



AMKSMART IDT/IDTG

The integrated servo drive solution.

AMK

B E N E F I T S

- Economical and compact
- Integrated encoder in single or multiturn version
- I/O interface integrated
- Integrated gear solution for broad speed and torque range
- Optional holding brake
- Communication interface for CANopen and Modbus RS485

AMK

Integrated, intelligent, multifunctional – more than just a motor.

The AMKSMART integrated motor series IDT offers you high-torque motor, servo controller and angle encoder as a compact mechatronic unit.

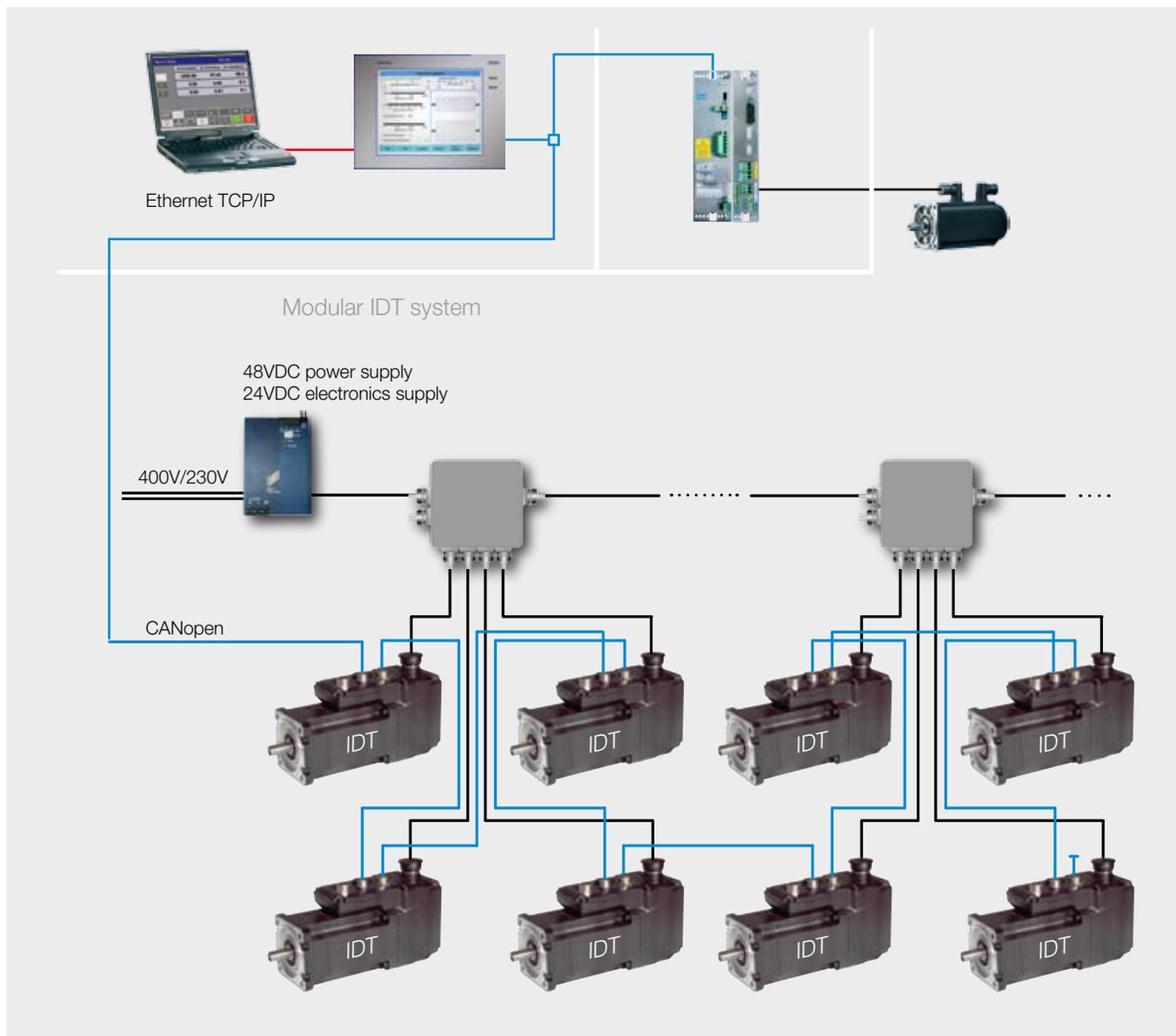
The drives are all developed and manufactured by AMK. Thus, we can rely on decades of experience in the servo motor business; combined with much expertise and inventiveness, this permits the creation of economic, flexible and innovative drive solutions.

The requirements of modern production lines on drive and controller equipment are steadily increasing: Optimal productivity, greatest flexibility and an excellent user-friendly handling are the key criteria for modern plant design. AMK always endeavours to meet these expectations and to create them as well.

The IDT from the AMKSMART product family applies here: High-torque motor, servo controller and angle encoder as a ready-for-connection, compact mechatronic unit. Thanks to its outstanding servo properties, the multi-talent is compelling as a cost-effective compact drive solution in the power range of 250 W. Replace step motors and exploit the resulting performance advantage and the greater precision for your process. Due to the application of integrated planetary gears, maximum torques of up to about 55 Nm can be achieved.

As an universal servo drive, the IDT can be connected via RS485 interface to an external controller; the MODBUS RTU protocol is used by it. As an alternative, communication via the CANopen-based ACC bus is possible. This results in the complete compatibility with AMKASYN modular component system.

AMKSMART IDT Automation structure



Modern systems are built based on function modules. This lowers development costs and shortens delivery times. With the AMKSMART series, AMK provides the link to modular drive technology.

Realise your options without cabinet extension. Employ the drive there where it is needed and reduce your wiring expenses to a minimum. Thanks to integrated I/Os, you can solve sophisticated tasks without extensions by terminals; thus saving not only money, but time as well.

Steadily increasing requirement values for plants increase the demand for greater performances in the drive range with increasing precision. Step motors are limited here. Meet your customer requirements and employ AMKSMART IDT. This is valid for transport applications as well as for precise positioning.

The digital microprocessor control offers a comprehensive function package that provides you with the extensive advantages of a modern servo axis:

- Torque control
- Speed and position control
- Positioning
- Homing cycle
- Electronic gearing
- Synchronous control
- Step motor control
- Brake management

IDT 4 motors. Integrated servo controller



Features

- 4 binary inputs 2 of them configurable as analogue- or pulse input
- 2 binary outputs
- 1 configurable binary in- or output
- Protection class IP54
- Power supply 48/28V
- Absolute encoder multiturn or singleturn
- CANOpen and Modbus RS485
- Status LED

Application

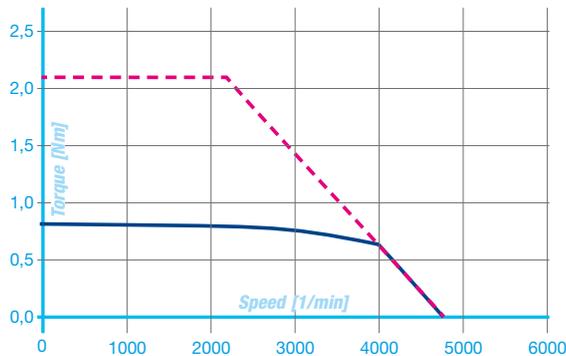
- Expanded step motor function
- Positioning
- Sorting

Equipment

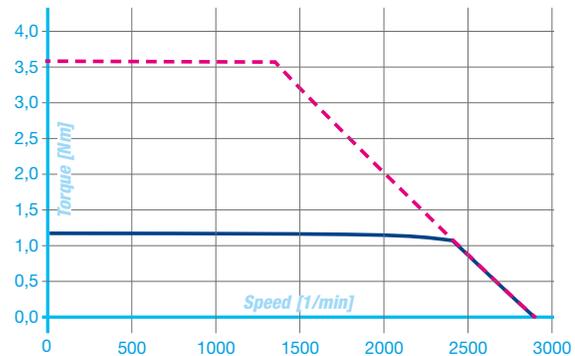
	Standard	Option
Brake	–	4.5 Nm
Encoder	Singleturn	Multiturn

Connection cable: Power plug M23, communication M12

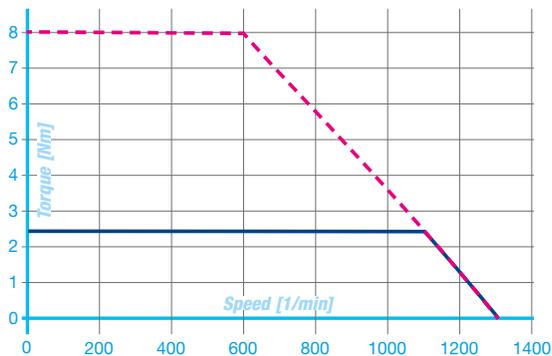
Characteristic curves



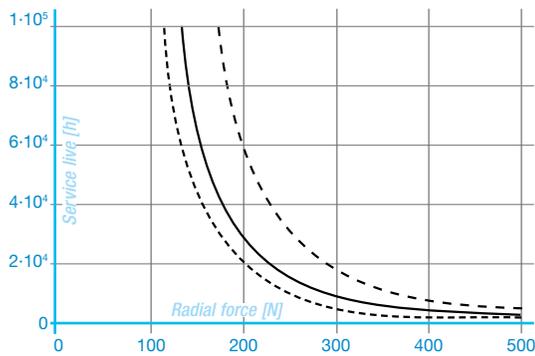
IDT 4-1



IDT 4-2



IDT 4-4



Bearing service life (L10h) Characteristic curve

--- Maximum torque — Thermal permanent torque

Bearing service life: --- $2 \times n_N$ — n_N - · - $0,5 \times n_N$

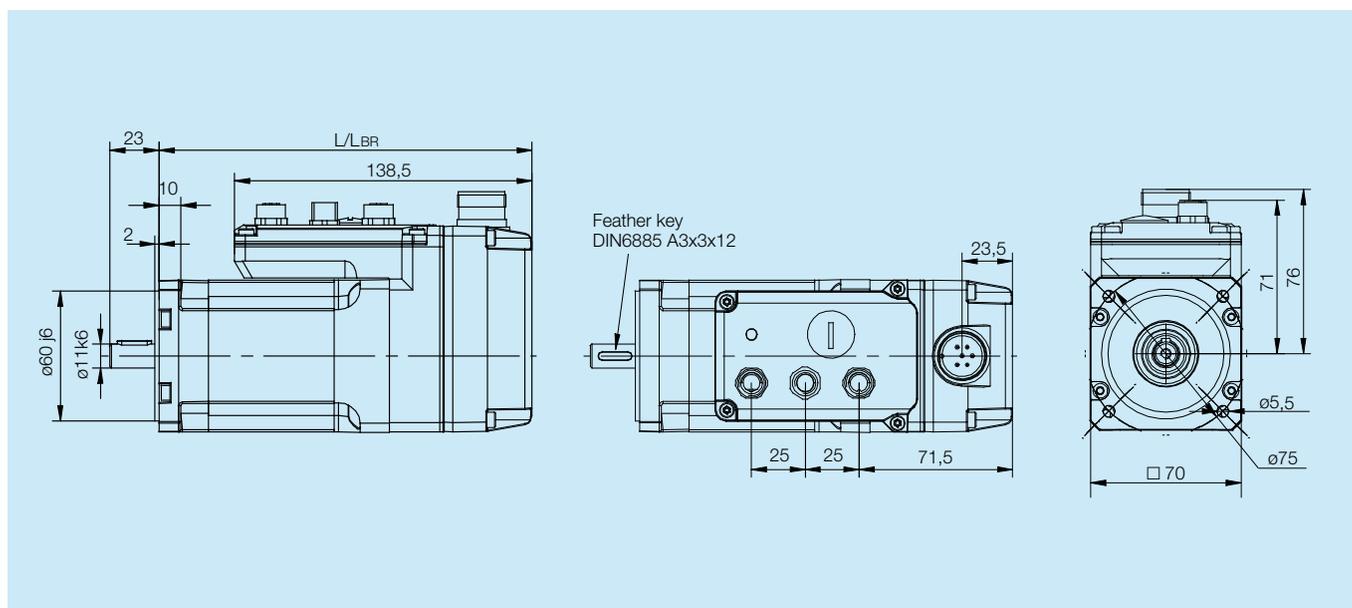
Technical data

Motor type	Standstill and rated values							Maximum values			Mechanical data			
	U_{DC}	I_{DC}	M_o, M_N [Nm]	I_o, I_N [A]	P_N [W]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	n_{max} [1/min]	J^* [kgcm ²]	L [mm]	L_{BR} [mm]	m [kg]
IDT4-1	48	6.6	0.8	7	250	3000	0.11	2.1	20	5150	0.36	142.0	175.0	2.0
IDT4-2	48	6.6	1.2	7	250	2000	0.19	3.7	20	3100	0.68	173.5	206.5	2.7
IDT4-4	48	6.6	2.5	7	260	1000	0.4	8.0	20	1460	1.44	236.5	269.5	3.9

* referring to the motor shaft

U_{DC}	Rated input voltage	M_N	Rated torque	k_T	Torque constant	J	Moment of inertia
I_{DC}	Rated input current	P_N	Rated power	M_{max}	Maximum torque	L	Length
M_o	Continuous stall torque	I_N	Current consumption	I_{max}	Maximum current	L_{BR}	Length with brake
I_o	Continuous stall current	n_N	Rated speed	n_{max}	Maximum speed	m	Mass

Dimensions



IDTG 4 motors. Integrated servo controller and gear



Features

- 4 binary inputs 2 of them configurable as analogue- or pulse input
- 2 binary outputs
- 1 configurable binary in- or output
- Protection class IP54
- Power supply 48/28V
- Absolute encoder multiturn or singleturn
- CANOpen and Modbus RS485
- Status LED
- Integrated gear

Application

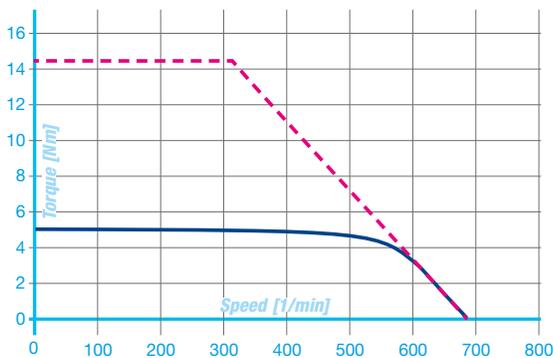
- Expanded step motor function
- Positioning
- Sorting

Equipment

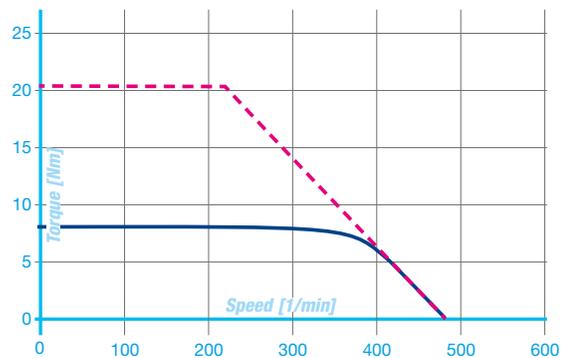
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Brake	–	4.5 Nm
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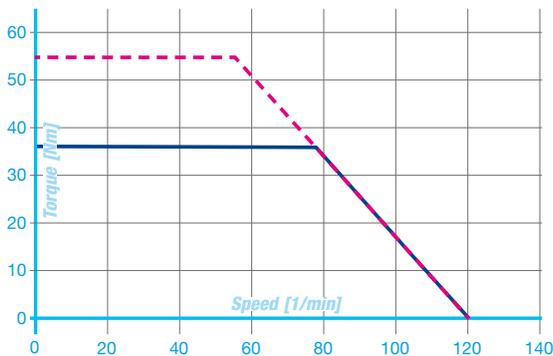
Characteristic curves



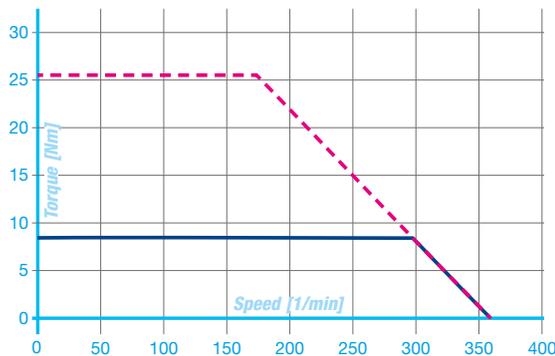
IDTG 4-1, i=7



IDTG 4-1, i=10



IDTG 4-1, i=49



IDTG 4-2, i=7

--- Maximum torque — Thermal permanent torque

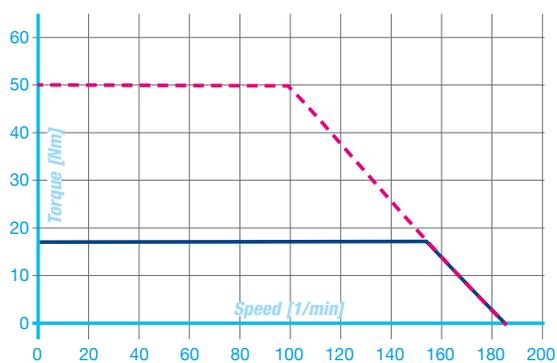
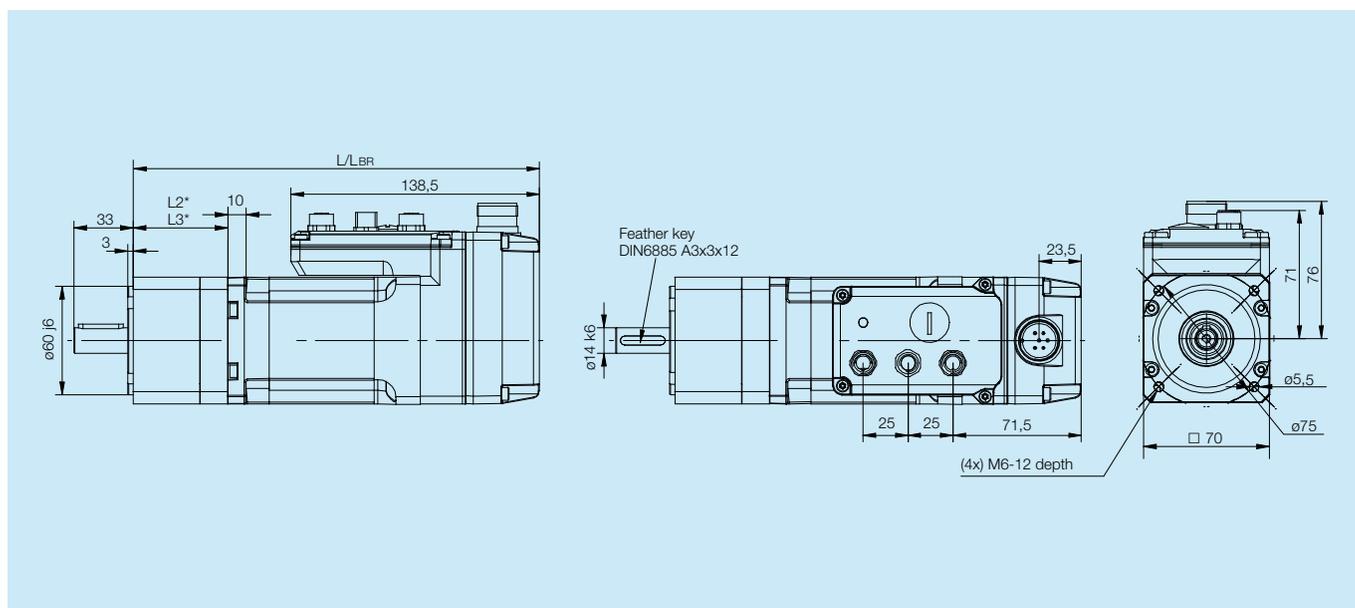
Technical data

Motor type	Standstill and rated values							Maximum values			Gear data			Mechanical data			
	U_{DC}	I_{DC}	M_o, M_N [Nm]	I_o, I_N [A]	P_N [W]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	n_{max} [1/min]	Stufig-keit	i	j_T [arcmin]	J^* [kgcm ²]	L [mm]	L_{BR} [mm]	m [kg]
IDTG4-1	48	6.6	5.4	7.0	250	429	0.11	14.4	20	735	1	7	< 15'	0.42	194.7	227.7	3
IDTG4-1	48	6.6	7.7	7.0	250	300	0.11	20.4	20	515	1	10	< 15'	0.42	194.7	227.7	3
IDTG4-1	48	6.6	37	7.0	250	61	0.11	55.0	11.5	105	2	49	< 20'	0.42	216.7	249.7	3.3
IDTG4-2	48	6.6	8.2	7.0	250	285	0.19	25.5	20	357	1	7	< 15'	0.74	226.2	259.2	3.7
IDTG4-4	48	6.6	17.1	7.0	260	142	0.4	50	20	208	1	7	< 15'	1.51	289.2	322.2	5.2

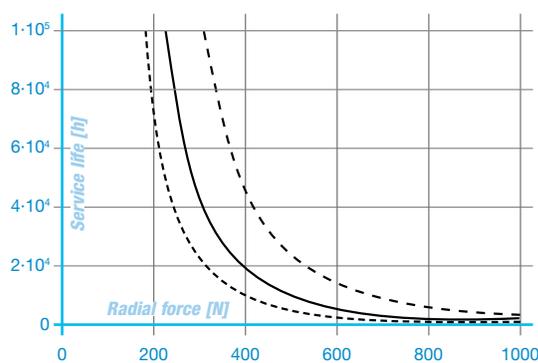
* referring to the motor shaft

U_{DC}	Rated input voltage	M_N	Rated torque	k_T	Torque constant	j_T	Backlash	L_{BR}	Length with brake
I_{DC}	Rated input current	P_N	Rated power	M_{max}	Maximum torque	n_{max}	Maximum speed	m	Mass
M_o	Continuous stall torque	I_N	Current consumption	I_{max}	Maximum current	J	Moment of inertia		
I_o	Continuous stall current	n_N	Rated speed	i	Gear ratio	L	Length		

Dimensions



IDTG 4-4, i=7



Bearing service life (L10h) characteristic curve

Bearing service life: - - - - - $2 \times n_N$ — n_N - · - · - $0,5 \times n_N$

Accessories

Accessories	Type	AMK part no.	Remarks
Power cable for X1, 6-wired	IDT-LE2000	201105	Length: 2 m, angular connector
	IDT-LE5000	201711	Length: 5 m, angular connector
	IDT-LE10000	201106	Length: 10 m, angular connector
	IDT Starter KIT	46980	Power cable IDT-LE2000 assembled with cable end sleeves
	Assembled IDT power cable	46864	Power cable IDT/distributor box. Power cable assembles at each end, length 2 m, M23 angular connector 90°, M25 screwed cable gland with bus connector. Customised lengths upon request
	Assembly group IDT cable	401209	1 x M23 angular connector 90° 1 x M25 screwed cable gland 1 x bus connector 6 x bus pin
CAN-BUS cable for X2/X3, A-coded	IDT-ACC500	201107	Length: 0.5 m, angular connector
	IDT-ACC2000	201108	Length: 2 m, angular connector
	IDT-ACC5000	201131	Length: 5 m, angular connector
	IDT-ACC10000	202338	Length: 10 m, angular connector
	IDT-ACCT	201110	Bus-terminating plug (pins) for X2 plug straight
I/O cable for X4 B-coded	IDT-EA500	202054	Length 0.5 m, angular connector 90°, 8-pin
	IDT-EA2000	202647	Length 2 m, angular connector 90°, 8-pin
	IDT-EA5000	201731	Length 5 m, angular connector 90°, 8-pin
	IDT-EA10000	202281	Length 10 m, angular connector 90°, 8-pin
Power supply	Power supply 48 V/10 A	O808	IDT supply input 1 x 230 V/output 48 V/480 W
	Power supply 48 V/20 A	O809	IDT supply input 3 x 400 V/output 48 V/1000 W
Braking chopper	IDT-BR50	O822	Supply voltage limitation (brake threshold as of 55 VDC)
Braking resistor	IDT-AR100	O775	Braking resistor 3 Ω/100 W to the connection on the distributor box
Distributor box 4-fold	IDT-X4	O764	Distributes supply voltage to 4 IDTs, includes braking chopper and stand-by supply for the multiturn encoder
Service and startup KIT	PC startup tool	O755	AMK PC software AIPEX (AMK startup and parameterization explorer) including converter USB-CAN, circuit board AP-CI6 and connection cable

Ambient conditions

Protection class as per EN 60529:

IP54 (optional IP65)

Ambient temperature:

0 °C to + 40 °C

Storage/Shipping temperature:

-25 °C to + 55 °C

Relative humidity:

5 % to 85 % without condensation

Elevation of installation site:

Up to 1000 m above sea level. If installed at elevations of 1000 m to max. 2000 m above sea level, the nominal data has to be lowered by 1 % per 100 m.

Vibration stress:

Operation: Class 3 MZ acc.
EN 60721-3-3 (0.5g/5...200 Hz)
Transport: Class 2 MZ acc.
EN 60721-3-2 (1...1.5g/5...500 Hz)

General technical data

Logic supply voltage:

24 VDC ± 15 %, 0.5 A without brake, 0.9 A with brake, waviness max. 5 %, with integrated switch-on current limitation

Power supply:

48 V DC ± 10 %, 8.6 A

Stand-by supply voltage:

Multiturn encoder UPS: 4.2 VDC, <300 µA

Reference potential:

PE as well as the earth of the supply voltages are connected internally with the casing.



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