



Programmable drives
with
USB - RS232 - RS485
interface and
Modbus-RTU
communication
protocol

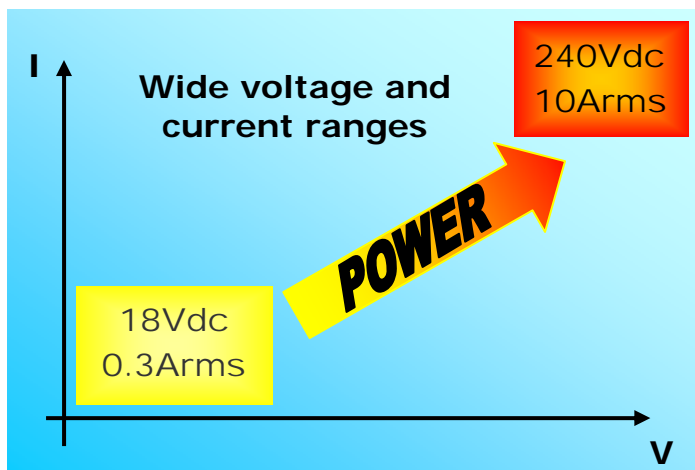


The DS5x two phase stepper motor drives series is composed of 27 different models, divided in 9 power sizes and 3 different interface types: DS50→RS485, DS52→RS232, DS54→USB. The communication interface is insulated from the power supply to grant reliability and noise immunity.

The chosen communication protocol is the Modbus-RTU industrial standard which offers good performances at low costs. Through the commands set provided by the protocol, the master device (PC, PLC, etc.) is able to access in real time to the drive registers and to the user's variables, freely declarable during programming, which can represent a data exchange area between the master device and the user's program in execution in the drive.

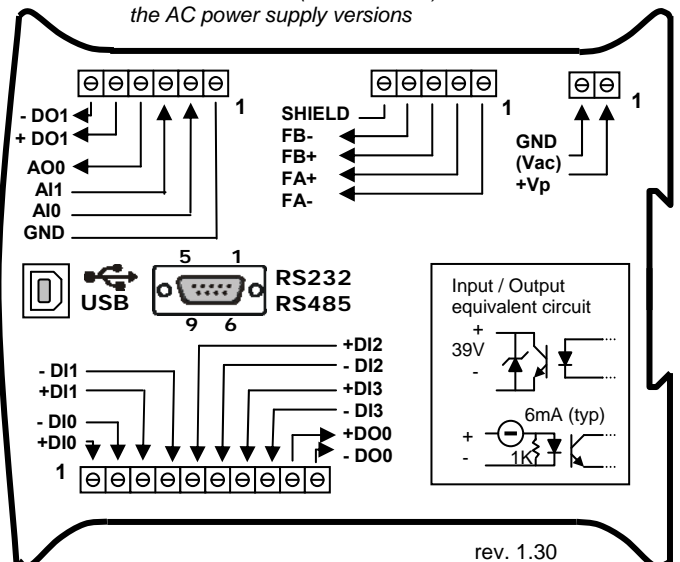
The programming capability and the flexibility offered by the available programming blocks (which also include mathematical blocks) together with the many I/O resources which the drive is provided with, allow to simply realize applications with decentralized intelligence which relieve the master from the most onerous real-time activities and reduce the data traffic on the communication bus.

- ✓ Modbus-RTU communication protocol
- ✓ Insulated USB, RS232 and RS485 interface
- ✓ Driver USB for Linux and Windows (98, SE, Me, 2K, XP, VISTA and 7) 32bit and 64bit
- ✓ Registers and user's program variables accessible through the bus
- ✓ **Up to 3000rpm at 1/128 step/rev**
- ✓ Mathematical functions at 32bit
- ✓ Speed or position control
- ✓ Independent acceleration and deceleration ramps
- ✓ Absolute or relative positioning
- ✓ 4 digital and two +/-10V analog inputs
- ✓ 2 digital and one 0-10V analog outputs
- ✓ 100KHz high speed counter
- ✓ AC power supply models available
- ✓ Optocoupled and differential I/O, independently NPN or PNP usable
- ✓ Inputs from 3Vdc up to 28Vdc
- ✓ Line driving supported
- ✓ 11 bit analog inputs resolution
- ✓ 32bit quote registers from -2,147,483,638 to +2,147,483,647
- ✓ Resonance damping
- ✓ Automatic current reduction
- ✓ High efficiency power mosfet stage
- ✓ Complete diagnostics with univocal indication for each anomaly
- ✓ Over/under voltage protection, short circuit protection (cross phase, ground and positive supply)
- ✓ Overheating protection
- ✓ Break motor phase diagnostics
- ✓ Compact size
- ✓ Easy DIN rail installation
- ✓ Removable terminal block connector
- ✓ IP20-compliant construction
- ✓ Cost-effective



Symbol	Description	Value			Unit	
		Min	Typ	Max		
Vp	Power supply voltage (for DC models)	18		50	Vdc	
Vac	Power supply voltage (for AC models)	16		36	Vac	
If	Motor phase current (rms)	0.3		1.4	Arms	
Vp	Power supply voltage (for DC models)	20		50	Vdc	
Vac	Power supply voltage (for AC models)	18		36	Vac	
If	Motor phase current (rms)	1		4	Arms	
Vp	Power supply voltage (for DC models)	20		50	Vdc	
Vac	Power supply voltage (for AC models)	18		36	Vac	
If	Phase current (rms)	3		8	Arms	
Vp	Power supply voltage (for DC models)	24		90	Vdc	
Vac	Power supply voltage (for AC models)	20		65	Vac	
If	Motor phase current (rms)	0.8		3	Arms	
Vp	Power supply voltage (for DC models)	24		90	Vdc	
Vac	Power supply voltage (for AC models)	20		65	Vac	
If	Motor phase current (rms)	2		6	Arms	
Vp	Power supply voltage (for DC models)	24		90	Vdc	
Vac	Power supply voltage (for AC models)	20		65	Vac	
If	Motor phase current (rms)	4		10	Arms	
Vp	Power supply voltage (for DC models)	45		160	Vdc	
Vac	Power supply voltage (for AC models)	35		115	Vac	
If	Motor phase current (rms)	2		4	Arms	
Vp	Power supply voltage (for DC models)	45		160	Vdc	
Vac	Power supply voltage (for AC models)	35		115	Vac	
If	Motor phase current (rms)	4		8.5	Arms	
Vp	Power supply voltage	45		240	Vdc	
If	Motor phase current (rms)	4		10	Arms	
Vdi	Digital input voltage range	3		28	Vdc	
Idi	Digital input supply current	4	6	8	mA	
Vdo	Digital output voltage range	1		30	Vdc	
Ido	Digital output current range			60	mA	
Vai	Analog input voltage range	-10		10	Vdc	
Rai	Analog input impedance		47		KΩ	
Vao	Analog output voltage range	0		10	Vdc	
Iao	Analog output current range			10	mA	
Prt	Protections / Diagnostics / Alarms	Over/Under voltage, Short circuit, Overheating, Break phase				
Mpr	Quote range (1/128 step)	-2,147,483,638 / +2,147,483,647			1/128s	
Psp	User program memory (functional blocks)	250				
Clp	Mathematical calculation resolution	32			bit	
Bcr	Communication speed	1200		38400	baud	
Bf	Data format	N,8,1 / E,8,1 / O,8,1			bits	
Mechanical Specifications						
FDh	Height				100.4	mm
FDI	Depth				119.0	mm
FDw	Width	DS5x41(A), DS5x44, DS5x73			22.7	mm
		DS4x44A, DS5x73A, DS5x48(A), DS5x76(A), DS5x78(A), DS5x84(A), DS5x87(A), DS5x98			35.0	
FDnw	Weight	DS5x41(A), DS5x44(A), DS5x73(A)			200 (250)	g
		DS5x48(A), DS5x76(A), DS5x78(A), DS5x84(A), DS5x87(A), DS5x98			320 (400)	

Note: The A suffix (ex. DS5x76A) identifies the AC power supply versions



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