

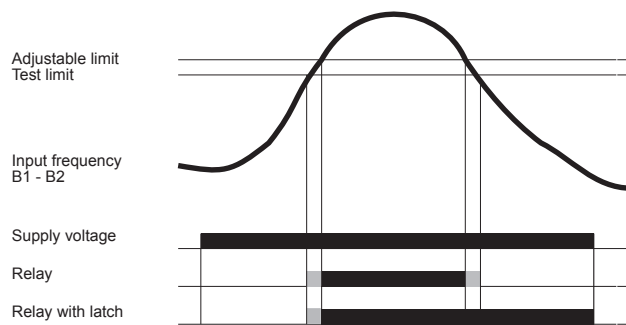
**STARTER INHIBIT RELAY**  
Type: FAAA & FXAA

**OVER-SPEED RELAY**  
Type: FABA & FXBA

**FEATURES**

- \* **Extremely resistant to supply voltage drops**
- \* **Insensitive to noise on input line**
- \* **Measurement of r.p.m. is based on frequency**
- \* **Detects over-speed in less than 300 msec.**
- \* **The over-speed setting can be adjusted and tested at normal speed**
- \* **Latch function can be specified**
- \* **LEDs indicate the state of the input**

**FUNCTION DIAGRAM**



**Description:**

The starter inhibit relays and the over-speed relays are designed to be used with petrol, gas or diesel engines. FAAA and FXAA are used to inhibit the starter as soon as the engine runs by itself. FABA and FXBA are used to prevent engine damage due to failure in the automatic speed control system. The relays accurately monitor the frequency from either a magnetic pick-up, a tacho generator or the main generator.

**Operation:**

When the supply voltage is applied, the LED corresponding to the input frequency (r.p.m.) is switched on. If the frequency (r.p.m.) exceeds the setpoint, the relay pulls in with a time delay of max. 300 msec. At lowest frequency setting. When the frequency comes below the set point, the relay is de-energized with a delay of approximately 1.5 sec. However if the latch function is specified, the relay remains energized. The latch function is released by disconnecting the power supply.

**Test function:**

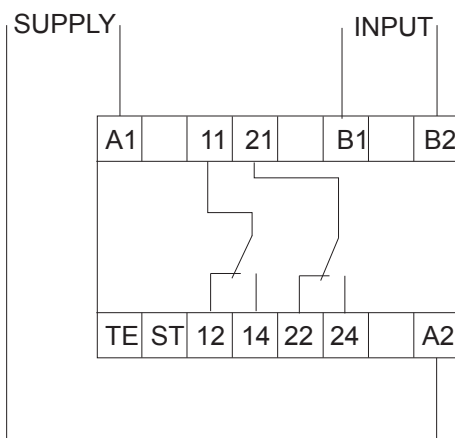
If the test function is included then the over-speed limit can be adjusted by connecting the terminals TE and ST and setting the limit to normal speed. When the connection TE - ST is removed the r.p.m. setting will be increased by e.g. 10 % again. Standard test limits over normal speed are 10%, 15%, 20% or 25%.

**Application:**

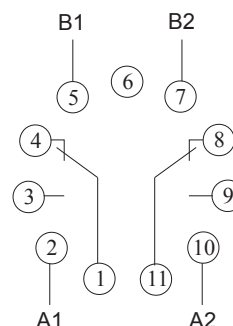
Automatic starters for engines in generator sets, refrigerators and pump units.

**CONNECTION DIAGRAM**

Rail and panel mounting



Socket mounting



## SPECIFICATIONS

<b>INPUT</b>	Frequency For Namur sensor DIN 19 234 Optocoupler for external 24 VDC supply NPN - PNP Transformer, 30 - 500 VAC
Sensitivity	Adjustable A version 10 - 5120 Hz 50 -100 % of specified range in order code
Max frequency input	approx. 2 x high range
Input resistance	2.0 kΩ for 20 V input range 20 kΩ for 100 V input range 360 kΩ for 500 V input range
Min. voltage req.	0.5 V for 20 V input range 10 V for 100 V input range 30 V for 500 V input range

### PERFORMANCE PARAMETERS

<b>TIMING</b>	
Response time	< 300 msec.
<b>ELECTRICAL</b>	
Temp. dependence	Typ. ± 0.04 % / °C
Supply dependence	Typ. ± 0.01 % / % ΔU

### OUTPUT

Relay, 2 x 1 C/O	
Contact rating	6 A, 250 VAC, 1500 W
Mechanical life	30 Million operations
Optocoupler	
Transistor rating	10 mA, 50 VDC

### SUPPLY

AC / DC voltage	
Housing 45mm VOX:	
FRAA	12V AC/DC
FRBA	24V AC/DC
Voltage range	AC: - 20 % to + 15 % DC: - 25 % to + 33 %
Power consumption	2 W

### GENERAL

Temperature range	- 25 °C to + 55 °C
Humidity	Up to 90 % RH non-condensing
Dielectric test voltage	Input to supply 3000 VAC Coil to relay contacts 4000 VAC Relay contact to relay contact 2500 VAC
Weight	0.23 kg



International Standards	
EMC directive 89/336:	EN50081 - Emission EN50082 - Immunity
Low voltage directive 73/23:	EN60255 - Electrical Relays

## ORDERING INFORMATION

### EXAMPLE:

**TYPE**  
FXAA 12 V supply  
FAAA 24 V supply  
FXBA 12 V supply  
FABA 24 V supply

### INPUT FREQUENCY RANGE

10 - 20 Hz  
20 - 40 Hz  
40 - 80 Hz  
80 - 160 Hz  
160 - 320 Hz  
320 - 640 Hz  
640 - 1280 Hz  
1280 - 2560 Hz  
2560 - 5120 Hz

### INPUT

Namur	DIN 19 234	0
Optocoupler	NPN - PNP	1
Transformer	0.5 to 20 V	3
	10 to 100 V	4
	30 to 500 V	5

### LATCHING

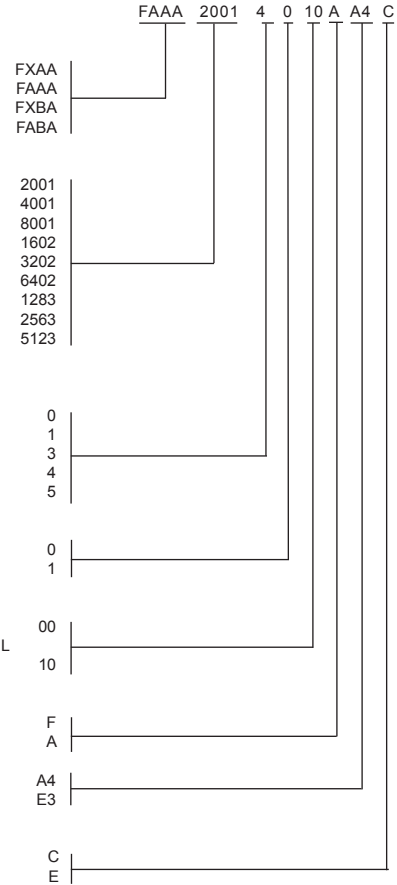
Relay not latching	0
Relay latching	1
No test	00
TEST ONLY TYPE FXBA & FABA DIN RAIL	
Test set point - 10 %	10

### ADJUSTMENT

Fixed sensitivity	F
Trimpot. adj.	A
45 mm. 2 x 1 C/O DIN RAIL mounting	A4
35 mm. 2 x 1 C/O 11pin.Socket mounting	E3

### CODE

Code end	C
Extended code	E



### OPTOCOUPLER INPUT:

