The Drive & Control Company

Rexroth
Bosch Group

Electro-hydraulic components for scalable Motion Control systems

Product overview

Platform	SY(H)DFE	IAC Multi-Ethernet	HMC-1-1X	VT-HACD-3-2X	VT-HNC100-3X	MLC for hydraulic drives
						
Target application	Pressure and flow control pump system	Standard axis control, configurable	Programmable axis control	Motion axis control, configurable. 3 loops	Programmable Motion Control; up to 4 axis (Sercos 1 axis)	Motion and Control for up to 32 internally regulated axes
Design	On-board pump electronics	On-board electronics	DIN rail cabinet installation	DIN rail cabinet installation	DIN rail cabinet installation	DIN rail cabinet installation
Voltage supply	22,8...33,6VDC current consumption 0,6...1,25A	18V ..36VDC current consumption max. 4A (with NG10)	17,5V - 30VDC current consumption 200mA	18...30VDC current consumption 200mA	18...30VDC current consumption up to 4A (depending on the axis)	19...30V DC: current consumption up to 8 A (application-dependent)
Digital outputs	„Fault“	1x enable acknowledgement 1x switching output	2 outputs, configurable	„Ok“ + 7 configurable	Up to 22 configurable	8 (On-board) + expansion modules
Number of digital inputs	2 x configurrable depending on variant: "Command value call-up", "Parameter swit-ching", Variable speed operation	1 x Enable	4 inputs, configurable	„Enable“ + 8 configurable	Up to 44 configurable	8 (On-board) + expansion modules
Direct current reference outputs/voltage supply	24V for pressure sensor	5V, 24V for sensor	24V for sensors	+V10.0V, 24V for sensor	10V (5V, 24V for sensor)	Depends on module usage
Digital sensor inputs	None	SSI, 1Vss, EnDat2.2	SSI, incremental, EnDat2.2	2 SSI encoder or 1 incremental encoder	SSI, incremental encoder EnDat2.2 for Sercos	SSI, incremental
Number of analog inputs	Depending on variant: Analog: 2 x preadjusted voltage or current Digital: 2 x free configurable voltage or current	2 inputs voltage 1 input current 2 input current/voltage	4 inputs	6 inputs	2 inputs/voltage and 2 inputs/current each axis	12 outputs in 4 axis block IO
Analog sensor inputs	Analog: 0 (1)...10 V, 0,5...5 V, 0...5 V, 0,1...10 V and 0 (4)... 20 mA Digital:	±10V and 4...20mA; resolution 12 Bit	±10V and 0(4)...20mA; resolution 14 Bi	±10V and 4...20mA; resolution 12 Bit	±10V and 4...20mA; resolution 12 Bit	±10V; ±10mA and 0(4)...20mA; resolution16 bit

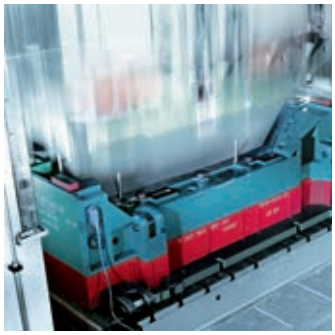
	0...20 mA; 4...20 mA; 0...10 V; 0...5 V; 0,5...5 V; 0,1...10 V; 1...10 V					
Number of analog outputs	Depending on Variant: Analog: 2x preadjusted (pact, SWact) Digital: 2 x free configurable (pact, SWact)	1 analog outputs (current/voltage) for actual value	2 outputs	3 outputs, 1 configurable 4-20 mA	2 outputs/voltage and 1 output/current each axis	4 outputs on 4-axis block IO
Analog sensor outputs	2 x ±10V	±10V and 4...20mA; resolution 10 Bit	±10V and 0(4)...20mA; resolution 16 Bit	±10V and 0(4)...20mA; resolution 14 Bit	±10V and 0(4)...20mA; resolution 14 Bit	±10V; ±10mA and 0(4) ...20mA; 16 bit resolution
Bus communication slave	SYDFE1/E: Analog SY(H)DFEC/N: Analog, CANopen SY(H)DFED: Varan, EtherCAT, (Sercos, PROFINET, EtherNET/IP)	Sercos III, PROFINET RT, EtherNet/IP, EtherCAT, Varan	EtherNet/IP, PROFIBUS DP/VO, PROFINET RT, Sercos, EtherCAT	EtherNet/IP, PROFIBUS DP/VO, PROFINET RT	Sercos II, Sercos III EtherNet/IP, PROFIBUS DP/VO, PROFINET RT	Sercos III, PROFIBUS, PROFINET, EtherNet/IP
Bus communication master	No	No	No	No	No	No
Paramerterization and diagnosis (via)	Depending on variant: Analog: RS232 Digital: CANopen / Varan, EtherCAT, (Sercos, PROFINET, EtherNET/IP)	Ethernet or PLC	Ethernet or PLC	RS232, Ethernet or PLC	RS232, Ethernet or PLC	Ethernet
Hydraulic drive control						
Hydraulic-specific optimization	Yes	Yes	Yes	Yes	Yes	Yes
Pressure control	Yes	Yes	Yes	Yes	Yes	Yes
p/Q control	Yes	Yes	Yes	Yes	Yes	Yes
Power limitation function	Yes	No		Yes/configurable	Yes/configurable	Yes
Position control	No	Yes	Yes	Yes	Yes	Yes
Velocity control	Yes, velocity via flow control	No	Yes	Yes	Yes	Yes
Pressure/force control	Yes, pressure control	Yes	Yes	Yes	Yes	Yes
Alternating control (position/pressure/force)	Yes	Yes	Yes	Yes	Yes	Yes
State feedback	Yes	Yes	Yes	Yes	Yes	Yes
Position depending breaking	No	Yes/configurable	In preparation	No	No	Yes
Mathematical functions	No	No	Yes/IEC61131	Basic mathematical and logic signal processing	Basic mathematical and logic signal processing	Yes/IEC61131
NC-programming	No	No	No	No	No	No
IEC-61131	No	No	Yes	No	No	Yes
Table function	No	No	No	Learning, Profile,	Learning, Profile,	Yes

				and X-Y coordination"	and X-Y coordination"	
Motion control via bus	Yes	Real time via external Sercos master	Very good, via external Sercos master	Learning, Profile, and X-Y coordination"	Learning, Profile, and X-Y coordination"	By means of project template
Multi-axis control						
Synchronization	No	No	No	No	synchronization / 2 or 3 linked axes	Yes
Interpolation	No	No	By superior control system	Yes (linear)	As subordinate controller	Yes
Path control / robotics	No	No	By superior control system	No	As subordinate controller	Yes
Application support						
Open software development platform	No	No		No	No	Yes / IEC61131 + PLCopen
Optional technology function	No	No	No	No	Secondary control, punching axis control, customer-specific system solution possible	Yes, open, programmable, expandable
Software tools	WinPed 5.10, IndraWorks	IndraWorks DS	IndraWorks	BODAC	WinPed6, WinPed7 (IndraWorks DS for Sercos HNC)	IndraWorks
Online measuring tool	WinView, IndraWorks Oscilloscope	IndraWorks DS / Trending	IndraWorks	WinView & Multiplot	Winview	Yes + MlcTrending
Further information						
Data sheet	30030, 30035, 30630	29391	30239	30543	30139, 30159 (Sercos)	R911332115
Brochure	R999000094 (DE) R999000095 (EN)	R999000314 (DE) R999000315 (EN)		R999000119 (DE) R999000120 (EN)	R999000068 (DE) R999000069 (EN)	R999000113 (DE) R999000114 (EN)
Internet	http://www.boschrexroth.com/sydfe	www.boschrexroth.com/IAC	www.boschrexroth.com/hmc	www.boschrexroth.com/HACD	www.boschrexroth.com/hnc100	www.boschrexroth.com/MLC

Electro-hydraulic Motion Controls by Rexroth maximize hydraulic drive power. With our innovative product technology and application technology, perfect position, velocity, pressure and force controls can be quickly implemented. The connection options comprise many popular analog, digital and bus variants such as: 4 ... 20 mA, SSI, incremental, EnDat, CANopen, Sercos, PROFIBUS, DeviceNet, Ethernet ...

Control technology from Rexroth – scalable, consistent and easy to use, open

Rexroth combines know-how across technologies with competence in controls and hydraulics to create system solutions in all drive and control technologies for nearly all industrial sectors. Your advantage: The open Rexroth system solutions fit easily into your concept and shorten your ‘time to market‘. Consistently simple engineering tools help you realize your concepts. And proven technology functions ensure perfect results.



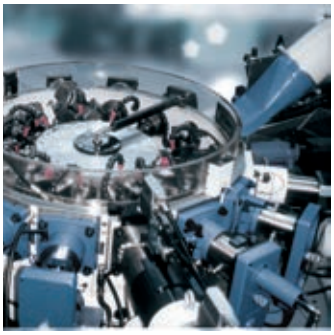
Be it in presses, steelworks and rolling mill technology, material handling or special machinery – Rexroth offers the optimum motion logic systems.

Presses

- Ejector controls
- Glass presses
- Internal high-pressure forming
- Laboratory presses
- Metal/ceramic powder presses
- Tube forming presses
- SMC/IMC presses
- Brick presses
- Deep drawing presses/ die cushions

Steelworks and rolling mill technology

- 3-roll bending machines
- Curved-mold continuous casting machines
- Flying shears
- Ladle cars
- Mold oscillation



- Sand molding plants
- Segment adjustment
- Continuous casting machines
- Roll stands
- Turntable cooling beds

Material handling

- Belt feed
- Container cranes
- Quay cranes
- Train lifts
- Truck lifts

Special machines

- Thick plate turnover device
- Automatic rotary tables
- Screw conveyors
- Bending and pushing devices
- Coal distributors
- Motor turning plants
- Stretch bending machines

Woodworking machines

- and many more

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