



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG

**Handheld Screwdriver
electric**

MICROMAT-EC

straight handle design - torque ranges between 0.03 - 0.8 Nm

MINIMAT-EC

straight handle design - torque ranges between 0.03 - 18 Nm

pistol-grip design - torque ranges between 0.06 - 18 Nm

angle head design - torque ranges between 0.4 - 25 Nm

The flexible EC screwdriver for the highest standards

- flexible
- data recording
- highly accurate

The EC screwdriver with brushless drive technology combined with the AST series screwdriver controller offers maximum flexibility and process control.

The integrated torque and angle measurement system enables precise control of the screw assembly process and guarantees

the highest accuracy and reliable documentation of important process parameters.

Through the combination of different screw-driving strategies with flexible tightening parameters, multi step screw run-down sequences can be realised in one assembly cycle.



DEPRAG EC screwdriver – the flexible EC screwdriver for the highest standards

The DEPRAG EC screwdrivers allow free programming of the screw tightening process. Within the power range of the selected tool, the torque value, speed, stand-by and direction of rotation can be adjusted individually to the assembly requirement. Outstanding features of handheld EC screwdrivers are their high torque precision and the large range of control functions – perfect conditions for process security and control on highest level.

The brushless electric motors provide low maintenance operation. They are ideally suited for the tightening of screws due to their outstanding dynamics and an achievement of high peak torque values.

The integrated torque control - based upon precise measurement of the motor current along with the evaluation of other dynamic factors - as well as angle measurement, allows precise control of multistage screw-driving processes and documentation of the resulting values.

Depending on set-up and programming of the tightening sequences, DEPRAG screwdrivers enable a Cmk value of ≥ 1.67 at $\pm 10\%$ tolerance at 6 sigma according to ISO 5393, on the basis of EC technology torque accuracy of $< 2\%$ standard deviation or in reference to the machine performance index values. In other words a Cmk value of 1.67 means there is an error rate of 0.6 per million screw assemblies.

The operation of the screwdriver requires a programmable sequence controller (AST) with integrated amplifier and a motor cable*) (available in different lengths). The sequence controller offers standard screwdriving programs for tightening screws to a specific torque value respectively loosening at a specific angle value.

*) The standard motor cable (2.5 meter long) is part of the MICROMAT-EC screwdriver. Additional cable lengths are available.



It is necessary to use a torque support (e.g. stand, handgrip) for maximum torque: over 4 Nm for straight design, over 10 Nm for pistol grip and over 60 Nm for angle design. Suitable torque supports can be found in our brochure D3340E.

DEPRAG sequence controller AST5 – compact size for handheld EC screwdrivers



- highest precision for lowest torque ranges
- small size for confined spaces
- colour touch screen with 4.3" TFT display
- torque control/angle monitoring
- angle control/torque monitoring
- tightening procedure using friction values
- 100 user-tagable sequence programs
- can be used in combination with DEPRAG feeders
- for manual applications

The DEPRAG sequence controller AST5 is the ideal controller for manual screw assemblies in combination with the tried and tested DEPRAG EC screwdrivers of the MICROMAT-EC series and MINIMAT-EC (size 22) series within a torque range of 0.03 Nm – 2.0 Nm.

Operator friendly: The sequence controller already includes standard screwdriving programs for tightening to torque and loosening to angle. Parameters can be directly altered to suit screwdriving tasks using the touch screen. The AST5 allows free programming of your manual screwdriving sequences for hand-held screwdriving tools. If required, specific screwdriving programs can quickly and easily be set-up using the existing standard program.

High number of programs: Use the colour TFT touch screen for fast access to the 100 programmable user programs. Individual application profiles are free selectable using the program number or a user defined program name (tag).

Based on web browser: Use an established web browser or the touch screen to set parameters and access controller functions. Additional software is not required.

Small size: Due to its small size the controller is particularly suitable for use in manual work stations where there are confined spaces.

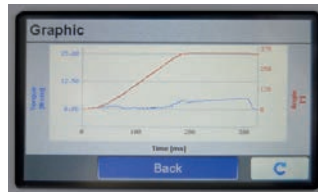
DEPRAG sequence controller AST5 – compact size for handheld EC screwdrivers

Storage, documentation and evaluation: The AST5 records the screwdriving results for the last 7 production days and saves them until they are retrieved via the ethernet connection. Additional features include the graphic display of screwdriving graphs, integrated PLC functions, comprehensive analysis options and the option of combination with an automatic screw feeding machine. A software update service is optionally available. Also available are comprehensive software packages for screw joint analysis, documentation and process data collection.

Examples of the functions display on the AST5



Main menu



Graphic display of screwdriving graphs



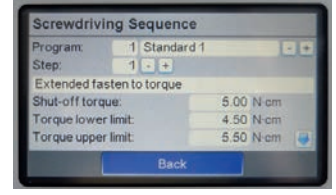
Statistics display



Web interface and display on touch screen available in 13 languages



Program selection



Program set-up

DEPRAG controller AST10 – flexible EC technology for the highest standards

- highest precision over the entire torque range
- torque control/angle monitoring
- angle control/torque monitoring
- tightening procedure using friction values
- 16 freely programmable sequences
- comprehensive analysis functions
- available communication ports: ethernet, RS232, PLC-input/output, profibus (optional)
- process function control
- can be used in combination with DEPRAG feeders
- for manual and stationary applications



The DEPRAG controller AST10 is the ideal sequence controller for manual and stationary screw assemblies together with the tried and tested DEPRAG EC screwdrivers MICROMAT-EC and MINIMAT-EC.

Operator friendly: The sequence controller already includes standard screwdriving programs for tightening to torque and loosening to angle. Parameters can be directly altered to suit screwdriving tasks using the controller's keypad. The AST10 allows free programming of your screwdriving sequences for hand-held or stationary screwdriving tools. If required, specific screwdriving programs can quickly and easily be set-up using the already existing basic program.

Freely programmable: Use the integrated key pad and display for fast access to the 16 programmable user programs. Individual application profiles can be selected via the program numbers.

Based on web browser: Use an established web browser or the keypad to set parameters and access control functions. Additional software for parameter setting or set-up of tightening sequences is not required.

Various communication options: Several communication options, especially for stationary use, enable connection via ethernet, profibus, PLC input-outputs and RS232.

Saving, documentation and evaluation: The AST10 displays the screwdriving results of the last 7 production days and saves these until they are retrieved via the ethernet connection. Additional software modules offer graphic display of screwdriving graphs, integrated PLC functions, comprehensive analysis options via a PC. Combination with an automated DEPRAG screw feeder is also possible. A software update service is optionally available.

TECHNICAL DATA MICROMAT-EC STRAIGHT HANDLE DESIGN, SIZE 19

Straight handle design, size 19

Screwdriver	Type	320EGA19-0002	320EGA19-0005	320EGA19-0008
Push-to-start	Part no.	402030 A	402030 C	402030 B
Screwdriver	Type	320EGT19-0002	320EGT19-0005	320EGT19-0008
Trigger-start	Part no.	412030 A	412030 C	412030 B
Torque min.	Nm / in.lbs	0.03 / 0.27	0.08 / 0.7	0.15 / 1.3
Torque max. *)	Nm / in.lbs	0.2 / 1.8	0.5 / 4.4	0.8 / 7.1
Speed min.	rpm	150	120	100
Speed max. *)	rpm	1500	1200	1000
Length	mm / in.	190 / 7 ³¹ / ₆₄	190 / 7 ³¹ / ₆₄	190 / 7 ³¹ / ₆₄
Weight	kg / lbs.	0.25 / 0.55	0.25 / 0.55	0.27 / 0.59
Noise level	dB (A)	60	60	60
Line voltage (DC)	V	48	48	48
Internal hex drive DIN ISO 1173		B3 (3 mm)	B3 (3mm)	B3 (3mm)
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		A3 (3 mm)	A3 (3mm)	A3 (3mm)
Optional equipment:				
Suitable for MICROMAT-EC with push-to-start		Spring sleeve cpl., without screw suction **)	Part no. 403280 A	
Suitable for MICROMAT-EC with trigger-start		Spring sleeve cpl., with and without screw suction	Part no. 403280 B	

* as per VDI/VDE 2647 Directive

**) An internal vacuum chamber is already integrated into the MICROMAT-EC with push-to-start

The motor cable, 2.5-meters long, is solidly connected to the screwdriver

TECHNICAL DATA MINIMAT-EC STRAIGHT HANDLE DESIGN, SIZE 22

Straight handle design, size 22

Screwdriver	Type	320EGA22-00025	320EGA22-00050	320EGA22-00080	320EGA22-00120	320EGA22-00200
Push-to-start	Part no.	420555 A	420555 B	420555 C	420555 D	420555 E
Screwdriver	Type	320EGT22-00025	320EGT22-00050	320EGT22-00080	320EGT22-00120	320EGT22-00200
Lever start	Part no.	419900 A	419900 B	419900 C	419900 D	419900 E
Torque min.	Nm / in.lbs	0.03 / 0.27	0.1 / 0.9	0.16 / 1.4	0.24 / 2.1	0.4 / 3.5
Torque max. *)	Nm / in.lbs	0.25 / 2.2	0.5 / 4.4	0.8 / 7.1	1.2 / 10.6	2.0 / 17.7
Speed min.	rpm	100	80	60	50	30
Speed max. *)	rpm	2000	1600	1200	900	550
Diameter	mm / in.	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2
Length	mm / in.	202 / 7.88	202 / 7.88	202 / 7.88	202 / 7.88	202 / 7.88
Weight	kg / lbs.	0.55 / 1.21	0.55 / 1.21	0.55 / 1.21	0.55 / 1.21	0.55 / 1.21
Noise level	dB (A)	60	60	60	60	60
Line voltage (DC)	V	24	24	24	24	24
Internal hex drive DIN ISO 1173		B3 (3 mm)	B3 (3mm)	B3 (3mm)	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		A3 (3 mm)	A3 (3mm)	A3 (3mm)	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:						
Spring sleeve cpl., without screw suction		Part no.	403280 K		364672 A	
Spring sleeve cpl., with screw suction		Part no.	403280 L		364672 C	
Support ring suitable for screwdrivers with push-to-start		Part no.	389775 C		389775 C	

*) as per VDI/VDE 2647 Directive

The motor cable, 2.5-meters long, is solidly connected to the screwdriver



size 22 with lever start and motor cable

Required accessories:

Sequence controller AST5 → Page 8 or Sequence controller AST10 → Page 9

TECHNICAL DATA MINIMAT-EC STRAIGHT HANDLE DESIGN, SIZE 27 AND 36

Straight handle design, size 27

Screwdriver	Type	320EGA27-0004	320EGA27-0010	320EGA27-0018	320EGA27-0022	320EGA27-0040
Push-to-start	Part no.	399515 A	399515 B	399515 F	399515 C	399515 D
Screwdriver	Type	320EGT27-0004	320EGT27-0010	320EGT27-0018	320EGT27-0022	320EGT27-0040
Trigger-start	Part no.	404149 A	404149 B	404149 F	404149 C	404149 D
Torque min.	Nm / in.lbs	0.06 / 0.5	0.15 / 1.3	0.4 / 3.5	0.4 / 3.5	0.7 / 6.2
Torque max. *)	Nm / in.lbs	0.4 / 3.5	1 / 8.85	1.8 / 15.9	2.2 / 19.5	4 / 35.4
Speed min.	rpm	60	50	100	50	40
Speed max. *)	rpm	1200	1000	1000	700	400
Diameter	mm / in.	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2
Length	mm / in.	218 / 8 ³⁷ / ₆₄	230 / 9 ¹ / ₁₆	229 / 9 ³ / ₆₄	229 / 9 ³ / ₆₄	242 / 9 ¹⁷ / ₃₂
Weight	kg / lbs.	0.48 / 1.05	0.54 / 1.2	0.54 / 1.2	0.54 / 1.2	0.58 / 1.3
Noise level	dB (A)	60	60	60	60	60
Line voltage (DC)	V	48	48	48	48	48
Internal hex drive DIN ISO 1173		B3 (3 mm)	B3 (3mm)	F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		A3 (3 mm)	A3 (3mm)	E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:						
Spring sleeve cpl., without screw suction	Part no.	403280 A			364672 A	
Spring sleeve cpl., with screw suction	Part no.	403280 B			364672 C	
Support ring		389775 C			389775 C	

Straight handle design, size 36

Screwdriver	Type	320EGA36-0040	320EGA36-0060	320EGA36-0120	320EGA36-0180
Push-to-start	Part no.	404866 A	404866 B	404866 C	404866 D
Screwdriver	Type	320EGT36-0040	320EGT36-0060	320EGT36-0120	320EGT36-0180
Trigger-start	Part no.	408324 A	408324 B	408324 C	408324 D
Torque min.	Nm / in.lbs	0.8 / 7	1 / 8.85	2 / 17.7	3 / 26.6
Torque max. *)	Nm / in.lbs	4 / 35.4	6 / 53.1	12 / 106.2	18 / 159.3
Speed min.	rpm	100	70	35	25
Speed max. *)	rpm	1000	740	380	280
Diameter	mm / in.	36.5 / 1.42	36.5 / 1.42	36.5 / 1.42	36.5 / 1.42
Length	mm / in.	260 / 10 ¹⁵ / ₆₄	260 / 10 ¹⁵ / ₆₄	260 / 10 ¹⁵ / ₆₄	260 / 10 ¹⁵ / ₆₄
Weight	kg / lbs.	0.84 / 1.8	0.84 / 1.8	0.84 / 1.8	0.89 / 1.9
Noise level	dB (A)	62	62	62	62
Line voltage (DC)	V	48	48	48	48
Internal hex drive DIN ISO 1173		F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:					
Spring sleeve cpl., without screw suction	Part no.			364672 A	
Spring sleeve cpl., with screw suction	Part no.			364672 C	

*) as per VDI/VDE 2647 Directive

Required accessories:

Sequence controller AST10 → Page 9



size 36 with push-to-start

Remark:

Our screwdrivers size 36 are also available in connection with screw feeders (→ brochure D3820 E).

TECHNICAL DATA MINIMAT-EC PISTOL GRIP, ANGLE HEAD SIZE 27

Pistol grip, size 27

Screwdriver	Type	320EPT27-0004	320EPT27-0010	320EPT27-0022	320EPT27-0040
Trigger-start	Part no.	403636 A	403636 B	403636 C	403636 D
Torque min.	Nm / in.lbs	0.06 / 0.5	0.15 / 1.3	0.4 / 3.5	0.7 / 6.2
Torque max. *)	Nm / in.lbs	0.4 / 3.5	1 / 8.85	2.2 / 19.5	4 / 35.4
Speed min.	rpm	60	50	50	40
Speed max. *)	rpm	1200	1000	700	400
Weight	kg / lbs.	0.58 / 1.28	0.62 / 1.36	0.64 / 1.41	0.68 / 1.5
Noise level	dB (A)	60	60	60	60
Line voltage (DC)	V	48	48	48	48
Internal hex drive DIN ISO 1173		B3 (3 mm)	B3 (3mm)	F6.3 (1/4")	F6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		A3 (3 mm)	A3 (3mm)	E6.3 (1/4")	E6.3 (1/4")
Optional equipment:					
Spring sleeve cpl., without screw suction	Part no.	403280 A	403280 A	364672 A	364672 A
Spring sleeve cpl., with screw suction	Part no.	403280 B	403280 B	364672 C	364672 C

*) as per VDI/VDE 2647 Directive

Angle head, size 27

Screwdriver	Type	320EWT27-0022-E6	320EWT27-0035-E6	320EWT27-0060-E6
Lever start	Part no.	400580 B	400580 C	400580 E
External square drive DIN 3121		E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Connection parts with inserting end DIN 3121				
Internal square drive		G6.3 (1/4")	G6.3 (1/4")	G6.3 (1/4")
Screwdriver	Type	320EWT27-0022-E10	320EWT27-0035-E10	320EWT27-0060-E10
Lever start	Part no.	409902 B	409902 C	409902 E
External square drive DIN 3121		E10 (3/8")	E10 (3/8")	E10 (3/8")
Connection parts with inserting end DIN 3121				
Internal square drive		G10 (3/8")	G10 (3/8")	G10 (3/8")
Screwdriver	Type	320EWT27-0022-F6	320EWT27-0035-F6	320EWT27-0060-F6
Lever start	Part no.	409903 B	409903 C	409903 E
Internal hex drive with quick change chuck DIN ISO 1173		F6.3 (1/4")	F6.3 (1/4")	F6.3 (1/4")
Connection parts with inserting end DIN ISO 1173				
External hex drive		E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
Screwdriver	Type	320EWT27-0022-D6	320EWT27-0035-D6	320EWT27-0060-D6
Lever start	Part no.	409900 B	409900 C	409900 E
Internal hex drive for bits DIN ISO 1173		D6.3 (1/4")	D6.3 (1/4")	D6.3 (1/4")
Connection parts with inserting end DIN ISO 1173				
External hex drive		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
Screwdriver	Type	320EWT27-0022-DM6	320EWT27-0035-DM6	320EWT27-0060-DM6
Lever start	Part no.	409901 B	409901 C	409901 E
Internal hex drive for bits with magnet DIN ISO 1173		D6.3 (1/4")	D6.3 (1/4")	D6.3 (1/4")
Connection parts with inserting end DIN ISO 1173				
External hex drive		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
Torque min.	Nm / in.lbs	0.4 / 3.5	0.7 / 6.2	1 / 8.85
Torque max. *)	Nm / in.lbs	2.2 / 19.5	3.5 / 31	6 / 53.1
Speed min.	rpm	80	50	30
Speed max. *)	rpm	800	500	300
Weight	kg / lbs.	0.8 / 1.76	0.8 / 1.76	0.8 / 1.76
Noise level	dB (A)	60	60	60
Line voltage (DC)	V	48	48	48

*) as per VDI/VDE 2647 Directive



Required accessories:

Sequence controller AST10 → Page 9

TECHNICAL DATA MINIMAT-EC PISTOL GRIP, ANGLE HEAD, SIZE 36

Pistol grip, size 36

Screwdriver	Type	320EPT36-0040	320EPT36-0060	320EPT36-0120	320EPT36-0180
Trigger-start	Part no.	400532 A	400532 B	400532 C	400532 D
Torque min.	Nm / in.lbs	0.8 / 7.1	1 / 8.85	2 / 17.7	3 / 26.6
Torque max. *)	Nm / in.lbs	4 / 35.4	6 / 53.1	12 / 106.2	18 / 159.3
Speed min.	rpm	100	70	35	25
Speed max. *)	rpm	1000	740	380	280
Weight	kg / lbs.	1 / 2.2	1 / 2.2	1 / 2.2	1.05 / 2.3
Noise level	dB (A)	62	62	62	62
Line voltage (DC)	V	48	48	48	48
Internal hex drive DIN ISO 1173		F 6.3 (1/4")	F 6.3 (1/4")	F 6.3 (1/4")	F 6.3 (1/4")
Suitable inserting tools and connection parts with inserting end DIN ISO 1173		E 6.3 (1/4")	E 6.3 (1/4")	E 6.3 (1/4")	E 6.3 (1/4")
Optional equipment:					
Spring sleeve cpl., without screw suction	Part no.	364672 A	364672 A	364672 A	364672 A
Spring sleeve cpl., with screw suction	Part no.	364672 C	364672 C	364672 C	364672 C
Handle	Part no.	410971	410971	410971	410971

*) as per VDI/VDE 2647 Directive

Angle head, size 36

Screwdriver	Type	320EWT36-0060-E6	320EWT36-0120-E6		
Lever start	Part no.	405646 B	405646 C		
External square drive DIN 3121		E6.3 (1/4")	E6.3 (1/4")		
Connection parts with inserting end DIN 3121		G6.3 (1/4")	G6.3 (1/4")		
Internal square drive					
Screwdriver	Type	320EWT36-0060-E10	320EWT36-0120-E10	320EWT36-0180-E10	320EWT36-0250-E10
Lever start	Part no.	410932 B	410932 C	405646 D	405646 E
External square drive DIN 3121		E10 (3/8")	E10 (3/8")	E10 (3/8")	E10 (3/8")
Connection parts with inserting end DIN 3121					
Internal square drive		G10 (3/8")	G10 (3/8")	G10 (3/8")	G10 (3/8")
Screwdriver	Type	320EWT36-0060-F6	320EWT36-0120-F6		
Lever start	Part no.	411307 B	411307 C		
Internal hex drive with quick change chuck DIN ISO 1173		F6.3 (1/4")	F6.3 (1/4")		
Connection parts with inserting end DIN ISO 1173					
External hex drive		E6.3 (1/4")	E6.3 (1/4")		
Screwdriver	Type	320EWT36-0060-D6	320EWT36-0120-D6		
Lever start	Part no.	410934 B	410934 C		
Internal hex drive for bits DIN ISO 1173		D6.3 (1/4")	D6.3 (1/4")		
Connection parts with inserting end DIN ISO 1173					
External hex drive		C6.3 (1/4")	C6.3 (1/4")		
Screwdriver	Type	320EWT36-0060-DM6	320EWT36-0120-DM6		
Lever start	Part no.	411301 B	411301 C		
Internal hex drive for bits with magnet DIN ISO 1173		D6.3 (1/4")	D6.3 (1/4")		
Connection parts with inserting end DIN ISO 1173					
External hex drive		C6.3 (1/4")	C6.3 (1/4")		
Torque min.	Nm / in.lbs	1	2	3	5
Torque max. *)	Nm / in.lbs	6	12	18	25
Speed min.	rpm	75	40	20	15
Speed max. *)	rpm	750	400	240	180
Weight	kg / lbs.	1.25	1.25	1.25	1.3
Noise level	dB (A)	60	60	62	62
Line voltage (DC)	V	48	48	48	48

*) as per VDI/VDE 2647 Directive



Required accessories:

Sequence controller AST10 → Page 9

REQUIRED ACCESSORIES - Sequence controller AST5

Sequence controller AST5

Suitable for screwdriver	MICROMAT-EC	320EGA19-.. and 320EGT19-.. (Page 4)
	MINIMAT-EC	320EGA22-.. and 320EGT22-.. (Page 4)
Sequence controller with integrated performance electronics	Type Part no.	AST5 385555 A
Power connection (AC)	V	100 - 240
	Hz	50 / 60
Power input	VA	150
Display		TFT-colour display 4.3"
24V input/output interface		no inputs / no outputs
Ethernet		yes
Number of connectable screwdriver		1
Dimensions (W x H x D)	mm	162 x 143 x 65
	in.	6 ³ / ₈ x 5 ⁵ / ₈ x 2 ⁹ / ₁₆
Weight	kg / lbs	1.5

Power cable (for sequence controller AST5)

230 V	length	1.8 m / 5.9 ft.	Part no.	812587
115 V	length	1.8 m / 5.9 ft.	Part no.	812295

OPTIONAL ACCESSORIES for sequence controller AST5

Patch cable (2m) (connection AST5-PC)	Part no.	831902
Base	Part no.	416004 A
Cable socket (slide connector voltage supply)	Part no.	810122
Plug 7-pin (slide connector start clearance / feeder)	Part no.	833553
Touch pen	Part no.	832190

Motor cable - extension for MICROMAT-EC

Length	2.5 m / 8.2 ft.	Part no.	385478 A
Length	5.5 m / 18.0 ft.	Part no.	385478 B
Length	9.5 m / 31.2 ft.	Part no.	385478 C

Software

Graph 10E	Part no.	202698
TC 30-PC statistic	Part no.	828634
AST10 datalogger release code	Part no.	202699
Friction value screwdriving release code	Part no.	201820

REQUIRED ACCESSORIES - Sequence controller AST10

Sequence controller AST10

Suitable for screwdriver	MICROMAT-EC MINIMAT-EC MINIMAT-EC MINIMAT-EC	320EGA19-... 320EGT19-.. (Page 4) 320EGA22-... 320EGT22-.. (Page 4) 320EGA27-... 320EGT27-.. (Page 5) 320EPT27-... 320EWT27-.. (Page 6)	320EGA36-... 320EGT36-.. (Page 5) 320EPT36-... 320EWT36-.. (Page 7)
Sequence controller	Type	AST10-1-P	AST10-2-P
prepared for profibus	Part no.	385440 B	385441 B
with integrated profibus module	Part no.	385440 P	385441 P
Power unit (AC)	V / Hz	100 - 240 / 50 / 60	100 - 240 / 50 / 60
Power consumption	VA	350	600
Insulation		IP 54	IP 54
LC-display		4 x 20	4 x 20
24V input/output interface		12 inputs / 8 outputs	12 inputs / 8 outputs
Membrane keyboard		yes	yes
RS 232 Interface		yes	yes
Ethernet		yes	yes
Amount of connectable screwdrivers		1	1
Dimensions (W x H x D)	mm / in.	160 x 295 x 200 / 6 19/64x11 39/64 x 7 7/8	160 x 295 x 200 / 6 19/64x11 39/64 x 7 7/8
Weight	kg / lbs	5.8	6

Motor cable (MINIMAT-EC*) screwdriver to sequence controller AST10)

Motor cable MINIMAT-EC *)		straight connection	with 90° angle connection
Length 2.5 m / 8.2 ft. (standard)	Type Part no.	KMO AST10-2.5m 385442 A	KMO AST10-2.5m-W 385442 E
Length 5 m / 16.4 ft.	Type Part no.	KMO AST10-5m 385442 B	KMO AST10-5m-W 385442 F
Length 8 m / 26.2 ft.	Type Part no.	KMO AST10-8m 385442 C	KMO AST10-8m-W 385442 G
Length 12 m / 39.4 ft.	Type Part no.	KMO AST10-12m 385442 D	KMO AST10-12m-W 385442 H

*) The MICROMAT-EC contains the 2.5-meter long motor cable as a standard component.
Extension cables are available; please refer to the accessories offered as optional equipment.

Power supply cable (for sequence controller AST10)

Length 1.8 m / 5.9 ft. (standard)	Type Part no.	KN AST10-EU 385443 A
Length 1.8 m / 5.9 ft.	Type Part no.	KN AST10-US 385443 B
Length 2.5 m / 8.2 ft.	Type Part no.	KN AST10-China 385443 C

OPTIONAL ACCESSORIES for sequence controller AST10

Toolbox



Toolbox

Toolbox	Type	TB 7 - AST10*)
	Part no.	398097 B
Technical Data:		
Tool holders		7
Tool size	mm / in.	up to Ø 24 / 0.9 (AF 19)
Voltage	V	DC 24
Amperage	mA	100
Input/output interface		SUB-D 15-pin connector
Start signal		4-pin connector
Dimensions (W x H x D)	mm / in.	225 x 50 x 120 / 8.8 x 1.9 x 4.7
Weight	kg / lbs.	1.2 / 2.6
Connection cable AST10-Toolbox	Part no.	385451 A

*) the toolbox is an available accessory and it may be connected to a PLC:
Type TB 7 - PLC, part no. 398097 C

More optional accessories



Printer ND 100

Patch cable (2m)		
(connection AST10 - PC)	Part no.	831902
Connection cable AST10 - PC serial)	Part no.	380449 B
Plug RJ45-IP54	Part no.	385453 A
Part sensor capacitive M18	Part no.	354841 C
Printer Type ND 100	Part no.	823476
Cable AST10 to printer ND 100	Part no.	385452 B
Stand	Part no.	405278 A
Expansion Kit Profibus	Part no.	385501 A
Emergency Stopp module		
(E-stop without rebooting operation system)	Part no.	385521 A

Motor cable - extension for MICROMAT-EC

Length 2.5 m / 8.2 ft.	Part no.	385478 A
Length 5.5 m / 18.0 ft.	Part no.	385478 B
Length 9.5 m / 31.2 ft.	Part no.	385478 C

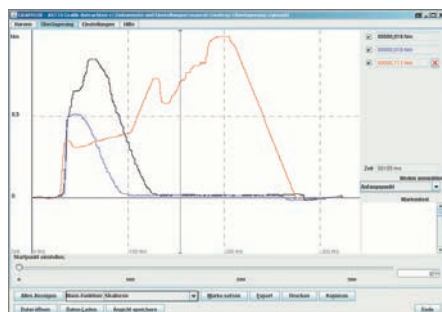
AST10 Remote Interface for fully automatic screwdriving graph storing

for use in conjunction with a PLC,
consisting of:

Interface LPT-24 V	Part no.	200788
PC Software AST10 RCPC	Part no.	200790
for direct connection to the AST10		
Module RCPC-USB	Part no.	385516 A

Software

Graph 10E release code	Part no.	202698
AST10 datalogger release code	Part no.	202699
Friction value screwdriving release code	Part no.	201820
Firmware update AST10 year subscription	Part no.	203184

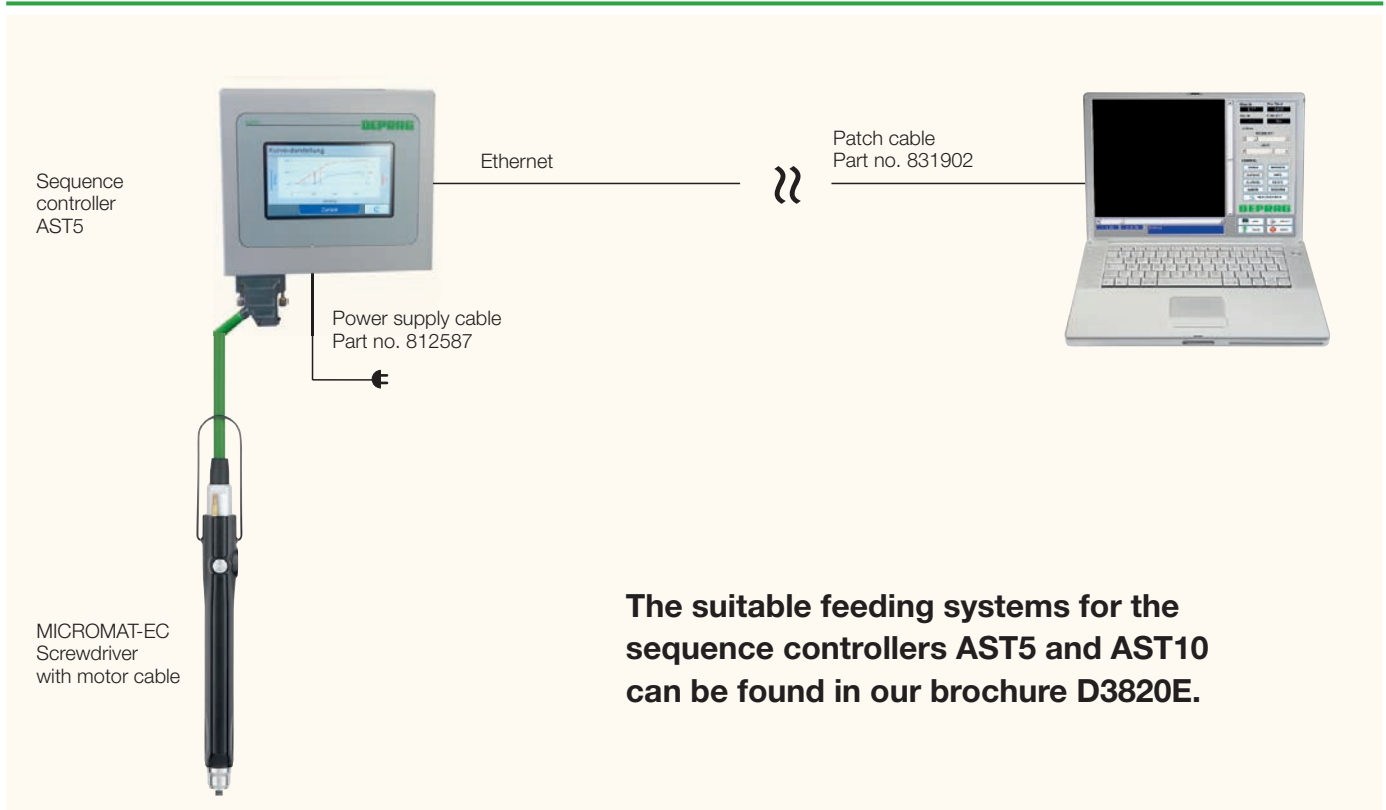
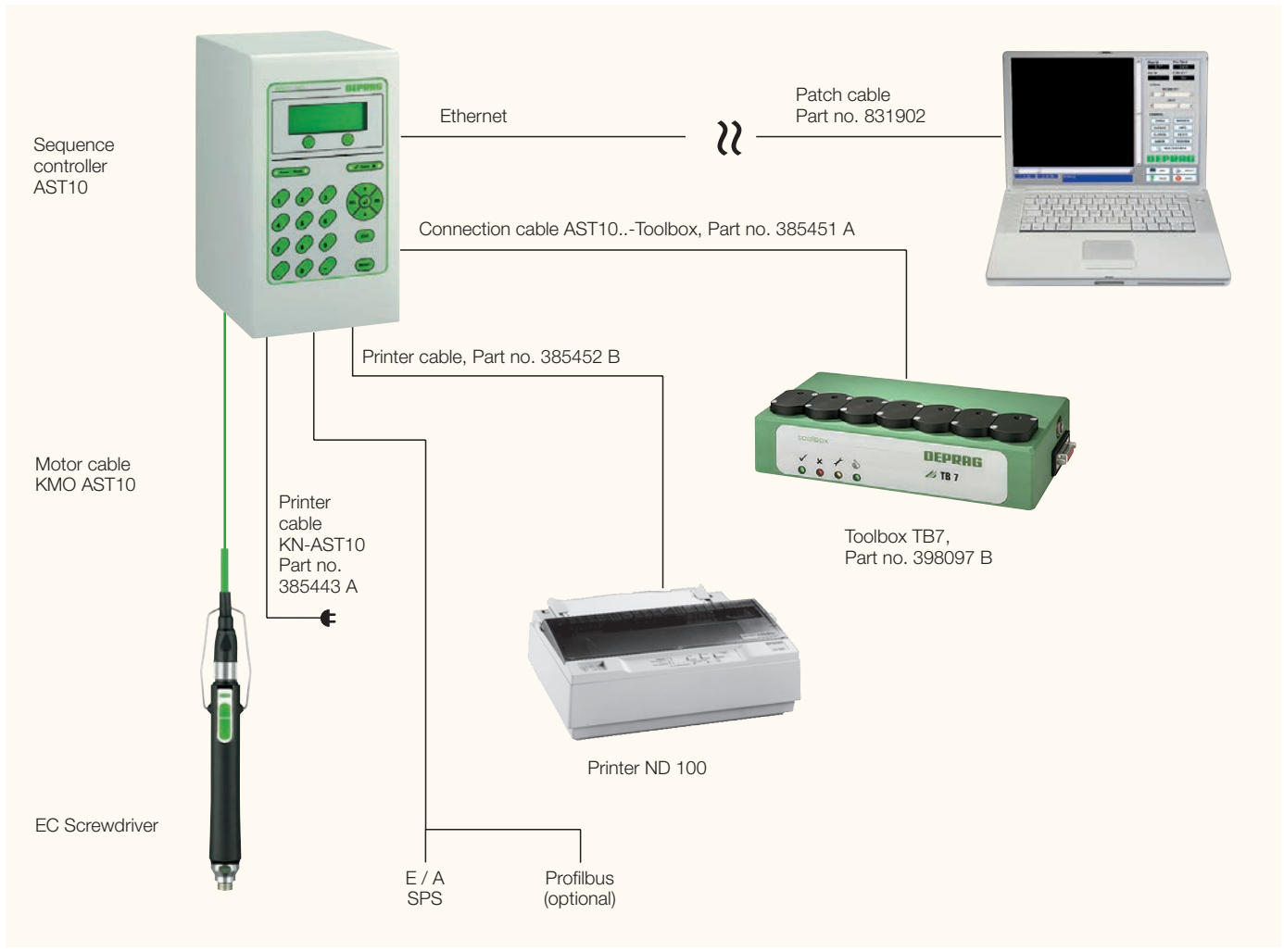


GRAPH10E – Multiple
torque graph



Main menu of the AST10RCPC-USB software

EXAMPLE



The suitable feeding systems for the sequence controllers AST5 and AST10 can be found in our brochure D3820E.

DEPRAG

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CERTIFIED AS PER DIN EN ISO 9001
