FRECUENCY CONVERTERS

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MP

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

10Hp
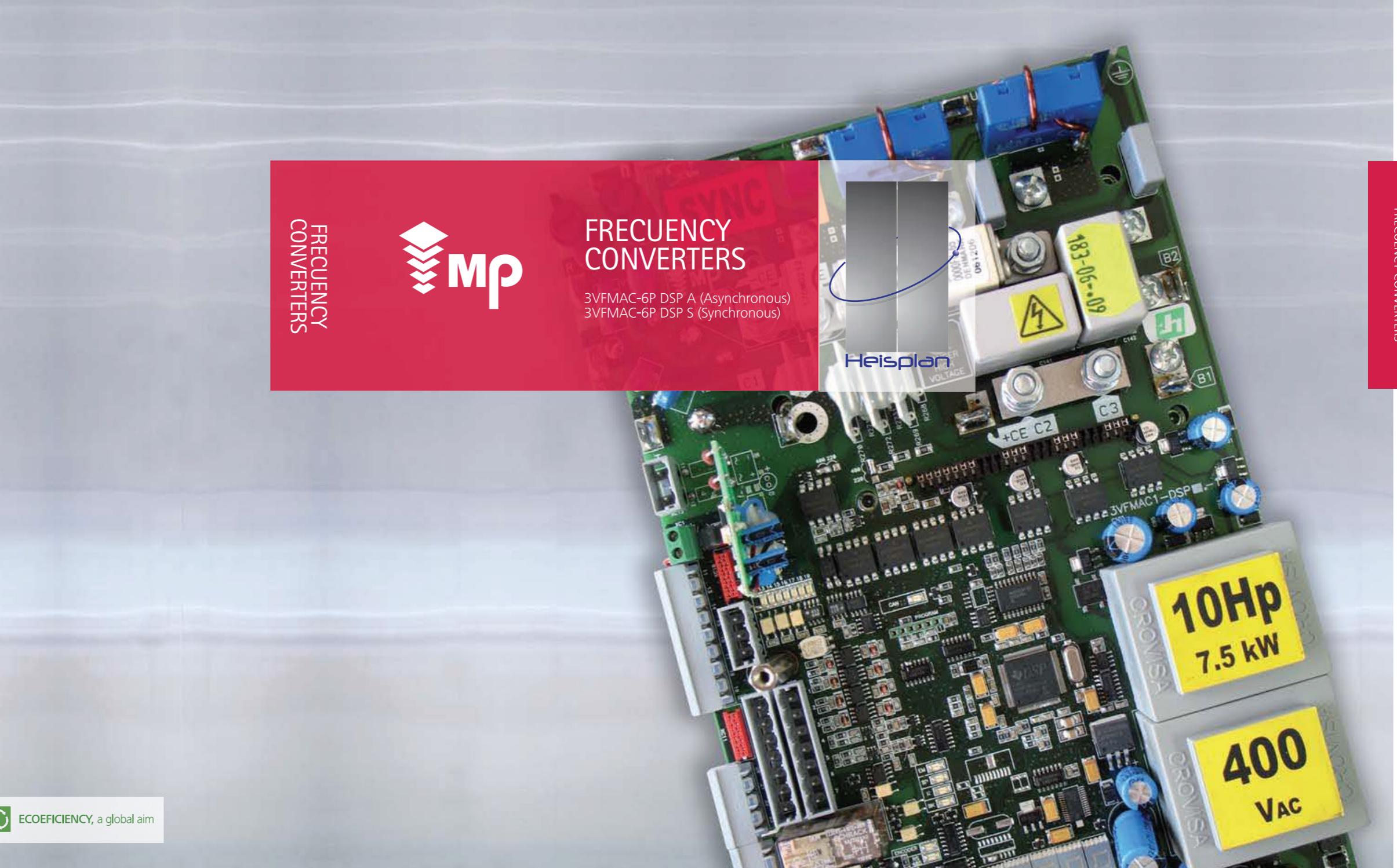**7.5 kW**

400
VAC

ECOEFICIENCY, a global aim

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Heisplan

TECHNICAL FEATURES

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MAINS CONNECTION	Input voltage Uin	220Vac; 400Vac; -10%.+10% 3-phase
	Input frequency	50..60Hz
	Mains connection	3-phase
MOTOR CONNECTION	Motor type	Asynchronous induction motors, model 3VFMAC 6P DSP A.
		Synchronous motors with permanent magnets, model 3VFMAC 6P DSP S
	Output voltage	0-Uin
	Nominal output current In	3VFMAC 6P DSP A 10HP 220V: 35 A.
		3VFMAC 6P DSP A 10HP 400V: 17A.3VFMAC 6P DSP S 10HP 400V: 17 A.
		3VFMAC 6P DSP A 15HP 400V: 26 A. 3VFMAC 6P DSP S 10HP 400V: 26 A.
		3VFMAC 6P DSP A 20HP 400V: 32 A.
	Maximum output current	In * 2 (Switching frequencies from 5.5 to 10 kHz)
	(6 seconds)	In * 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)
PROTECTIONS	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
ENVIROMENTAL CONDITIONS	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
CONTROL CHARACTERISTICS	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 (20,23)
	Connector XC3	
	Encoder	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	Contacts, XC4 (34, 35)
	Voltage-free output	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
ECM	Directive EMC 2004/108/EC	EN12016 Immunity
		EN12015 Emission
SEFETY	Low voltage directive 2006/95/CE	UNE-EN61010-1 Electrical equipment safety
	Machine directive 2006/42/CE	UNE-EN 60204-1 Machine safety. Electrical equipment in machines
	Lift directive 95/16/CE	UNE 81-1 Lift safety
VARIOUS	Error management	Up to 30 errors stored
	PC and PDA tools	MPConfig. Configuration and setting parameters
		DSP Monitoring. Monitoring Velocity, Current and Voltage.
		DSP serial flasher. Firmware recording
		DSP Sinusoidal S-curve generator
	Adjustments and calibration	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
	Rescue	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.