Technical datasheet:
TD_DMD2_24V_54T0xxxx_NoGear_revA_prel
Rugged brushless motor
with integrated drive
P/N:54T0xxxx

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Features

- Designed for 24V agricultural equipment
- Custom versions upon request.
- CANOpen communication (speed and position control)
- Integrated brushless motor drive
- Signaling LED
- 2 digital inputs (e.g. seed sensor or hopper level sensor)

Applications

The DMD2-24V is an application specific brushless motor with integrated electronic drive. The motor can be used to replace mechanical or hydraulics transmissions in agricultural or other off-highway applications (e.g. variable rate applications).
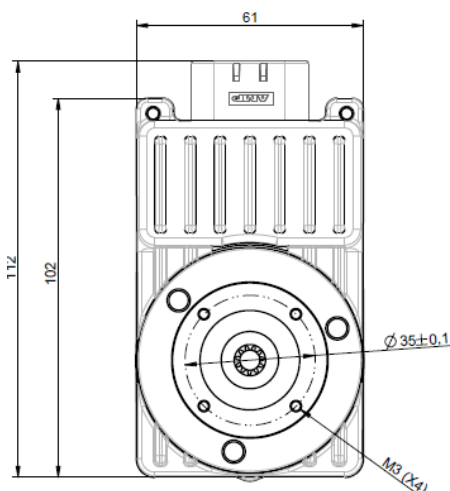
Application example are:
- Actuation of seeding element in pneumatic precision planting machines
- Actuation of seed distributor in air-drills or small grain planters
- Actuation of fertilizer and microgranular spreaders in agricultural machines
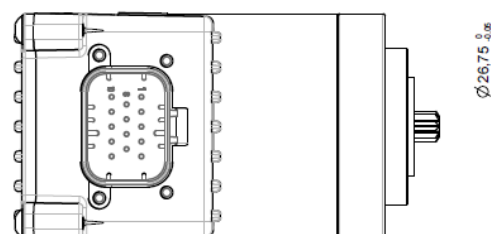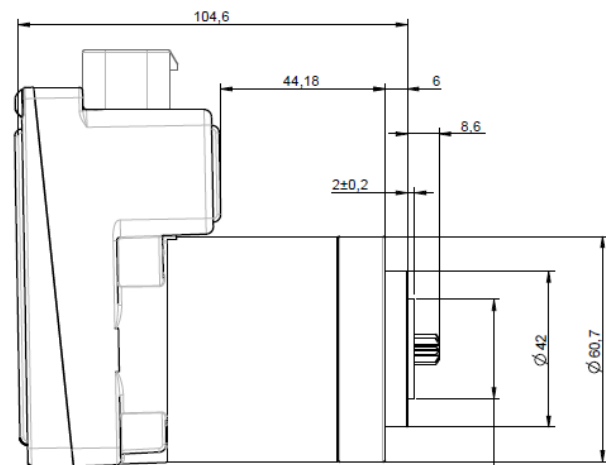
DMD2 - 54T0xxxx

Assembly Instructions

Overall dimensions

GEAR PINION
Module = 0,6
Teeth = 11
Pressure angle = 20°
Ø External 8,55 mm
Modification coefficient: 0,58

ELECTRICAL CONNECTOR
AMP AMPSEAL 1-776267-1

Dimensions in mm.

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DMD2 - 54T0xxxx
Technical Specifications
For more details please refer to DMD2 Installation, Operation and Maintenance Manual

Environmental Specifications

Operational Temperature:	-10°C…+55°C (full specs) -10°C…+70°C (derated)
Storage Temperature:	-40°C…+80°C
IP grade	IP65, excluding front flange. Integrator must take provision to prevent water ingress from front flange
Vibrations	Sinusoidal vibration test: IEC 600-68-2-6 Random vibration test: IEC 600-68-2-64 Temperature change test: IEC 60068-2-14 Shock test: IEC 600-68-2-27

Mechanical Specifications

Nominal Torque at output shaft	0,180 Nm
Peak Torque at output shaft	0,27 Nm (single pulse, duration 500ms)
Nominal Speed at output shaft	2970 rpm
Output pinion details	Module = 0,6 Teeth = 11 Pressure angle = 20° Ø External 8,55 mm Modification coefficient: 0,58

Electrical Specifications

EMC	The unit fulfills EN ISO 14982 standard (Agricultural and forestry machinery). - Load dump (pulse 5b): 58V - All pins protected to short-to-battery, short-to-gnd. - Reverse polarity, jump start and reverse jump start protection. - Inrush current limitation
Supply voltage	- 22V-32V: full specs - 18V-22V: communication and diagnostic only Note: Voltage is intended at MD connector input pins. Voltage drop due to cable harness shall be taken into account.
Supply current (at nominal Torque, nominal Speed and minimum supply voltage)	3,6 A @22V (preliminary value)

Input/output and communication

CAN	1 CAN bus line (compliant ISO SO 11898-2 and 5. Up to 1 Mbit/s)
Sensor interface	2 x inputs: 3 pin (8V – 80mA supply, GND, signal), up to 2,5 kHz suitable for NPN output sensors.
Safety switch input	Contact switch input to remove supply to power stage.
Daisy Chain CAN addressing line	Input and output signal for automatic CAN node assignment

Disclaimer

The present specifications are intended to be preliminary. Parameters and values indicated in the document might be subjected to changes. For further information, please contact: mechatronics@roj.com

Water protection
Motor protection degree: **IP65**, excluding the front flange/output shaft.

The system integrator shall provide means of protecting this surface when integrating the motor into the machine
Output connector
The output connector on the motor is a AMP Ampseal 14 poles, with the following pin assignment:

Pin	Signal	Pin	Signal
1	POWER +24V	8	MOTOR_ENABLE_OUT(*)
2	GND	9	SEED_SENSOR_CNT(*)
3	SENSOR_POWER (8V- 80mA)	10	CAN_SYNCHR_OUT
4	SENSOR_POWER (8V- 80mA)	11	CAN_SYNCHR_IN
5	AUX_IN	12	MOTOR_ENABLE_IN
6	CAN_H	13	SENSOR_GND
7	CAN_L	14	SENSOR_GND

It matches with connector **AMP Ampseal 776273-1**.

ROJ can supply standard motor cable harnesses in various lengths and power distribution boxes.

(*) Safety switch
A safety switch shall be connected to signals MOTOR_ENABLE_IN/ MOTOR_ENABLE_OUT. If the contact is open, the DMD0 cannot rotate. The safety switch must be implemented using:

- an electro-mechanical switch with "positive opening" NC contact (condition indicated by the symbol ⊕),   or
- an electromagnetic sensor with high reliability (e.g. SICK RE11-SA03 or equivalent)

In order to ensure the requested safety level (Performance Level = c according to EN ISO 13849-1), it is necessary to provide a safety contact with the following characteristics:
- B10d >= 2 x 10e6

Note: B10d is the reliability parameter declared by the device Manufacturer that corresponds to the number of switching operations guaranteed without errors.