



With the DDS1 series, LAM Technologies redefines the stepper motor drive with pulse control enhancing it with new characteristics and functionalities.

It is now possible to eliminate the loss of steps, adjust the motor torque, handle the limit switches, control the motor with +/-10V reference and have many other features to use the stepper motor in applications so far precluded.

The DDS1 series is fully digitally controlled and ensures a smooth and precise rotation of the motor.

The family comprises in 10 models differing in functionality and power.

Family Development

Power Supply / Motor Current	5 Digital Inputs, 2 Digital Outputs 1 Analog Input	8 Digital Inputs, 3 Digital Outputs 1 Analog Input 1 Encoder Input A, B, I
24Vdc Auxiliary Power Supply		
20..50Vdc / 0.2..1.4Arms	DDS1141	DDS1241
20..50Vdc / 1.0..4.5Arms	DDS1144	DDS1244
20..50Vdc / 2.0..10.0Arms	DDS1148	DDS1248
24..90Vdc / 1.0..4.5Arms	DDS1174	DDS1274
24..90Vdc / 2.0..10.0Arms	DDS1178	DDS1278

The old concept of step and resolution has been abandoned in favor of the STEPLESS drive technology, that allows the user to freely define the relationship between the pulses applied and the position of the motor, bypassing the strict division imposed by the older drives.

Pairing the drive with a motor with integrated encoder eliminates the loss of steps and improves the system efficiency. Additionally, the motor torque can finally be utilized 100% as it is no longer necessary to reserve a torque margin to prevent the loss of steps.

In simpler applications, it is possible to command the motor in START/STOP, with speeds selectable by digital I/Os or analog input, with total control of the acceleration and deceleration ramps.

The DDS1 series drives define a new level of performance and functionality without penalizing the costs. They are compact and ensure easy and quick DIN rail mounting.

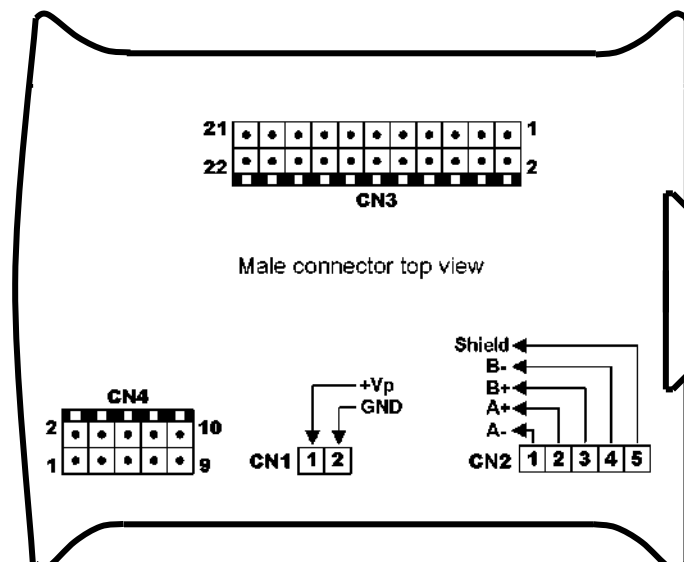


Main technical Data:

Moels	Description	Value			Units
		Min	Typ	Max	
DDS1x41	Power supply voltage	20		50	Vdc
	Motor phase current	0.2		1.4	Arms
DDS1x44	Power supply voltage	20		50	Vdc
	Motor phase current	1		4.5	Arms
DDS1x48	Power supply voltage	20		50	Vdc
	Motor phase current	2		10	Arms
DDS1x74	Power supply voltage	24		90	Vdc
	Motor phase current	1		4.5	Arms
DDS1x78	Power supply voltage	24		90	Vdc
	Motor phase current	2		10	Arms
All models	Auxiliary Power Supply Voltage	20	24	35	Vdc
	Digital Input Voltage Range	3		28	Vdc
	Digital Input Supply Current	3	4	8	mA
	Digital Output Voltage Range	1		30	Vdc
	Digital Output Current Range			80	mA
	Analog input operating voltage	-10		+10	Vdc
	Analog inputs impedance		47		KΩ
	Supply voltage for Encoder	5.0	5.2	5.4	Vdc
	Supply current for Encoder			100	mA
	Encoder Input Compatibility	Line Driver, TTL/CMOS, Open Collector			
	PWM frequency		20		KHz
	Mechanical Specifications				
	Height		100		mm
	Depth		122		mm
DDS1x41, DDS1x44	Width		23		mm
	Weight		150		g
DDS1xx8	Width		35		mm
	Weight		230		g

x = any character, also nothing

Connectors (CN4 only available on DDS12xx series):



The **DDS5x** series stepper motor drives allow an accurate and complete motor control through the industrial **Modbus RTU** protocol.

Modbus RTU is an open and easy to implement communication protocol, based on the client/server architecture. Many PLC and HMI of the latest generation natively support the Modbus RTU protocol, moreover PC-based systems can easily implement it thanks to free libraries.



The physical layer is **RS485** type and isolated from the auxiliary and power supply, the communication speed reaches **921.600Kbit/s**. Among the implemented functions is the **23 0x17 Read/Write Multiple registers** which allows in a single transaction to read and write multiple registers at the same time and can be used, for example, to update the position set point and read the encoder quota in a single operation.

The drive is made in full digital technology and drives the motor in vector control technique to minimize motor vibrations and noise. It can be easily integrated in the modern industrial 4.0 automation also for its compact size and quick installation on DIN rail.

Family development

Power Supply / Motor Current	Modbus RTU – RS485 6 Digital Inputs, 3 Digital Outputs, 2 Analog Inputs, 2 Analog Outputs		
		1 Encoder Input A, B, I	1 Encoder Input A, B, I 1 Absolute Encoder Input SSI
24Vdc Auxiliary Power Supply			
20..50Vdc (16..36Vac) / 0.2..1.4Arms	DDS5041(A)	DDS5241(A)	DDS5441(A)
20..50Vdc (16..36Vac) / 1.0..4.5Arms	DDS5044(A)	DDS5244(A)	DDS5444(A)
20..50Vdc (16..36Vac) / 2.0..10.0Arms	DDS5048(A)	DDS5248(A)	DDS5448(A)
24..90Vdc (20..65Vac) / 1.0..4.5Arms	DDS5074(A)	DDS5274(A)	DDS5474(A)
24..90Vdc (20..65Vac) / 2.0..10.0Arms	DDS5078(A)	DDS5278(A)	DDS5478(A)

The A suffix for ex. DDS5241A) identifies the AC versions

The I/O equipment is complete and includes both digital and analog inputs and outputs. There are also available models with Encoder input able to control the motor in closed-loop, removing the step losses' problems and improving the motor efficiency. The drive has a separate power supply for the logic and is protected against over or under-voltage, over-temperature, short-circuits, etc..

The drive setting and diagnostics are possible with the use of the free *Omni Automation IDE* software..

All mentioned trademarks belong to their legitimate owners as well as products and trade names.





CANopen



The **DDS6** series drives are realized in full digital technology and are suitable for the driving of two phase stepper motors.

They are equipped with the **CANopen fieldbus** and can control the motor in **torque, velocity** and **position** with high accuracy.

In addition to the digital and analog I/O they provide with inputs for **incremental and absolute encoders**.

The integrated protections and the isolation of the fieldbus and I/O ensure high reliability. The detailed diagnostics information and the permanent storage of the errors facilitate the detection and resolution of problems.

The family comprises 30 different models with differing functionality and power.

Family Development

Power Supply / Motor Current	CANopen DS301 Rev. 3.0 and IEC 61800-7-201/301(DSP402)		
	Digital I/O	Digital and Analog I/O ABZ Encoder	Digital and Analog I/O ABZ Encoder Absolute Encoder
24Vdc Auxiliary Power Supply			
20..50Vdc (16..36Vac) / 0.2..1.4Arms	DDS6041(A)	DDS6241(A)	DDS6441(A)
20..50Vdc (16..36Vac) / 1.0..4.5Arms	DDS6044(A)	DDS6244(A)	DDS6444(A)
20..50Vdc (16..36Vac) / 2.0..10.0Arms	DDS6048(A)	DDS6248(A)	DDS6448(A)
24..90Vdc (20..65Vac) / 1.0..4.5Arms	DDS6074(A)	DDS6274(A)	DDS6474(A)
24..90Vdc (20..65Vac) / 2.0..10.0Arms	DDS6078(A)	DDS6278(A)	DDS6478(A)

The A suffix (for ex. DDS6278A) identifies the AC versions

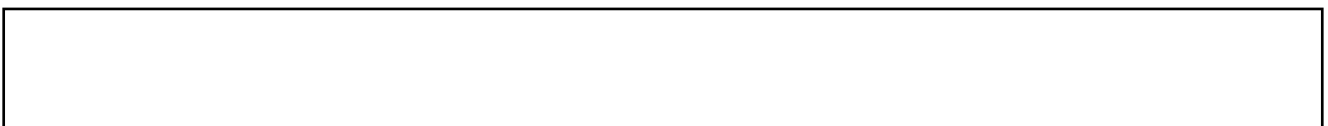
The DDS6 series drives state of the art technology that is the result of more than 28 years of experience. The motor is **vector controlled** that makes the concept of step division obsolete. The **STEPLESS operation** mode ensures high speed and maximum torque use. With a motor with integrated encoder it is possible to use the stepper technology also in applications that require **torque control**. Ultimately, the fieldbus in standard CANopen ensures an efficient and quick integration into modern automation systems.

The compact size and the quick **DIN rail mounting** give additional advantages that, together with the competitive cost, make the DDS6 series drives the best choice for any modern application.

The drive setting and diagnostics are possible with the use of the free **Omni Automation IDE** software.



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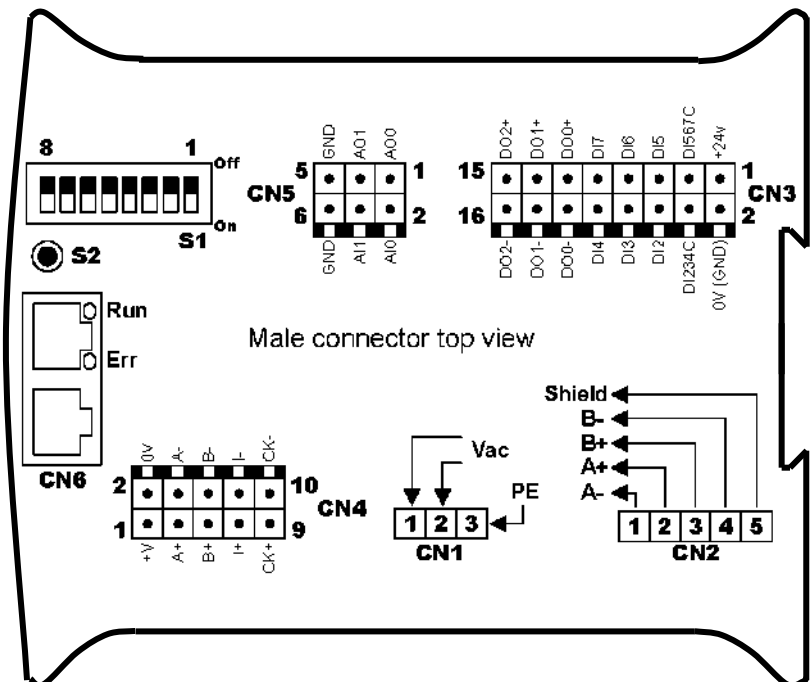
Main technical Data:

Moels	Description	Value			Units	
		Min	Typ	Max		
DDS5x41(A)	Power supply voltage (for DC models)	20		50	Vdc	
	Power supply voltage (for AC models)	16		36	Vac	
	Motor phase current	0.2		1.4	Arms	
DDS6x44(A)	Power supply voltage (for DC models)	20		50	Vdc	
	Power supply voltage (for AC models)	16		36	Vac	
	Motor phase current	1		4.5	Arms	
DDS6x48(A)	Power supply voltage (for DC models)	20		50	Vdc	
	Power supply voltage (for AC models)	16		36	Vac	
	Motor phase current	2		10	Arms	
DDS6x74(A)	Power supply voltage (for DC models)	24		90	Vdc	
	Power supply voltage (for AC models)	20		65	Vac	
	Motor phase current	1		4.5	Arms	
DDS6x78(A)	Power supply voltage (for DC models)	24		90	Vdc	
	Power supply voltage (for AC models)	20		65	Vac	
	Motor phase current	2		10	Arms	
All models	Auxiliary Power Supply Voltage	20	24	35	Vdc	
	Digital Input Voltage Range	3		28	Vdc	
	Digital Input Supply Current	3	4	8	mA	
	Digital Output Voltage Range	1		30	Vdc	
	Digital Output Current Range			80	mA	
	Analog input operating voltage	-10		+10	Vdc	
	Analog inputs impedance		47		KΩ	
	Supply voltage for Encoder	5.0	5.2	5.4	Vdc	
	Supply current for Encoder			100	mA	
	Encoder Input Compatibility	Line Driver, TTL/CMOS, Open Collector				
	PWM frequency		20		KHz	
	Mechanical Specifications					
		Height		100		mm
	Depth		122		mm	
DDS6x41, DDS6xx4	Width		23		mm	
	Weight		130		g	
DDS6xx8	Width		35		mm	
	Weight		220		g	
DDS6x41A, DDS6xx4A	Width		35		mm	
	Weight		190		g	
DDS6xx8A	Width		35		mm	
	Weight		270		g	

x = any character, also nothing

The A suffix (for ex. DDS6278A) identifies the AC versions.

Connectors AC version, CN4 and CN5 only available on DDS62xx(A) series.



EtherCAT®

The **DDS7xE** series stepper motor drives are equipped with **EtherCAT** fieldbus and support the **CoE** (CANopen over EtherCAT) protocol with CiA **DS402** profile.

The models with **Encoder** input allows the motor control in **closed-loop**, avoiding the step losses' problems and improving the application performances. The dynamic control of the current allows to limit the motor heating and the power requirement.

The drive can operate according to the Profile Position, Profile Velocity, Profile Torque, Cyclic Synchronous Position (CSP) and Cyclic Synchronous Velocity (CSV) modes. Finally, the Homing mode is available and includes more than 50 different homing methods.

The drive gets advantage from full digital technology and vector control technique to minimize vibrations and noise.

The digital outputs are programmable and can signal, for example, the status of operative drive, reached position, motor at standstill, etc. It is also possible to assign a digital output to the brake control with insertion and release times freely settable.



Family Development

Power Supply / Motor Current	5 Digital Inputs, 2 Digital Outputs 1 Analog Input	8 Digital Inputs, 3 Digital Outputs 1 Analog Input 1 Encoder Input A, B, I
24Vdc Auxiliary Power Supply		
20..50Vdc (16..36Vac) / 0.2..1.4Arms	DDS71E41(A)	DDS72E41(A)
20..50Vdc (16..36Vac) / 1.0..4.5Arms	DDS71E44(A)	DDS72E44(A)
20..50Vdc (16..36Vac) / 2.0..10.0Arms	DDS71E48(A)	DDS72E48(A)
24..90Vdc (20..65Vac) / 1.0..4.5Arms	DDS71E74(A)	DDS72E74(A)
24..90Vdc (20..65Vac) / 2.0..10.0Arms	DDS71E78(A)	DDS72E78(A)

The A suffix (for ex. DDS72E78A) identifies the AC versions

The I/O equipment is complete and includes both digital and analog inputs and outputs. The drive has a separate supply for the logic that keeps the fieldbus operative even without the power supply.

Dimensions are extraordinarily compact, just 35x96x120mm for the largest size. The installation on the DIN rail is immediate and the wiring is made simple by the removable terminal blocks.

The drive setting and diagnostics are possible with the use of the free **Omni Automation IDE** software.

All mentioned trademarks belong to their legitimate owners as well as products and trade names.

The **DDS7xM** series stepper motor drives allow an accurate and complete motor control through the industrial Ethernet **Modbus TCP/IP** protocol.

The communication speed reaches **100Mbit/s** and it is possible to update Position, Velocity and Torque set points with a cycle time of less than **1ms**.



Modbus TCP/IP is an open and easy to implement industrial communication protocol based on the client-server architecture. The messages are encapsulated within the standard TCP/IP telegram and can be transmitted through the common Ethernet networks.

Many PLC and HMI of the last generation natively support the Modbus TCP/IP protocol, furthermore PC-based systems can easily implement it thanks to the numerous and free libraries available.

The drive gets advantage from full digital technology and vector control technique to minimize motor vibrations and noise. It can be easily integrated in the modern industrial 4.0 applications also for its compact size and quick installation on DIN rail.

Family development

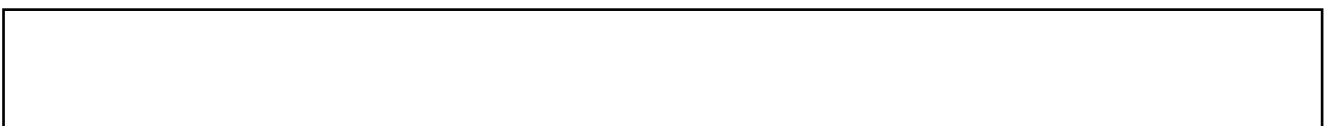
Power Supply / Motor Current	5 Digital Inputs, 2 Digital Outputs 1 Analog Input	8 Digital Inputs, 3 Digital Outputs 1 Analog Input 1 Encoder Input A, B, I 1 Absolute Encoder Input SSI
24Vdc Auxiliary Power Supply 20..50Vdc (16..36Vac) / 0.2..1.4Arms	DDS71M41(A)	DDS72M41(A)
20..50Vdc (16..36Vac) / 1.0..4.5Arms	DDS71M44(A)	DDS72M44(A)
20..50Vdc (16..36Vac) / 2.0..10.0Arms	DDS71M48(A)	DDS72M48(A)
24..90Vdc (20..65Vac) / 1.0..4.5Arms	DDS71M74(A)	DDS72M74(A)
24..90Vdc (20..65Vac) / 2.0..10.0Arms	DDS71M78(A)	DDS72M78(A)

The A suffix (for ex. DDS72M78A) identifies the AC versions

The I/O equipment is complete and includes both digital and analog inputs and outputs. There are also available models with Encoder input able to control the motor in closed-loop, removing the step losses' problems and improving the motor efficiency. The drive has a separate power supply for the logic and is protected against over or under-voltage, over-temperature, short-circuits, etc.

The drive setting and diagnostics are possible with the use of the free **Omni Automation IDE** software.

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The **DDS7xP** series stepper motor drives are equipped with **PROFINET IO** Industrial Ethernet fieldbus and are able to control the motor in **Position**, **Velocity** and **Torque** mode. The digital implementation and the vector control of the motor ensure high performances and efficiency.



The **IRT** communication allows updating of the set points with a cycle time of less than **1ms**.

The DDS7xP drives are supplied with the **GSDML** file and integrate perfectly into the STEP 7 TIA Portal development environment from SIEMENS.

Each drives has 2 Ethernet connectors and one IRT integrated switch which allow the series connection (daisy chain) of multiple drives on the PROFINET network without the need for any additional hardware.

The I/O equipment is complete and includes both **digital and analog inputs and outputs**. There are also available models with Encoder input able to **control the motor in closed-loop**, removing the step losses' problems and improving the motor efficiency.

Dimensions are extraordinarily compact, just 35x96x120mm for the largest size. The installation on the DIN rail is immediate and the also the wiring is made simple by the removable terminal blocks.



Family Development

Power Supply / Motor Current	5 Digital Inputs, 2 Digital Outputs 1 Analog Input	8 Digital Inputs, 3 Digital Outputs 1 Analog Input 1 Encoder Input A, B, I
24Vdc Auxiliary Power Supply		
20..50Vdc (16..36Vac) / 0.2..1.4Arms	DDS71P41(A)	DDS72P41(A)
20..50Vdc (16..36Vac) / 1.0..4.5Arms	DDS71P44(A)	DDS72P44(A)
20..50Vdc (16..36Vac) / 2.0..10.0Arms	DDS71P48(A)	DDS72P48(A)
24..90Vdc (20..65Vac) / 1.0..4.5Arms	DDS71P74(A)	DDS72P74(A)
24..90Vdc (20..65Vac) / 2.0..10.0Arms	DDS71P78(A)	DDS72P78(A)

The A suffix (for ex. DDS72P78A) identifies the AC versions

The drive has a separate power supply for the logic and is protected against over or under-voltage, over-temperature, short circuits, etc.

The drive setting and diagnostics are possible with the use of the free **Omni Automation IDE** software.

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