OJ Drives®

OJ DRHX
RS-485 & Analog control

- 277V AC single-phase supply
- Modbus RTU
- BACnet MS/TP
- 0–10V speed control
- Industrial-grade, easy-to-read display
- Customized motor solution
- UL 61800-5-1 recognized

Efficient Drive for Rotary Heat Exchangers
The DRHX is a drive specifically created for rotary heat exchangers – based on high-end, patented technology. The DRHX 277V, covering a range from 1Nm to 8Nm, offers both RS-485 and analog control. This model includes an industrial-grade, easy-to-read display for enhanced usability.

An Excellent Alternative to Geared Motors
The DRHX/MRHX solution is an advantageous alternative to traditional geared motor solutions. In contrast to geared motors, which lose torque at low and high speed, the MRHX motor provides even torque throughout the entire speed range. The linear 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 sophisticated software that monitors the rotation of the rotor, which means that no physical/optical rotor guard is required (patented). Naturally, fewer components also means that you get easier installation.

Sensorless Closed-Loop Control
Combining a high-torque customized motor with closed-loop sensorless control brings you a unique new solution – and great efficiency: The rotary 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 RTU, BACnet MS/TP & Analog control
The DRHX drive comes equipped with both Modbus RTU, BACnet MS/TP and 0–10V interface for controlling. It includes an industrial-grade, easy-to-readdisplay to provide user information of actual performance and error messages, making it ideal for refurbishments, too.

This variant is ideal for refurbishments and other situations where you want to upgrade existing rotary heat exchangers, creating a more efficient solution.

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	Type	DRHX-2220-MAD5
Torque	Nm	4.0 / 8.0
Power size	W	110/260
Efficiency	%	> 90%
Power supply		
Voltage	VAC	1 x 208-277V AC 50/60 Hz -10%/+10%
Supply current at max. load	A	1.2 / 2.4
Power factor (cos-phi) at max. load		0.65
Motor output		
Nominal motor power (on shaft) *1	W	110 / 220
Motor speed	rpm	0-400
Nominel motor Torque	Nm	4.0 / 8.0
Boost motor torque	Nm	6.0 / 12.0
Frequency	Hz	0-120
Max. output voltage	Vrms	3 x 0 - 150V AC
Max. output current	Arms	3.5
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
Overload protection		Current and temperature overload protection
Environment		
Operating temperature	°C / °F	-40°C to +40°C / -40°F to +104°F
Starting 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
Protection rating	IP	54
Enclosure material		Plastic
Front cover		Plastic
Weight	kg	0.9
Humidity	% rh	10-95% rh, non-condensing
Cooling		Self-cooling
Interfaces		
Modbus 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
BACnet MS/TP		Baud rate: 9600, 19200, 38400, 57600, 115200 kbs MAC: 0 - 127, MAX Master: 1 -127, Device object ID: 0 - 4194302
RS-485 connection		2 x RJ12 & 3 x spring terminals
RS-485 cable		Max. 100 m
7-segment display		3
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 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
Rotary switch		No
Option module		No
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		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
RoHS Directive		Yes
Product approvals		CE / cULus / UKCA

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