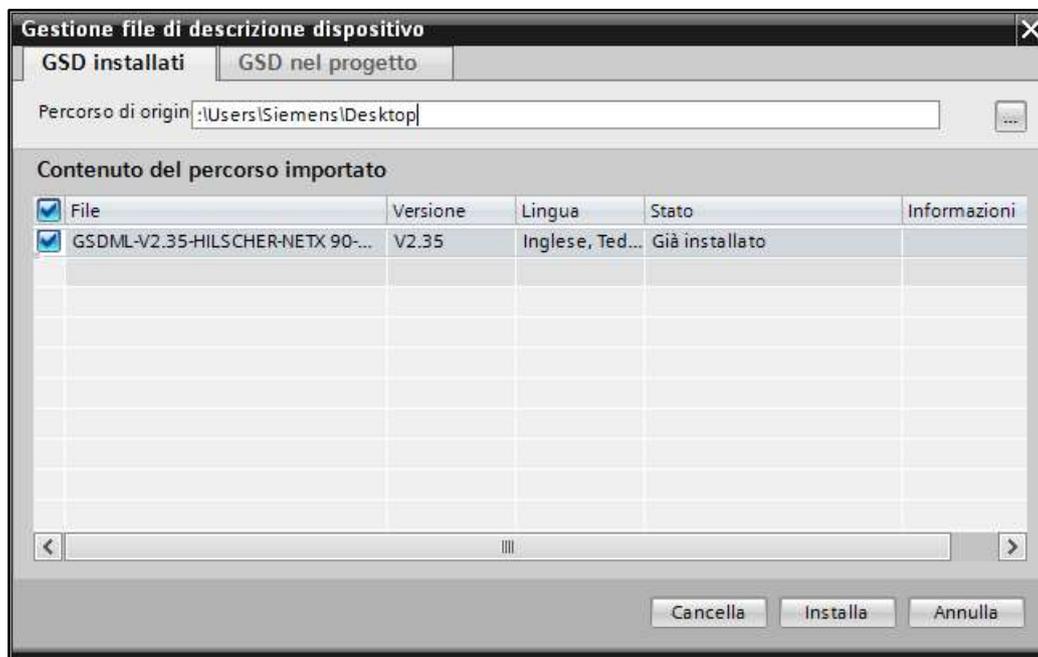
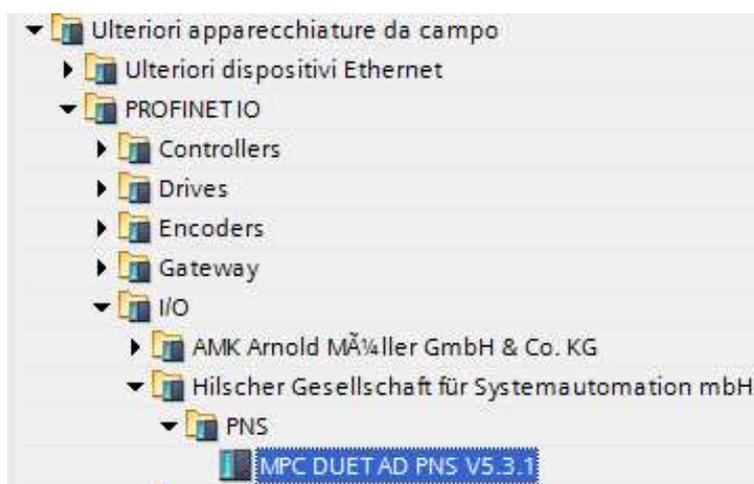


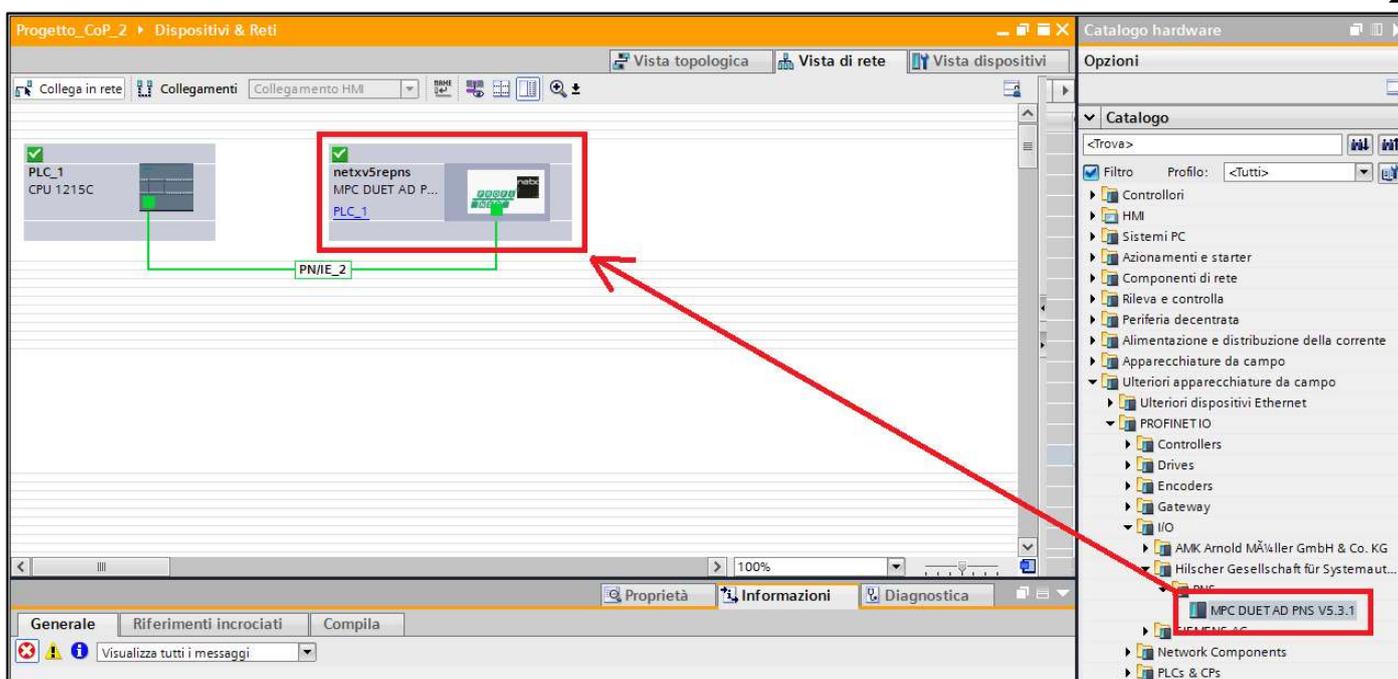
TIA Portal - Configuration guide

- The GSDML file can be found in the software folder of the download area at www.motorpowerco.com. Install the GSDML-file in TIA-Portal in the menu “Options / Manage general station description files (GSD)”.

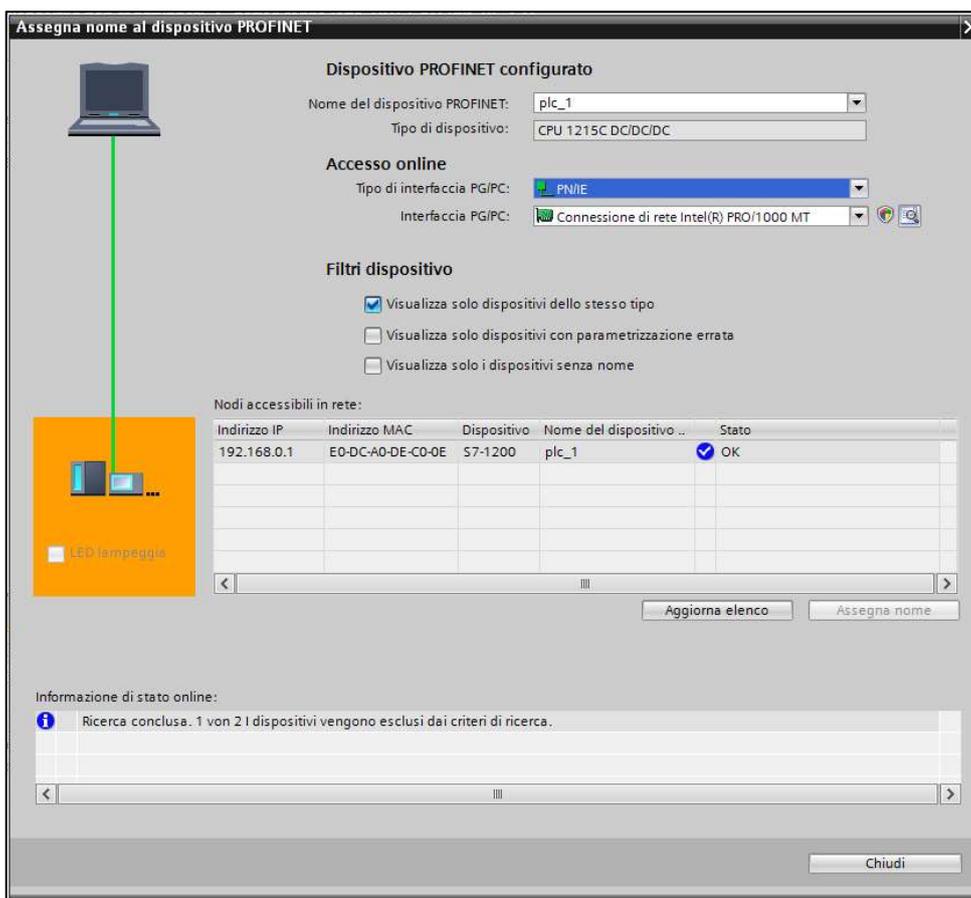


- The DUET AD device can be found in the hardware catalogue under "Other field devices → PROFINET IO → I/O → Hilscher Gesellschaft für Systemautomation mbH → PNS". Add the "MPC DUET AD PNS V5.3.1" to the project and connect it with your PROFINET network.



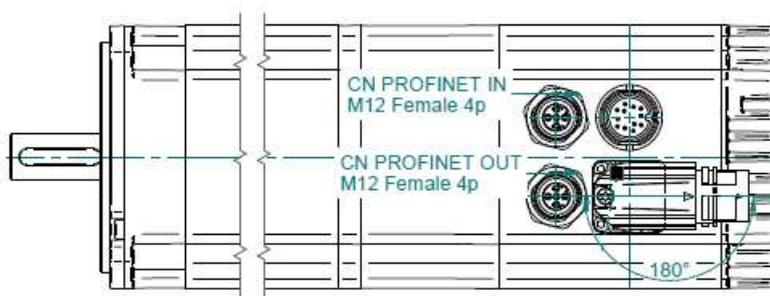


- By calling up the object properties, the DUET AD should be assigned a unique PROFINET name and the IP address be checked for plausibility. The name of the configured device must later be assigned to the physical device.
- When the configuration of the DUET AD has been completed in the hardware configurator, it can be loaded into the PLC. In order for the device to be found by the PROFINET controller, the PROFINET device name must be assigned to the device. To do this, use the "Assign device name" function, which you can access with the right mouse button or in the Online menu when the device is selected. Use the "Refresh list" button to search the network for PROFINET stations. With "Assign Name" the PROFINET device name can be assigned to the device.

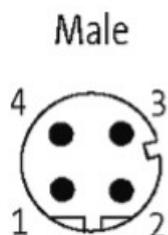


Profinet wirings

- There are two Profinet M12 connectors on DUET AD device. The image below shows the standard position of Profinet input and Profinet output connectors:



- Refer to table below for specific signal functions:



Pin	Signal	M12 plug Profinet	Color	Wire pair
1	TD+	Transmission data +	Yellow	1
2	RD+	Receive data +	White	2
3	TD-	Transmission data -	Orange	1
4	RD-	Receive data -	Blue	2

Profinet cyclic communication

DUET AD exchanges 32 bytes on the fieldbus; 16 bytes are set as controller inputs and 16 bytes are set as controller output

- Controller data input:

Byte	Bit	Category	Designation	Type	Comments
0-1		Statusword	Drive's statusword	UNIT16	Canopen statusword as object 6041h of DS402.
2		Mode of Operation Display	Drive's mode of operation	INT8	Canopen drive operation mode as object 6061h of DS402; modes of operation supported are profile position and profile velocity mode.
3-6		Velocity / Position actual value	Drive's actual position / velocity	INT32	Canopen drive actual position or velocity as objects 6064h and 606Ch of DS402. The object switches automatically when the operation mode changes
7		Spare	Spare byte	BYTE	
8-9		Actual motor current	Motor current consumption	INT 16	Actual motor current expressed in per thousand of motor nominal current
10-15		Spare	Spare bytes	BYTES	

- Controller data output:

Byte	Bit	Category	Designation	Type	Comments
0-1		Controlword	Drive's controlword	UNIT16	Canopen controlword as object 6041h of DS402.
2		Mode of Operation	Drive's mode of operation	INT8	Canopen drive operation mode as object 6060h of DS402; modes of operation supported are profile position and profile velocity mode.
3		Homing Method	Drive's homing method	INT8	Canopen homing method as object 6098h of DS402.
4-7		Velocity / Position target value	Drive's target position / velocity	INT32	Canopen drive target position or velocity as objects 607Ah and 60FFh of DS402. The object switches automatically when the operation mode changes
8-9		Current limitation	Motor current limitation	INT 16	Motor current limitation expressed in per thousand of motor nominal current. When 0 this function is disabled.
10-15		Spare	Spare bytes	BYTES	

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C.F. e P.IVA IT 01308390358



Profinet acyclic communication

The controller can send read/write telegram to the device. Each telegram is composed by 16 or 32 bits, below a table with description, size and address of each object:

Name	Type	Index	Description	R/W	Unit	Range
Current Ki	unit16	135	Current PI – integral factor	R / W		0 ... 65536
Current Kp	unit16	134	Current PI – proportional factor	R / W		0 ... 65536
Velocity Ki	unit16	137	Velocity PI – integral factor	R / W		0 ... 65536
Velocity Kp	unit16	136	Velocity PI – proportional factor	R / W		0 ... 65536
Position Kp	unit16	138	Position PI – proportional factor	R / W		0 ... 65536
Nominal current	unit16	142	Motor nominal current	R / W	Arms	0 ... 65536
Peak current	unit16	143	Motor peak current	R / W	Arms	0 ... 65536
Load Inertia	unit16	261	Load inertia	R / W	kg*cm ²	0 ... 65536
Save to EEPROM	unit16	514	Store actual parameters	W		0...1
Firmware version	unit16	640	Firmware version del drive	Read		0 ... 65536
Serial number	unit32	648	Serial number del drive	Read		0 ... 4294967296
Actual DC BUS voltage	unit16	653	Actual DC BUS voltage	Read	Vdc	0 ... 65536
Drive temperature	unit16	662	Actual drive temperature*100	Read	°C	0 ... 65536
Bootloader version	unit16	666	Bootloader version	Read		0 ... 65536
Fault register	unit16	669	Fault register	Read		0 ... 65536
Actual position	int32	693	Actual incremental position	Read		-2147483648 ... 2147483648

Fault register description

Telegram 669 size 16bits returns the actual error/errors active on the drive:

Bit number	Fault type	Description	Value (hex)
0	OVER_VOLTAGE	Power supply voltage goes above to the maximum admitted value	0x01
1	UNDER_VOLTAGE	Power supply voltage goes below to the maximum admitted value	0x02
2	PEAK_MOTOR_CURRENT	Motor peak current exceeded	0x04
3	RATED_MOTOR_CURRENT	Motor rated current exceeded	0x08
4	SHORT_CIRCUIT		0x10

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8	POSITION TRACKING ERROR	Position following error exceeded	0x100
9	VELOCITY TRACKING ERROR	Speed following error exceeded	0x200
10	OVERVELOCITY	Maximum motor velocity exceeded	0x400
11	DRIVE OVERTEMPERATURE	Maximum motor velocity reached	0x800
13	FIELDBUS CYCLE TIME	Profinet cyclic messages timeout	0x2000

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