



**global**NETWORK

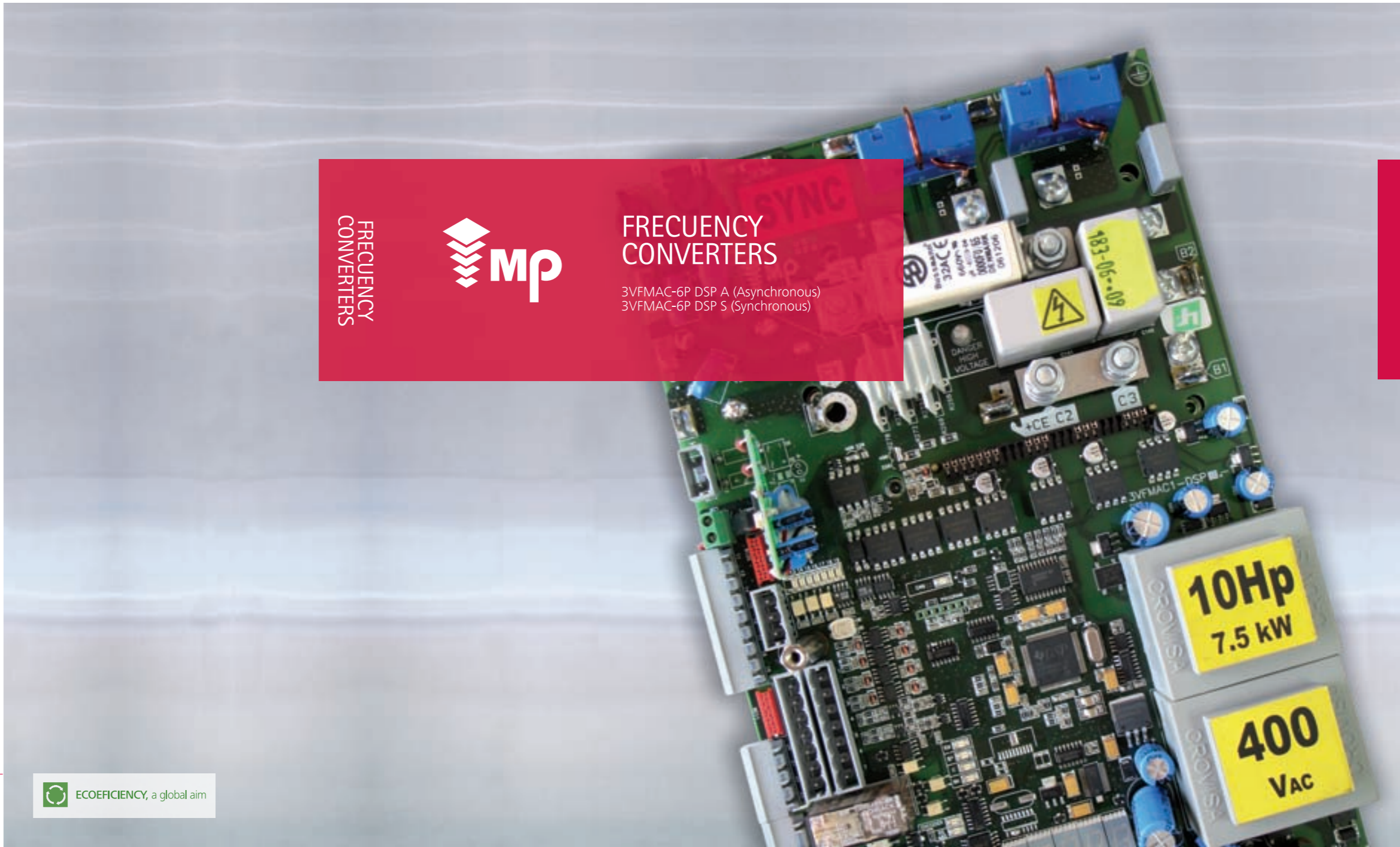
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**FRECUENCY CONVERTERS**

3VFMAC-6P DSP A (Asynchronous)  
3VFMAC-6P DSP S (Synchronous)



FRECUENCY CONVERTERS

# TECHNICAL FEATURES

<b>MAINS CONNECTION</b>	Input voltage U <sub>in</sub>	220Vac; 400Vac; -10%.+10% 3-phase
	Input frequency	50..60Hz
	Mains connection	3-phase
	<b>MOTOR CONNECTION</b>	Motor type
	Output voltage	0-U <sub>in</sub>
	Nominal output current I <sub>n</sub>	3VFMAC 6P DSP A 10HP 220V: 35A. 3VFMAC 6P DSP A 10HP 400V: 17A. 3VFMAC 6P DSP S 10HP 400V: 17A. 3VFMAC 6P DSP A 15HP 400V: 26A. 3VFMAC 6P DSP S 10HP 400V: 26A. 3VFMAC 6P DSP A 20HP 400V: 32A.
	Maximum output current (6 seconds)	I <sub>n</sub> * 2 (Switching frequencies from 5.5 to 10 kHz) I <sub>n</sub> * 1.5 (Switching frequencies from 11 to 20 kHz)
	Output frequencies	0..65Hz
	Drive - Machine distance	With Incremental Encoder TTL/RS 422 : 7 metres, With Incremental Encoder TTL/RS 422 + Filter type EMIKON3036 : 25 metres With Absolute Encoder sin/cos type Endat 1.0 : 10 metres (Both ends of the grid must be connected to ground)
<b>PROTECTIONS</b>	Hardware	Power input fuse (F1) 10Vdc power source fuse(F2, 2 Amp) Control area fuses (F3, F4, 1 Amp)
	Software	Overcurrent detection High mains voltage detection (Model 400V: Maximum 440Vac, Model 220V: Maximum 42Vac) Low mains voltage detection (Model 400V: Minimum 360Vac, Model 220V: Minimum 195Vac) Encoder problems detection: connection, noise, direction of rotation. Locked motor detection (maximum current > 6 sec) Detection of lack of connection in power terminals C1-C2 Short circuit detection. High temperature detection in power module Motor not connected - detection Overspeed detection (>20% nominal velocity) Imbalance or lack of phase detection DC-link condenser failure detection Uncontrolled opening of contacts detection Error in setting parameters detection Uncontrolled aperture open/close detection
<b>ENVIROMENTAL CONDITIONS</b>	Operating temperature	-10°C (frost-free) to +55°C
	Storage temperature	-20°C to +85°C
	Height	100% of load capacity up to 1000m
	Relative humidity	0 - 95%, without condensation, corrosion or water leakage
	Protection class	IP20, front-operated
<b>CONTROL CHARACTERISTICS</b>	Control advantages	Voltage/frequency scalar control Vector control in closed loop with industrial encoder Start/stop position control (synchronous motors) Elimination of Roll-back effect at start-up by reading weight, using the MP VK2P passage type system.
	Switching frequency	5,5..20 kHz Asynchronous motors, default 10 kHz 5,5..15 kHz Synchronous motors, default 10 kHz
	Acceleration time	0.5 - 10 seconds
	Deceleration time	0.5 - 10 seconds
	Start and stop curves	S curves with progression factor allowing profile to be modelled, minimising jerk.
	Progressive start	Designed to minimise typical jolts when starting, for open type car frame



## CONTROL CONNECTIONS

Contact reading filter	Contact coil reader. Terminal (11,12), 110V, +/- 10% Connector XC13	
CAN-BUS	Communication interface CAN-BUS 2.0B Connector XC9	
Commands	Connector XC2: 11, Common 11-13, Start 11-14, Nominal Speed (open: Approach) 11-15, Second Speed 11-16, Normal (open: Inspection) 11-17, Second acceleration 11-18, Direction (Up/ Down) 11-19, Reset (asynchronous) 11-19, Reading brake micros (synchronous)	
Rescue mode Connector XC3 Encoder	Connector XC3 (20,23)  Field of application asynchronous motors Incremental square wave type ABZ. Supply 5Vdc Interface TTL/RS 422, line driver. Minimum number of pulses 1024, maximum 5000, recommended 2000. Connector XC6 (1,2,3,4,5) Field of application synchronous motors Absolute type sin/cos. Supply 5 Vdc Interface type Endat 1.0. Number of pulses per turn 2048. Absolute 13 bits. Connector XC6(1,6,7); XC8 (42,41) Connector XC5 (T1,T2), XC7 (T3,T4)	
Output relays Voltage-free output	Contacts, XC4 (34, 35) Brake, XC4 (36, 37) Boundary speed (programmable logic). Connector XC4 (32, 33)	
Brake resistance	Faston connector B1,B2 Maximum distance 90 cm, shielded cable Powers and resistors are described in the resistance table	
<b>ECM</b>	<b>Directive EMC 2004/108/EC</b> EN12016 Immunity EN12015 Emission	
<b>SEFETY</b>	<b>Low voltage directive 2006/95/CE</b> <b>Machine directive 2006/42/CE</b> <b>Lift directive 95/16/CE</b> UNE-EN61010-1 Electrical equipment safety UNE-EN 60204-1 Machine safety. Electrical equipment in machines UNE 81-1 Lift safety	
<b>VARIOUS</b>	<b>Error management</b>	Up to 30 errors stored
	<b>PC and PDA tools</b>	MPConfig. Configuration and setting parameters DSP Monitoring. Monitoring Velocity, Current and Voltage. DSP serial flasher. Firmware recording DSP Sinusoidal S-curve generator
<b>Adjustments and calibration</b>	Encoder cabling tester function Lift current sensors testing and adjustment function Counterweight testing without load(*). Synchronous mode Autotuning for machine and encoder without load. Synchronous mode	
<b>Rescue</b>	Battery operation for emergency rescue	

NOTES: The scalar switching frequency is set internally at 5.5 kHz, regardless of the value for the parameter "Switching frequency". Any other switching frequency must be operated in vector mode.

(\*) In test phase.

