OJ Drives®

OJ DRHX
Modbus control

- Modbus RTU
- QuickPlugTM Modbus
- Stepper motor solution
- 230V AC single phase supply
- Ignition-protected
- UL 61800-5-1 recognized

New drive for rotary heat exchangers
The DRHX is the next generation drive for rotary heat exchangers – based on all-new technology. The DRHX series covers the range from 1Nm to 14Nm with both RS-485 and analog control. You can even get a version with a 3x7-segment display.

An excellent new alternative to geared motors
DRHX is an advantageous new alternative to traditional geared motor solutions.
In contrast to geared motors, which lose torque at low and high speed, the stepper motor provides even torque throughout the entire speed range. The linear stepper motor torque curve means that rotor speed can be accurately controlled throughout a much wider range. This enables energy-efficient heat recovery and more precise temperature control.

Sensorless rotation monitor
The DRHX is equipped with a sophisticated soft-ware that monitors the rotation of the rotor, which means that no physical/optical rotor guard is required (patent pending). Naturally, fewer components also means that you get easier installation.

Sensorless closed-loop control
Combining a high-torque stepper motor with closed-loop sensorless control brings you a unique new solution – and great efficiency: The drive uses the feedback signal from the motor to ensure that the motor gets exactly the level of current required to achieve the desired speed and torque.

Modbus control
This is the basic variant in the DRHX family. It only holds a Modbus RTU control interface and triple colour LED for visual information to the user. It still contains all the needed features and of course the new software rotor monitor/guard and silent motor operation.

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	Type	DRHX-1055-MNN5	DRHX-1220-MNN5	DRHX-1790-MAN5
Torque	Nm	1.0 / 2.0	4.0 / 8.0	14.0
Power size	W	27 / 55	110/260	790
Efficiency	%	> 90%		> 94%
Power supply				
Voltage	VAC	1 x 230 V AC 50/60 Hz -10%/+10%		
Supply current at max. load	A	0.3 / 0.6	1.2 / 2.4	4.4
Power factor (cos-phi) at max. load		0.65		> 99 (Active PFC)
Motor output				
Nominal motor power (on shaft) *1	kW	27 / 55	110 / 220	790
Motor speed	rpm	0-400		0-400
Nominel motor Torque	Nm	1.0 / 2.0	4.0 / 8.0	14.0
Boost motor torque	Nm	1.5 / 3.0	6.0 / 12.0	17.5
Frequency	Hz	0-120		
Max. output voltage	Vrms	3 x 0 - 150V AC		3 x 0 – 230V AC
Max. output current	Arms	2.5	3.5	4.5
Protection				
Max. fuse	A	10		
Motor output		Short-circuit protected between phases		
Motor		Protected by current limit		
Impulse protection		Transient protected by VDR		
Overvoltage protection		No		Yes, 400V (PTC)
Overload protection		Current and temperature overload protection		
Environment				
Operating temperature	°C / °F	-40°C to +40°C / -40°F to +104°F		
Storage temperature	°C / °F	-40°C to +70°C / -40°F to +158°F		
Dimensions	mm	183 x 143 x 55		185 x 220 x 90
Protection rating	IP	54		
Enclosure material		Plastic		Aluminium
Front cover		Plastic		
Weight	kg	0.9		2.0
Humidity	% rh	10-95% rh, non-condensing		
Cooling		Self-cooling		
Interfaces				
RS-485 protocol		MODBUS RTU RS485 (Baud rate: 9.6, 19.2, 38.4, 57.6, 115.2 Kbaud) Default: 38.4k baud, 1 stop bit, none parity		
Modbus connection		2 x RJ12 & 3 x spring terminals		
Modbus cable		Max. 100 m		
7-segment display		3		No
Analog In1		0 - 10 VDC, 100% @ 9.5 V DC +/-2%		
Analog Out1		+10VDC		
Digital In1 (internal Pull up)		Start / Stop (Configurable)		
Digital In2 (internal Pull up)		Alarm reset (Configurable)		
Digital In3 (internal Pull up)		External rotor guard (Configurable)		
Digital Out1		No		Alarm signal
Alarm relay		SPDT relay 1A 30VDC/24VAC		
Green LED		On: Power connected | Flashing: Active Modbus communication		
Red LED		Flashing: Alarm but keep running | Constant on: Serious alarm - stop motor		
DIP switch		4		No
Rotary switch		No		Yes
Option module		No		Yes *1
Functions				
Technology		Sinusoidal back-EMF signal controlled via FOC (Field Oriented Control)		
Ramp-up time	sec.	15-300		
Ramp-down time	sec.	15-300		
Alarm		Yes		
Alarm reset		Via digital input, MODBUS or powering down for more than 60 seconds		
Purging	sec.	Yes		
Service data log		Operating hours, alarms, loads, software version, max. temp., max. motor voltage, max. motor current, max. ripple voltage, max. ripple current		
Software updating		Yes, via serial interface		
Short-circuit protection		Yes		
EMC filter		Integrated		
Approvals				
EMC		EN/BS 61800-3 (C1 & C2)		
LVD		EN/BS 61800-5-1		
Product standard		EN/BS 61800 Part 2		
North America		UL-61800-5-2 / CS22.2.174		
Ignition-protected components		IEC/UL60335-2-40, cl.22.116 & cl.22.117 / UL 121201 Class1, Div2		
RoHS Directive		Yes		
Product approvals		CE / cULus		

Note: Data are valid at: nominal supply voltage and at +25°C ambient temperature
*1: IO option module is mounted as standard

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