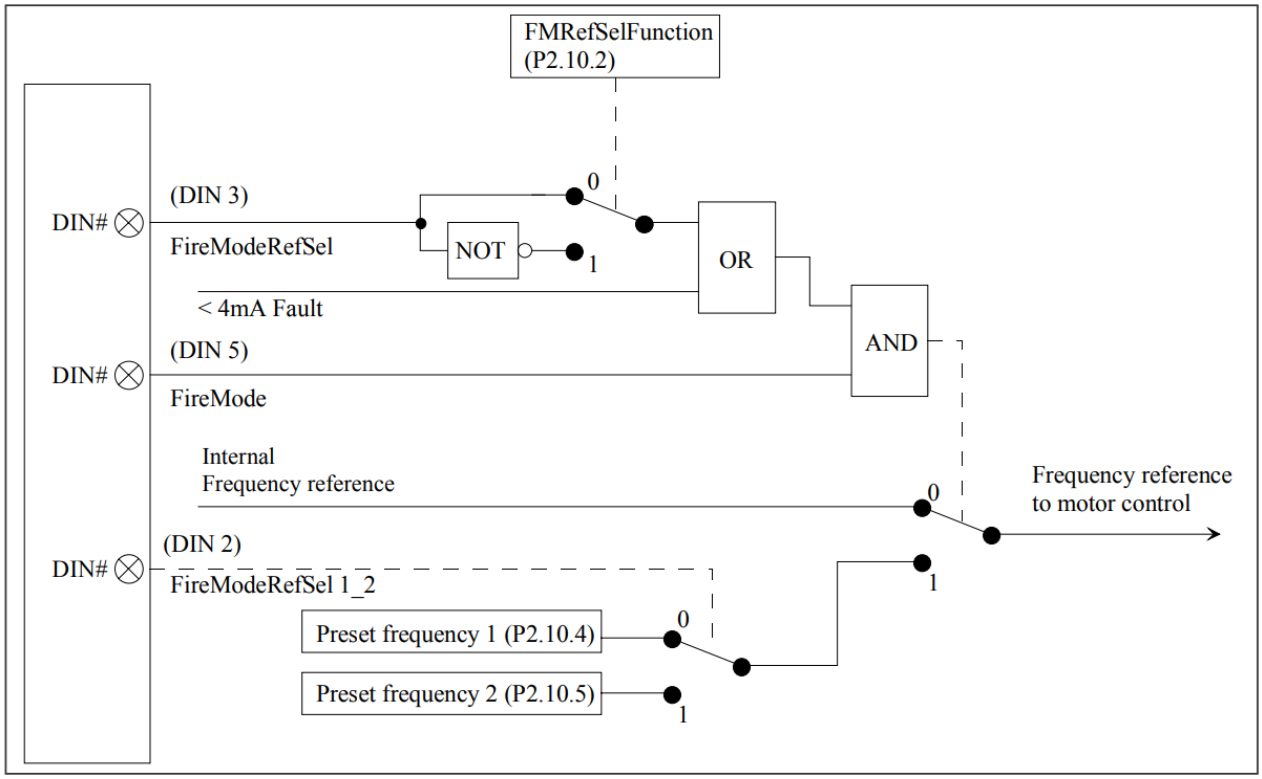


Figure 1. Frequency reference logic of the Fire Mode PID Application when running in Fire Mode

Vaasa Vacon Plc (Head office and production) Runsorintie 7 65380 Vaasa firstname.lastname@vacon.com telephone: +358 (0)201 2121 fax: +358 (0)201 212 205	**Helsinki** Vacon Plc Äyritie 12 01510 Vantaa telephone: +358 (0)201 212 600 fax: +358 (0)201 212 699	**Tampere** Vacon Plc Vehnämyllynkatu 18 33700 Tampere telephone: +358 (0)201 21 fax: +358 (0)201 212 750

sales companies and representative offices:

Austria
Vacon AT Antriebssysteme GmbH
Aumühlweg 21
2544 Leobersdorf
telephone: +43 2256 651 66
fax: +43 2256 651 66 66
Belgium
Vacon Benelux NV/SA
Interleuvenlaan 62
3001 Heverlee (Leuven)
telephone: +32 (0)16 394 825
fax: +32 (0)16 394 827
France
Vacon France s.a.s.
1 Rue Jacquard – BP72
91280 Saint Pierre du Perray CDIS
telephone: +33 (0)1 69 89 60 30
fax: +33 (0)1 69 89 60 40
Germany
Vacon GmbH
Gladbecker Strasse 425
45329 Essen
telephone: +49 (0)201 806 700
fax: +49 (0)201 806 7099
Great Britain
Vacon Drives (UK) Ltd.
18, Maizefield
Hinckley Fields Industrial Estate Hi nckley
LE10 1YF Leicestershire
telephone: +44 (0)1455 611 515
fax: +44 (0)1455 611 517

Italy
Vacon S.p.A.
Via F.lli Guerra, 35
42100 Reggio Emilia
telephone: +39 0522 276811
fax: +39 0522 276890
The Netherlands
Vacon Benelux BV
Weide 40
4206 CJ Gorinchem
telephone: +31 (0)183 642 970
fax: +31 (0)183 642 971
Norway
Vacon AS
Langgata 2
3080 Holmestrand
telephone: +47 330 96120
fax: +47 330 96130
PR China
Vacon Suzhou Drives Co. Ltd.
Blk 11A
428 Xinglong Street
Suchun Industrial Square
Suzhou 215126
telephone: +86 512 6283 6630
fax: +86 512 6283 6618
Vacon Suzhou Drives Co. Ltd.
Beijing Office
A205, Grand Pacific Garden Mansi on
8A Guanhua Road
Beijing 100026
telephone: +86 10 6581 3734
fax: +86 10 6581 3754

Russia
ZAO Vacon Drives
Bolshaja Jakimanka 31,
stroenie 18
109180 Moscow
telephone: +7 (095) 974 14 47
fax: +7 (095) 974 15 54
ZAO Vacon Drives
2ya Sovetskaya 7, office 210A
191036 St. Petersburg
telephone: +7 (812) 332 1114
fax: +7 (812) 279 9053
Singapore
Vacon Plc
Singapore Representative Office
102F Pasir Panjang Road
#02-06 Citilink Warehouse Complex
Singapore 118530
telephone: +65 6278 8533
fax: +65 6278 1066
Spain
Vacon Drives Ibérica S.A.
Miquel Servet, 2. P.I. Bufalvent
08243 Manresa
telephone: +34 93 877 45 06
fax: +34 93 877 00 09
Sweden
Vacon AB
Torget 1
172 67 Sundbyberg
telephone: +46 (0)8 293 055
fax: +46 (0)8 290 755

24-hour support +358 (0)40 837 1150 • Email: vacon@vacon.com
Vacon distributor:

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References

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