



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG

**Handheld Screwdriver
electric**

MINIMAT-EC

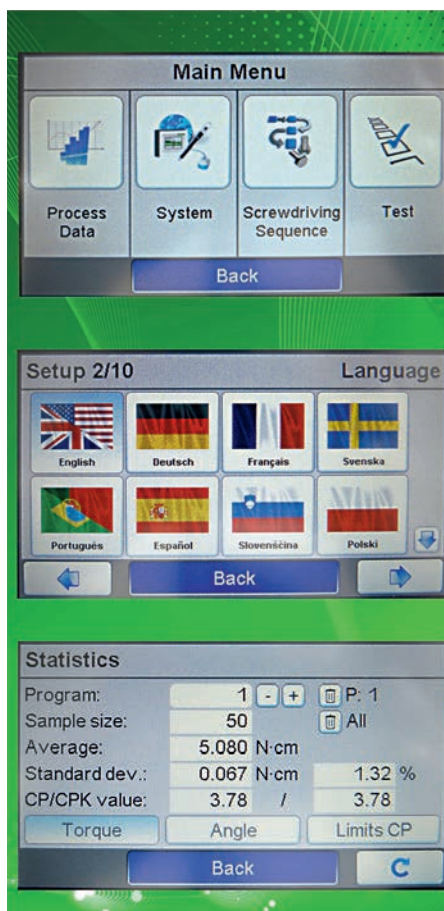
straight handle design - torque ranges between 0.03 - 18 Nm
 pistol-grip design - torque ranges between 0.06 - 18 Nm
 angle head design - torque ranges between 0.4 - 25 Nm

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 screwdriving strategies with flexible tightening parameters, multi step screw run-down sequences can be realised in one assembly cycle.



Screwdriving System consisting of the components:

- EC Screwdriver
- Sequence Controller
- Motor cable
- Power supply cable



Controller AST5



Controller AST11

ADVANTAGES

DEPRAG EC SCREWDRIVER – flexible 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 screwdriving processes and documentation of the resulting values.

With these screwdrivers a torque accuracy of < 2% standard deviation and a Cmk value of ≥ 1.67 at a tolerance of $\pm 10\%$ is possible. In other words a Cmk value of 1.67 means there is an error rate of just 0.6 errors per one million 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.



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 torque upto 2 Nm



- 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
- friction-torque testing and friction-controlled fastening to torque
- 100 freely programmable sequence programs
- can be used in combination with DEPRAG feeders

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 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, further 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.

Based on web browser: To set parameters and access additional control functions, simply use any common web browser or the integrated key pad. 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.

Storage, documentation and evaluation: The AST5 records the screwdriving results for the last 7 production days. 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.

ADVANTAGES

Examples of the functions display on the AST5



Main menu



Graphic display of screwdriving graphs



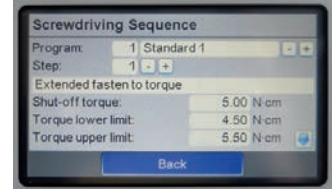
Statistics display



Web interface and controller display
(available in 13 languages)



Program selection



Program set-up

DEPRAG SEQUENCE CONTROLLER AST11 – flexible EC technology for the highest standards

- highest precision over the entire torque range
- torque control/angle monitoring
- angle control/torque monitoring
- friction-torque testing and friction-controlled fastening to torque
- 16 freely programmable sequence programs
- comprehensive analysis functions
- communication port: Ethernet - for parameterisation of the web server
- PLC: inputs/outputs
- integrated RS232 port with varied options:
 - 4 fieldbuses available: Profibus, Profinet, EtherCat, EthernetIP
 - direct connection of a barcode scanner
 - connection of a serial printer
- integrated functions for process control
- can be used in combination with DEPRAG feeders
- for manual and stationary applications



The DEPRAG controller AST11 is the ideal sequence controller for manual and stationary screw assemblies together with the tried and tested DEPRAG EC screwdrivers 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 AST11 allows free programming of your screwdriving sequences for hand-held or stationary screwdriving tools. If required, further screwdriving programs can quickly and easily be set-up using the already existing basic program.

Freely programmable: Fast access to the 16 programmable screwdriving programs is enabled by the integrated display- and operating unit.

Based on web server: To set parameters and access additional control functions, simply use any common web browser or the integrated key pad. Additional software is not required.

Various communication options: Several communication options, especially for stationary use, via PLC and optionally RS232, Profinet, Profibus, EtherCat, Ethernet IP.

Saving, documentation and evaluation: The AST11 displays the screwdriving results of the last 7 production days. 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.

SYSTEM COMPONENTS

MINIMAT-EC Screwdriver handheld, 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
Screwdriver	Type	320EGZ22-00025	320EGZ22-00050	320EGZ22-00080	320EGZ22-00120	320EGZ22-00200
In combination with feeder	Part no.	424408 A	424408 B	424408 C	424408 D	424408 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

Remark:

Details on our feeding systems can be found in brochure D3820 E.

SYSTEM COMPONENTS

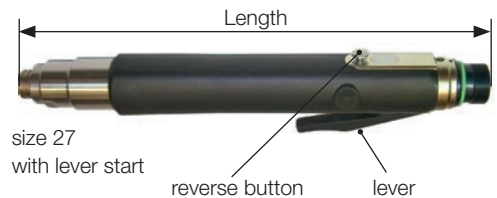
MINIMAT-EC Screwdriver handheld, Straight handle design, size 27

Screwdriver	Type	320EGA27-0010	320EGA27-0018	320EGA27-0022	320EGA27-0040
Push-to-start	Part no.	434343 B	434343 E	434343 C	434343 D
Screwdriver	Type	320EGT27-0010	320EGT27-0018	320EGT27-0022	320EGT27-0040
Lever start	Part no.	424242 B	424242 E	424242 C	424242 D
Screwdriver	Type	–	320EGZ27-0018	320EGZ27-0022	320EGZ27-0040
In combination with feeder	Part no.	–	424735 E	424735 C	424735 D
Torque min.	Nm / in.lbs	0.15 / 1.3	0.4 / 3.5	0.4 / 3.5	0.7 / 6.2
Torque max. *)	Nm / in.lbs	1 / 8.85	1.8 / 15.9	2.2 / 19.5	4 / 35.4
Speed min.	rpm	50	100	50	40
Speed max. *)	rpm	1000	1000	700	400
Diameter	mm / in.	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2	30.5 / 1.2
Length	mm / in.	267 / 10 ³³ / ₆₄	255 / 10 ³ / ₆₄	255 / 10 ³ / ₆₄	267 / 10 ³³ / ₆₄
Weight	kg / lbs.	0.59 / 1.3	0.59 / 1.3	0.59 / 1.3	0.63 / 1.39
Noise level	dB (A)	60	60	60	60
Line voltage (DC)	V	48	48	48	48
Internal hex drive DIN ISO 1173		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 (3mm)	E6.3 (1/4")	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		389775 C		389775 C	

*) as per VDI/VDE 2647 Directive



size 27 with push-to-start



size 27 with lever start

MINIMAT-EC Screwdriver handheld, 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
These types are also available in combination with feeder					
Screwdriver	Type	320EGT36-0040	320EGT36-0060	320EGT36-0120	320EGT36-0180
Lever start	Part no.	425876 A	425876 B	425876 C	425876 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



size 36 with push-to-start



size 36 with lever start

Remark:

Details on our feeding systems can be found in brochure D3820 E.

SYSTEM COMPONENTS

MINIMAT-EC Screwdriver handheld, 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

MINIMAT-EC Screwdriver handheld, 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		G6.3 (1/4")	G6.3 (1/4")	G6.3 (1/4")
Internal square drive				
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		G10 (3/8")	G10 (3/8")	G10 (3/8")
Internal square drive				
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		E6.3 (1/4")	E6.3 (1/4")	E6.3 (1/4")
External hex drive				
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		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
External hex drive				
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		C6.3 (1/4")	C6.3 (1/4")	C6.3 (1/4")
External hex drive				
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



SYSTEM COMPONENTS

MINIMAT-EC Screwdriver handheld, 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

MINIMAT-EC Screwdriver handheld, 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		G6.3 (1/4")	G6.3 (1/4")		
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		G10 (3/8")	G10 (3/8")	G10 (3/8")	G10 (3/8")
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		E6.3 (1/4")	E6.3 (1/4")		
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		C6.3 (1/4")	C6.3 (1/4")		
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		C6.3 (1/4")	C6.3 (1/4")		
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



size 36
angle head with lever start

SYSTEM COMPONENTS

MOTOR CABLE

Motor cable for screwdriver size 27 and 36		straight connection	with 90° angle connection
Length 2.5 m / 8.2 ft. (standard)	Part no.	385442 A	385442 E
Length 5 m / 16.4 ft.	Part no.	385442 B	385442 F
Length 8 m / 26.2 ft.	Part no.	385442 C	385442 G
Length 12 m / 39.4 ft.	Part no.	385442 D	385442 H

SEQUENCE CONTROLLER AST5

Suitable for screwdriver	MINIMAT-EC	320EGA22-.., 320EGT22-.. and 320EGZ22-.. (Page 4)
Sequence controller with integrated performance electronics	Type Part no.	AST5 385555 A
Power connection (AC)	V / Hz	100 - 240 / 50 / 60
Power input	VA	150
Display		TFT-colour display 4.3"
24V input/output interface		–
Ethernet		yes
Number of connectable screwdriver		1
Dimensions (W x H x D)	mm / in.	162 x 143 x 65 / 6 3/8 x 5 5/8 x 2 9/16
Weight	kg / lbs	1.5 / 3.3
Power supply unit	Part no.	2041061 (included in delivery)

Required Accessories

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

Optional Accessories

Patch cable (2m) (connection AST5-PC)	Part no.	831902
Base	Part no.	416004 A
Plug 7-pin (slide connector start clearance / feeder)	Part no.	833553
Touch pen	Part no.	832190
Software Graph 10E (release code)	Part no.	202698
Software statistic (release code)	Part no.	206081
Software datalogger (release code)	Part no.	202699
Software Friction value screwdriving (release code)	Part no.	201820
Interface Graph Loader (hardware and software)	Part no.	385834 A
Connection cable (AST5 - Graph-Loader)	Part no.	385835 A

The storage of screwdriving graphs and end value data sets (e.g. torque, angle etc.) for manual work stations and screwdriving stations can be carried out automatically using the Interface Graph-Loader. The corresponding software enables immediate display on the computer screen of the current screwdriving graph, the screw assembly can be evaluated straight after completion and *.csv and *.bin files can be saved in individual directories.

Software ASTxx Serial Remote (release code) for the simple storage of screwdriving curves and result-data to a PC	Part no.	206565
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The program ASTxx Serial Remote is started on a PC and is controlled by commands over a serial interface (COM-Port). With this program, screwdriving curves and result-data can be transferred fast and simply onto a PC. The PLC controls when and which data should be stored. The storage place (also the directory) on the PC is determined by the PLC as well. The directory is setup automatically on the PC.

SYSTEM COMPONENTS

SEQUENCE CONTROLLER AST11

Suitable for screwdriver	MINIMAT-EC MINIMAT-EC MINIMAT-EC	320EGA/EGT/EGZ22-.. (Page 4) 320EGA/EGT/EGZ27-..., (Page 5) 320EPT27-..., 320EWT27-.. (Page 6)		320EGA36-..., 320EGT36-.. (Page 5) 320EPT36-..., 320EWT36-.. (Page 7)	
Sequence controller	Type Part no.	AST11-1 390041 A	AST11-1-S 390041 B	AST11-2 390042 A	AST11-2-S 390042 B
Module „safety stop“		no	yes	no	yes
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 / 12.8		6 / 13.2	

Required Accessories

Power supply cable Length 1.8 m / 5.9 ft. (EU)	Part no.	385443 A
Power supply cable Length 1.8 m / 5.9 ft. (USA)	Part no.	385443 B
Power supply cable Length 2.5 m / 8.2 ft. (China)	Part no.	385443 C

Optional Accessories

Toolbox	Type Part no.	TB 7 - AST1x 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.	225x50x120 / 8.8x1.9x4.7
Weight	kg / lbs.	1.2 / 2.6
Connection cable AST1x-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



Toolbox

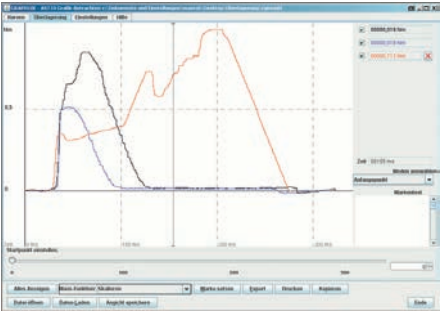
Fieldbus module Profibus	Part no.	428010 A
Fieldbus module Profinet	Part no.	428010 B
Fieldbus module EtherCat	Part no.	428010 C
Fieldbus module Ethernet IP	Part no.	428010 D
Required accessories for the fieldbus module:		
Connection cable AST11 to fieldbus module	Part no.	207725 A (EU) 207725 B (US)

Patch cable (2m)		
(connection AST1x - PC)	Part no.	831902
Plug RJ45-IP54	Part no.	385453 A
Part sensor capacitive M18	Part no.	354841 C
Printer Type ND 100	Part no.	823476
Stand	Part no.	405278 A



Printer ND 100

SYSTEM COMPONENTS



GRAPH10E – Multiple torque graph

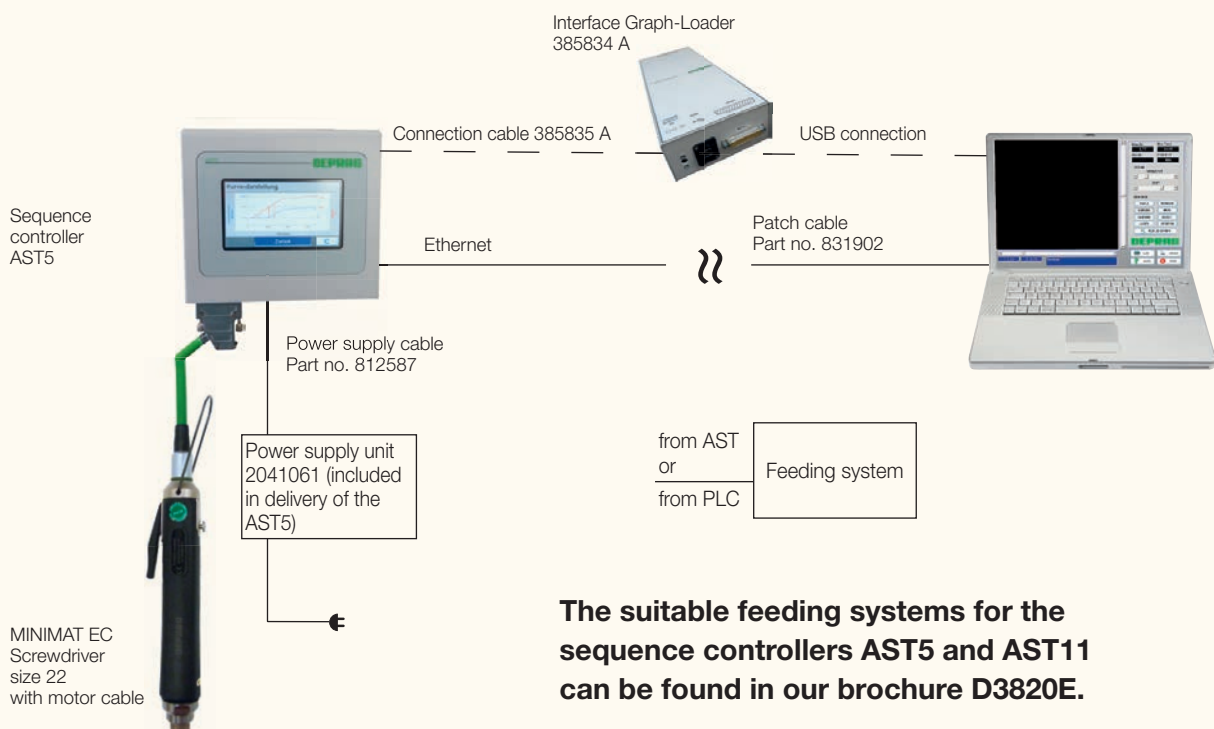
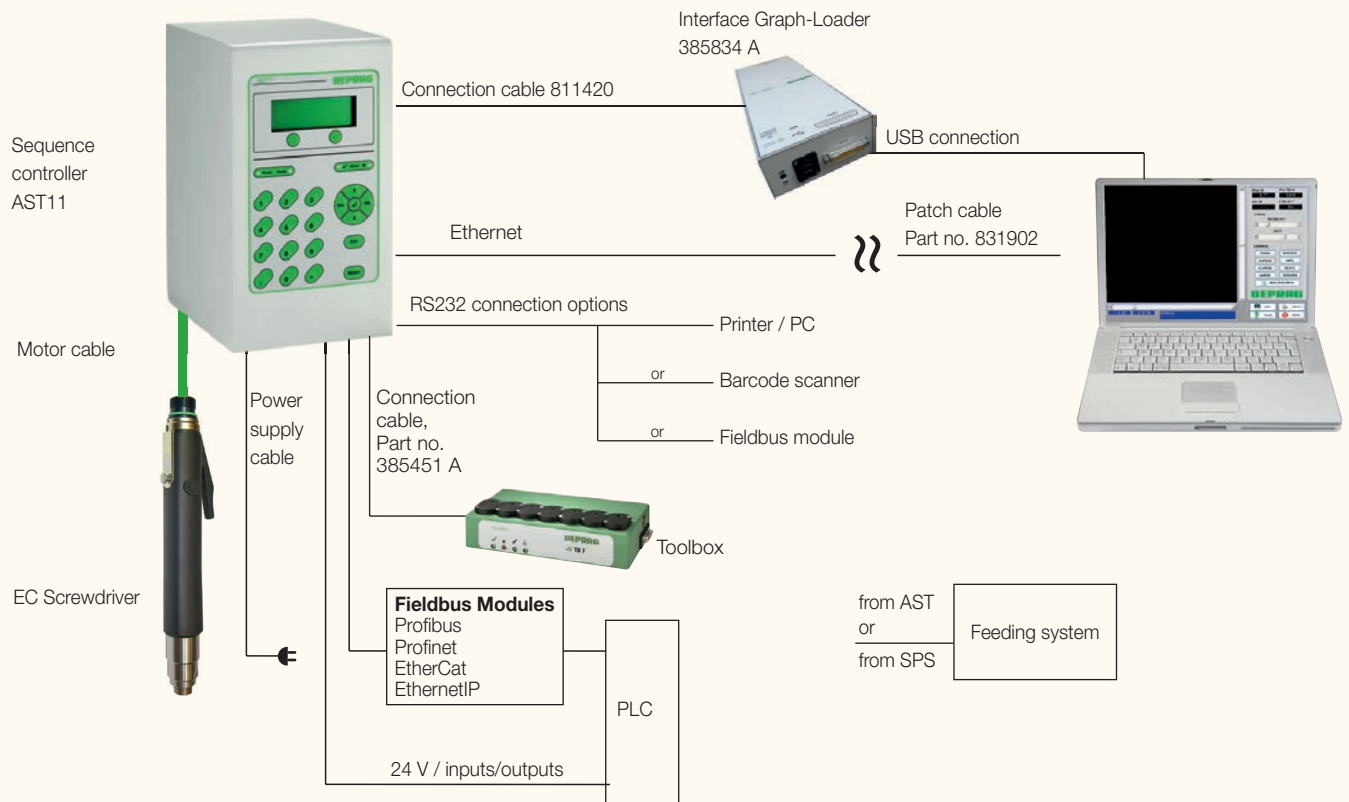


Interface Graph-Loader

Optional Accessories

Interface Graph Loader (hardware and software)	Part no.	385834 A
Connection cable (AST1x - Graph-Loader)	Part no.	811420
The storage of screwdriving graphs and end value data sets (e.g. torque, angle etc.) for manual work stations and screwdriving stations can be carried out automatically using the Interface Graph-Loader. The corresponding software enables immediate display on the computer screen of the current screwdriving graph, the screw assembly can be evaluated straight after completion and *.csv and *.bin files can be saved in individual directories.		
Software ASTxx Serial Remote (release code) for the simple storage of screwdriving curves and result-data to a PC	Part no.	206565
The program ASTxx Serial Remote is started on a PC and is controlled by commands over a serial interface (COM-Port). With this program, screwdriving curves and result-data can be transferred fast and simply onto a PC. The PLC controls when and which data should be stored. The storage place (also the directory) on the PC is determined by the PLC as well. The directory is setup automatically on the PC.		
Software statistic (release code)	Part no.	206081
Software Graph 10E (release code)	Part no.	202698
Software datalogger (release code)	Part no.	202699
Software Friction value screwdriving (release code)	Part no.	201820

EXAMPLE



The suitable feeding systems for the sequence controllers AST5 and AST11 can be found in our brochure D3820E.

DEPRAG

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CERTIFIED AS PER DIN EN ISO 9001
