

# TRANSDUCERIZED TOOLS

## MDT series

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## PRODUCTIVE SOLUTIONS

As an industrial process expert, we help you meet your challenges.

Productivity, safety, quality, industry 4.0 are themes on which we can offer you our expertise and our solutions. Whether in the field of assembly technology, machining or welding, our dedicated and specialised teams accompany your progress and recommend solutions and equipment to reach performance levels in line with your industrial strategy.



### Certified quality

From design to commissioning, DOGA guarantees the quality of this equipments and services according to ISO 9001: 2015 certification.

## 5 reasons to trust us



### Expertise

Our field experts propose you solutions adapted to your environment and specific needs.



### Innovation

By developing the products and the services of tomorrow, we offer you new perspectives or prospects.



### Performance

Our high added value solutions improve your performances and guarantee the final quality of the production.



### Commitment

Aware of your objectives, we commit ourselves to helping you to reach them.



### Reliability

Our organization which has been ISO 9001 certified since 1996, is the guarantee of your satisfaction.



ASSEMBLY TECHNOLOGY

As world class assembly technology player, we manufacture and market equipments and solutions for the assembly industry which contribute to the improvement of your manufacturing quality and productivity.

Our assembly, ergonomics and traceability solutions contribute to enhancing your productivity, controlling your process quality and meet the requirements of industry 4.0.

We offer products designed to last and high value-added services by relying on our teams know-how and expertise : design, production, installation, start-up, training and maintenance. We support you locally thanks to our worldwide presence through our subsidiaries and our specialized distribution network.



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# SUMMARY

## TRANSDUCERIZED TOOLS

MDT series

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# MAIN FEATURE

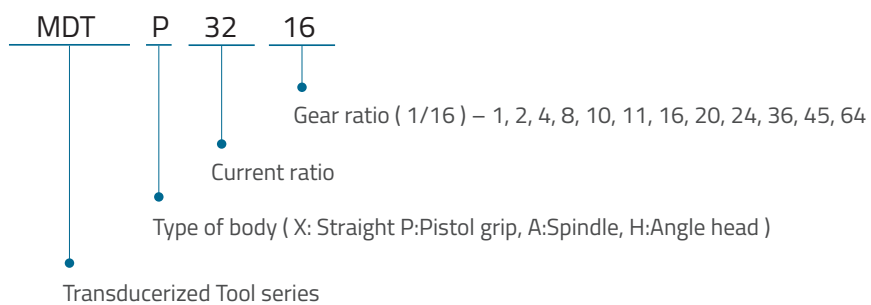
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- ▶ Built-in torque transducer digital torque & angle control DC tool
- ▶ Digital torque and angle setting in 15 presets and 2 multi step sequence programs
- ▶ Models managing variable presets with counting no, and I/O in sequential 20 steps
- ▶ Color LCD touche screen with the user friendly easy settings
- ▶ Auto safe speed by torque setting as a standard factory setting
- ▶ Self customizing on actual tightening application for optimized setting
- ▶ Monitoring fastening quality and count of screw numbers
- ▶ Error information by code display
- ▶ Easy parameter setting and monitoring by Paramon (PC software)
- ▶ Real time torque data and curve display with 2ms resolution
- ▶ Real time fastening data output
- ▶ Modbus protocol open protocol
- ▶ RS232C, Ethernet communication port
- ▶ Fastening data storage in SD card
- ▶ Fastening torque data analysis (Stdev, Mean, Average, CP, CPK) on Paramon
- ▶ 15 input and 8 output flexible digital I/O
- ▶ ESD Free by body grounding and long life time over 5 million cycle
- ▶ Built-in torque transducer

## Specification

<b>Electric power</b>	DC38V, 5A max
<b>Motor</b>	Swiss DC servo motor
<b>Speed</b>	Auto speed by torque setting or manual setting

# MODEL SPECIFICATIONS



# TECHNICAL DETAILS

## Straight hand held screwdrivers from 0,2 to 57 Nm



### Lever start

Model	Torque (min Nm)	Torque (max Nm)	Speed (rpm)	Weight (gr)	Bit Socket	Controller	Code
MDT2604-A	0,2	1,4	150 - 1500	535	Hex 1/4"	MDTC-38	4-1055213
MDT2611-A	0,4	3,4	100 - 900	555	Hex 1/4"		4-1055214
MDT2616-A	0,5	5	100 - 620	555	Hex 1/4"		4-1055215
MDT3204-A	0,4	4,5	100 - 1800	830	Hex 1/4"		4-1055216
MDT3206-A/L	0,6	6,5	100 - 1250	915	Hex 1/4"		4-1055217
MDT3211-A/L	1,5	11,5	50 - 690	915	Hex 1/4"		4-1055218
MDT3216-A/L	2	16	50 - 470	1000	Hex 1/4"		4-1055219
MDT3220-Q/L 3/8	3	20	50 - 375	995	SQ 3/8"		4-1055220
MDT3224-Q/L 3/8	4	24	50 - 310	1000	SQ 3/8"		4-1055221
MDT3236-Q/L 3/8	5	33	50 - 200	1005	SQ 3/8"		4-1055222
MDT3245-Q/L 3/8	6	40	50 - 160	1080	SQ 3/8"		4-1055223
MDT3264 Q/L 3/8	8	57	50 - 115	1085	SQ 3/8"		4-1055224

## Pistol screwdrivers from 0,4 to 57 Nm



Model	Torque (Min Nm)	Torque (Max Nm)	Speed (rpm)	Weight (gr)	Bit Socket	Controller	Code
MDTP3204-A/D	0,4	4,5	100 - 1800	990	Hex 1/4"	MDTC-38	4-1055225
MDTP3206-A/D	0,6	6,5	100 - 1250	985	Hex 1/4"		4-1055226
MDTP3211-A/D	1,5	11,5	50 - 690	1060	Hex 1/4"		4-1055227
MDTP3216-A/D	2	16	50 - 470	1070	Hex 1/4"		4-1055228
MDTP3224-Q/D 3/8	4	24	50- 310	1070	SQ 3/8"		4-1055229
MDTP3236-Q/D 3/8	5	33	50 - 200	1075	SQ 3/8"		4-1055230
MDTP3245-Q/D 3/8	6	40	50 - 160	1150	SQ 3/8"		4-1055231
MDTP3264-Q/D 3/8	8	57	50 - 115	1155	SQ 3/8"		4-1055232
MDTP3204-A/U	0,4	4,5	100 - 1800	990	Hex 1/4"		4-1055233
MDTP3206-A/U	0,6	6,5	100 - 1250	985	Hex 1/4"		4-1055234
MDTP3211-A/U	1,5	11,5	50 - 690	1060	Hex 1/4"		4-1055235
MDTP3216-A/U	2	16	50 - 470	1070	Hex 1/4"		4-1055236
MDTP3224-Q/U 3/8	4	24	50 - 310	1070	SQ 3/8"		4-1055237
MDTP3226-Q/U 3/8	5	33	50 - 200	1075	SQ 3/8"		4-1055238
MDTP3245-Q/U 3/8	6	40	50 - 160	1150	SQ 3/8"		4-1055239
MDTP3264-Q/U 3/8	8	57	50 - 115	1155	SQ 3/8"		4-1055240

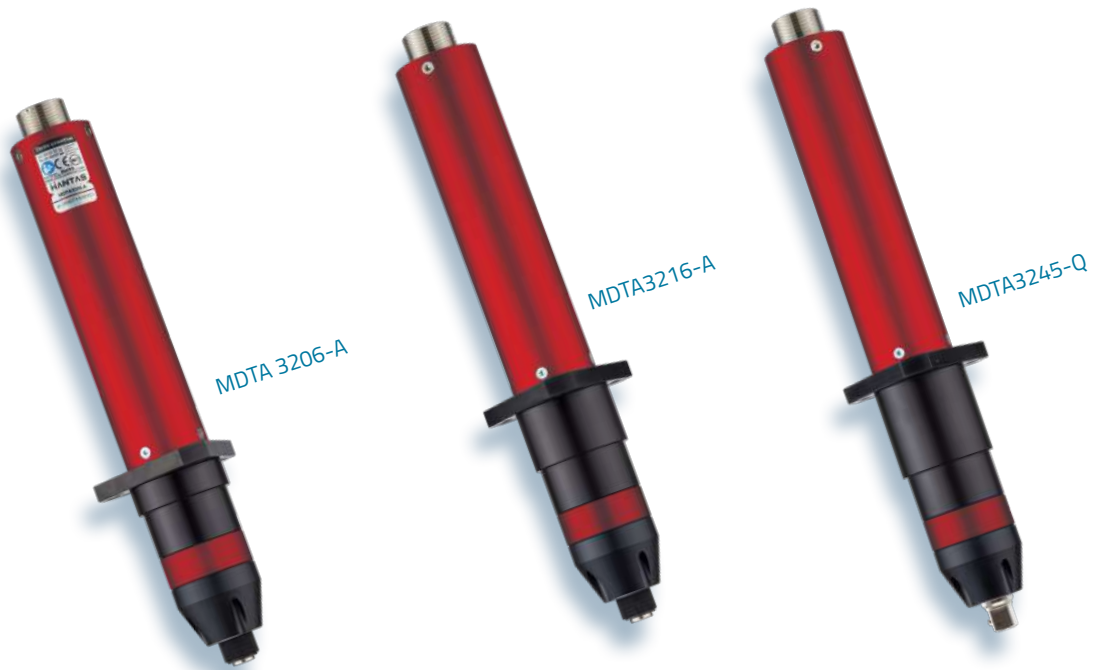
## Angle head screwdrivers from 0,2 Nm to 57 Nm



Model	Torque (Min Nm)	Torque (Max Nm)	Speed (rpm)	Weight (gr)	Bit Socket	Controller	Code
MDTH2604-A	0,2	1,4	150 - 1500	895	Hex 1/4"	MDTC-38	4-1055241
MDTH2611-A	0,4	3,4	100 - 900	915	Hex 1/4"		4-1055242
MDTH2616-A	0,5	5	100 - 620	915	Hex 1/4"		4-1055243
MDTH2628-A	1,8	8	50 - 300	920	Hex 1/4"		4-1055244
MDTH3204-A	0,4	4,5	100 - 1800	1270	Hex 1/4"		4-1055245
MDTH3206-A/L	0,6	6,5	100 - 1250	1335	Hex 1/4"		4-1055246
MDTH3206-Q/L 3/8	0,6	6,5	100 - 1250	1335	SQ 3/8"		4-1055247
MDTH3211-A/L	1,5	11,5	50 - 690	1440	Hex 1/4"		4-1055248
MDTH3211-Q/L 3/8	1,5	11,5	50 - 690	1440	SQ 3/8"		4-1055249
MDTH3216-A/L	2	16	50 - 470	1445	Hex 1/4"		4-1055250
MDTH3216-Q/L 3/8	2	16	50 - 470	1445	SQ 3/8"		4-1055251
MDTH3220-Q/L 3/8	3	20	50 - 375	1460	SQ 3/8"		4-1055252
MDTH3224-Q/L 3/8	4	24	50 - 310	1465	SQ 3/8"		4-1055253
MDTH3236-Q/L 3/8	5	33	50 - 200	1470	SQ 3/8"		4-1055254
MDTH3245-Q/L 3/8	6	40	50 - 160	1545	SQ 3/8"		4-1055255
MDTH3264-Q/L 3/8	8	57	50 - 115	1550	SQ 3/8"		4-1055256

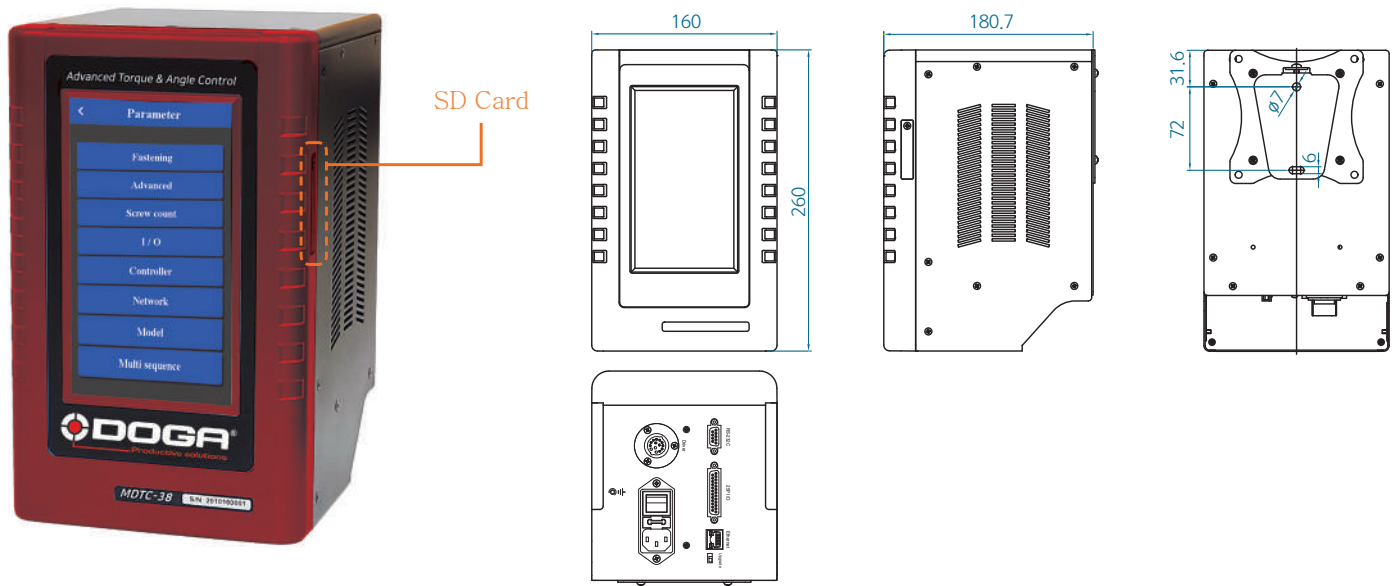


## Spindles for automation from 0,4 to 57 Nm



Model	Torque (Min Nm)	Torque (Max Nm)	Speed (rpm)	Weight (gr)	Bit Socket	Controller	Code
MDTA3204-A	0,4	4,5	100 - 1800	1070	Hex 1/4"	MDTC-38	4-1055257
MDTA3206-A	0,6	6,5	100 - 1250	1065	Hex 1/4"		4-1055258
MDTA3211-A	1,5	11,5	50 - 690	1170	Hex 1/4"		4-1055259
MDTA3216-A	2	16	50 - 470	1180	Hex 1/4"		4-1055260
MDTA3224-Q 3/8	4	24	50 - 310	1205	SQ 3/8"		4-1055261
MDTA3236-Q 3/8	5	33	50 - 200	1210	SQ 3/8"		4-1055262
MDTA3245-Q 3/8	6	40	50 - 160	1285	SQ 3/8"		4-1055263
MDTA3264-Q 3/8	8	57	50 - 115	1290	SQ 3/8"		4-1055264

# MDTC CONTROLLER



## Hardware

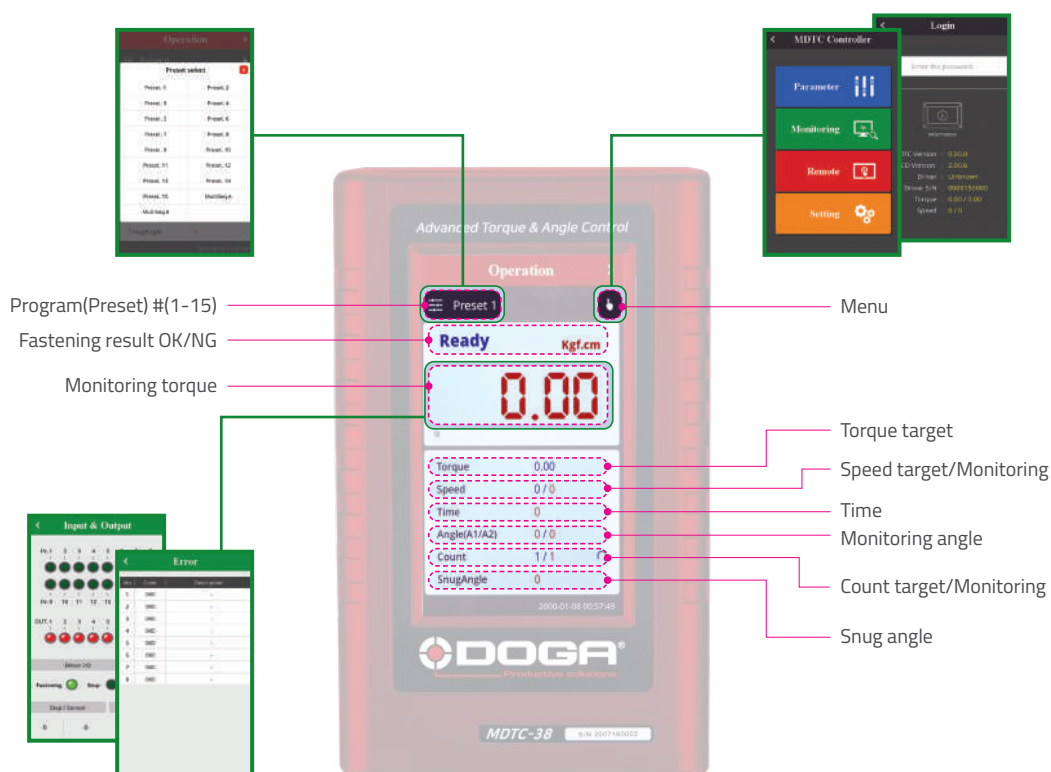
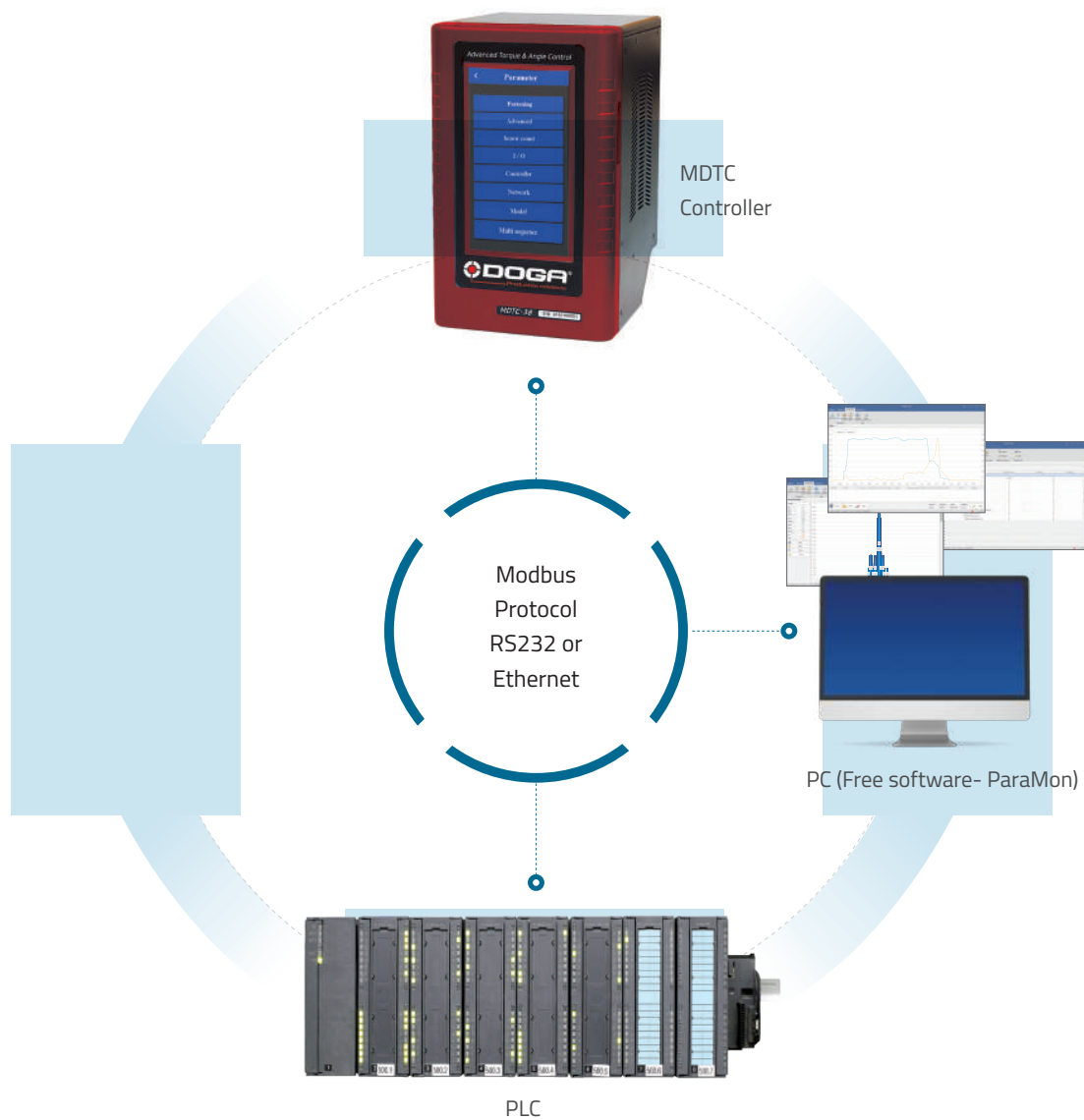
Dimension	160(w) x 260(h) x 180(d)
AC Input	AC 230V 50/60 Hz
LCD	7 inch
Storage	Standard Built-in 8GB SD Card
I/O	15 Input & 8 Output

## Software

Management of Firmware Update	SD Card
Firmware	Controller main board / LCD display
Language	English, French, Spanish, German, Czech
Parameter Setting	Controller front LCD / Web Server / Com port, Protocol
Protocol	Modbus, Open protocol
Tightening presets	15 programs consist of 15 key parameters each
Model	15 models consist of 20 steps each
Advanced Function	4 functions for each preset including free reverse rotation, engaging torque detection, thread tapping, angle after torque up

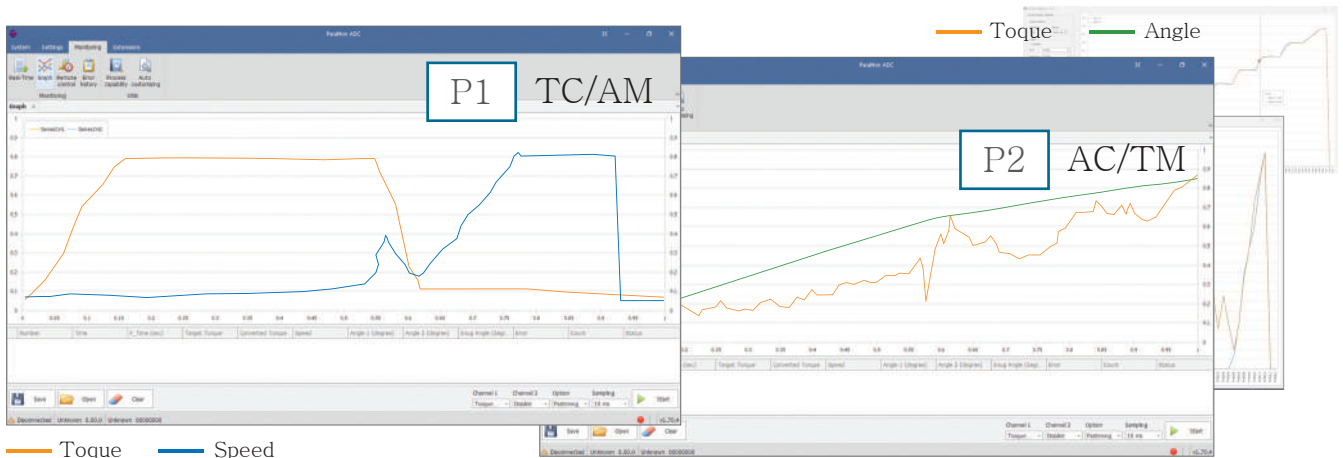
Model	Available tools	Code
MDTC-38	MDT32XX Series, MDTP32XX Series, MDTH32XX Series, MDTA32X Series, MDT26XX Series	<b>4-1055182</b>

# CONTROLLER COMMUNICATION AND DISPLAY



# TORQUE AND ANGLE TIGHTENING STRATEGIES

Total 15 tightening presets consist of each 15 keys parameters



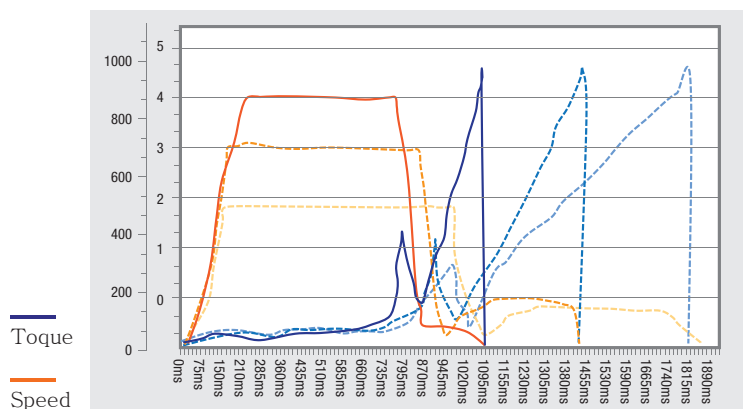
Each preset programs have the customized parameters as below:

- ▶ Tightening mode
  - Torque Control + Angle Monitoring (TC/AM)
  - Angle Control + Torque Monitoring (AC/TM)
- ▶ Torque
  - Target torque, min/max torque, snug torque, seating torque, torque compensation
- ▶ Angle
  - Target angle, min/max angle, free speed angle
- ▶ Speed
  - Target speed, free speed
- ▶ Time
  - Soft start time, torque rising time, torque holding time



## Easy guidance to the optimized tightening condition by built-in self customizing simulation feature

Self customizing software will find the optimized parameter condition to provide torque accuracy for the target torque in most fast speed. Just apply tightening with factory setting parameters until the software stop changing parameter setting.



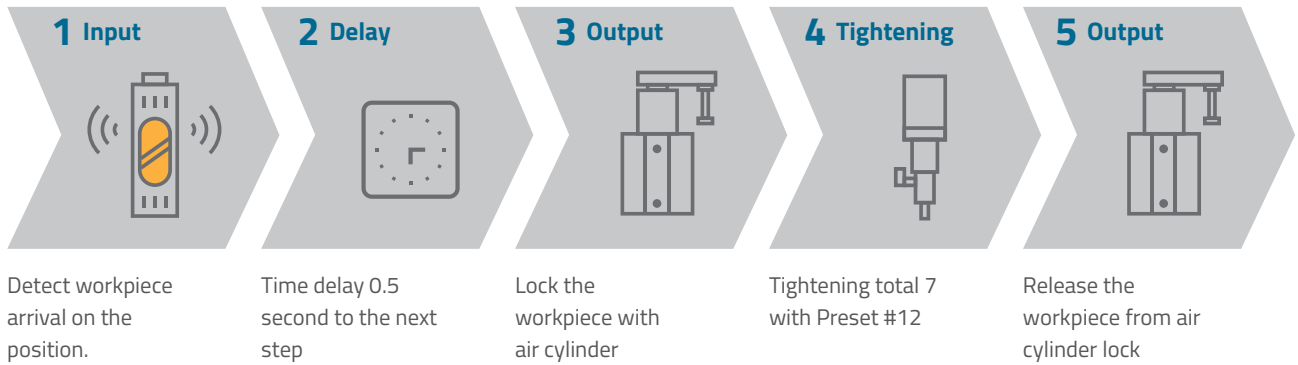
# MODELS AND DATA COMMUNICATION

Sequence control by managing tightening preset# and screw counting, Time delay, input & output provides automation without PLC or sequence control device

Total 15 process sequence managing models consist of each 20 steps of sequence program capacity



## Sample program of Sequence control



## Modbus protocol communication

MDTC provides the Modbus TRU for RS232 and Modbus TCP/IP for the Ethernet port connection together. The following is available through the communication.

- ▶ Parameter read and write
- ▶ Data monitoring
- ▶ Remote control operation

### Modbus RTU

Slave ID	F code	Data	CRC
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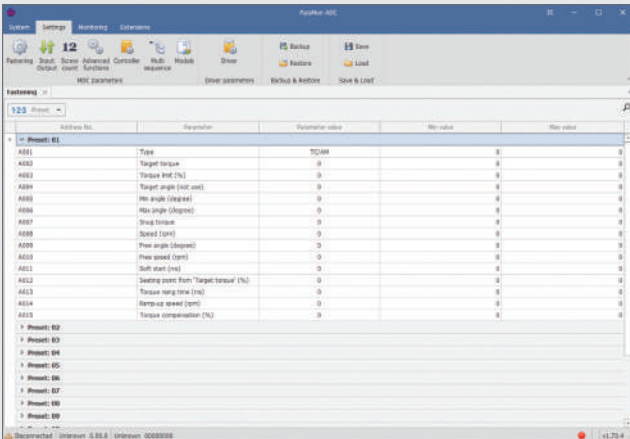
### Modbus TCP

Transaction ID	Protocol ID	Length	Unit ID	F code	Data
----------------	-------------	--------	---------	--------	------

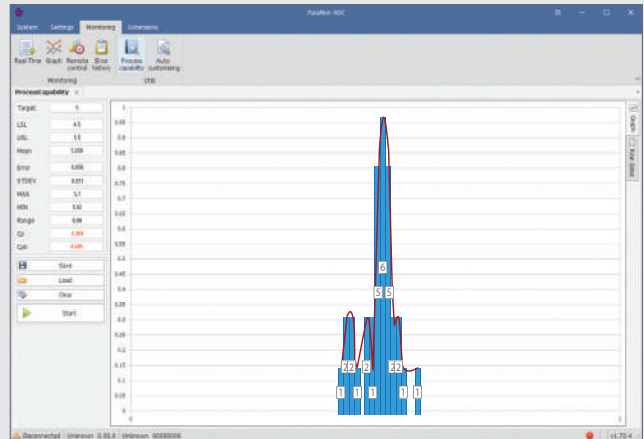
# FREE PARAMON SOFTWARE

Free PC software Paramon provides easy parameter setting, data monitoring & analysis

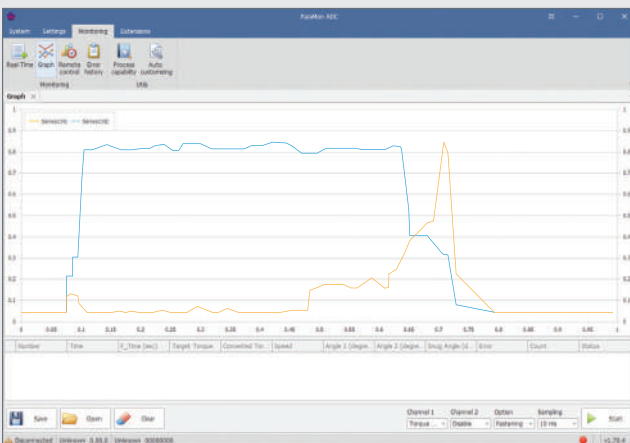
- ▶ 2 channel realtime curve display for torque, speed, angle
- ▶ Torque capability analysis for mean value, standard deviation, CP and CPK
- ▶ Auto data output on every event in Modbus protocol



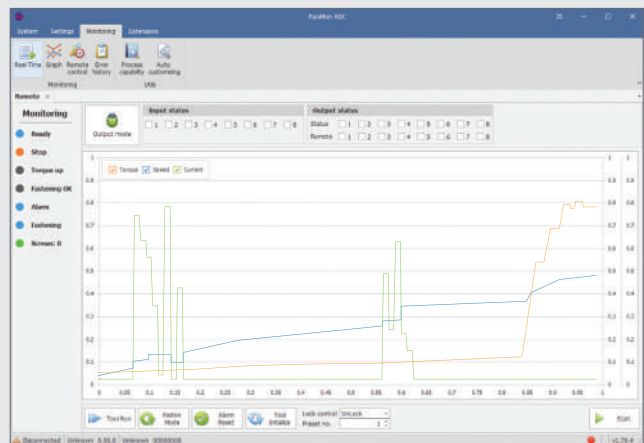
Fastener parameter setting



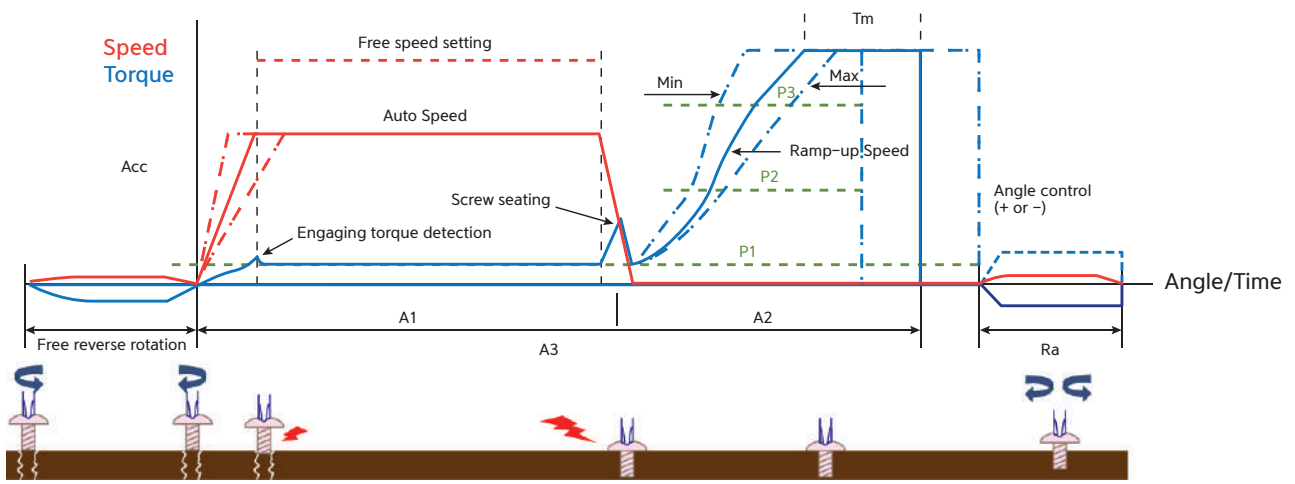
Process capability analysis



Real time graph monitoring (2 channel)



Remote control & monitoring



# STAND AND BRACKET



Soon available

Detachable VESA Bracket

Controller can be easily hung on the wall mounted bracket. One part of bracket is assembled on the back of controller, the other one is installed on the wall.

Soon available

Tilting VESA Bracket

Controller can stand on the table with adjustable tilting angle. It can be also mounted on the wall as well.

Soon available

Wall mount Bracket

Controller can be firmly installed on the wall with 4 screws.

# SCREWDRIVER CABLE

Standard cable



Model	Code
CB-MD01-3M Standard	4-1055183
CB-MD01-5M Standard	4-1055184
CB-MD01-8M Standard	4-1055185

# VACCUM PICK-UP ASSY (VPA)



Bit and mouth piece not included

Model	Comply with screwdrivers	Code
M20-Hex 1/4"	MDT26xx-A	4-1050589
M23-Hex 1/4"	MDT32xx-A	4-1050590

# BIT HOLDER ASSY



Model	Comply with screwdrivers	Code
M20-Dia 7 mm	MDT26xx-A	4-1050586
M23-Dia 7 mm	MDT32xx-A	4-1050587
M20-Hex 1/4"	MDT26xx-A	4-1050588
M23-Hex 1/4"	MDT32xx-A	4-1050589

# TELESCOPIC BIT CUSHION (TBC)

Code 4-1050650  
Bit socket Hex 1/4"



Code 4-1050651  
Square 3/8"



Detachable external 20mm stroke of bit cushion for MDTA spindles.

Model	Available tools	Code
Bit socket Hex 1/4"	MDTA3204, MDTA3206, MDTA3211, MDTA3216, MDTA3220, MDTA3224, MDTA3236, MDTA3245, MDTA3264	4-1050650
Square 3/8"		4-1050651



# OPTIONAL ACCESSORIES

## RS232 bar code reader for MDTC controller - wired and bluetooth wireless

To select preset or model.

Bar code is merged to tightening datas on SD memory card or read over Modbus protocol



- Handheld laser scanner, durable lightweight. Or hand free operation with stand.
- For 1D bar codes, including high-density
- Easy settings without software

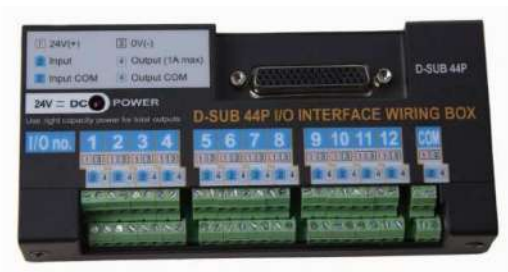


Model	Specification	Code
Handheld 1D laser scanner wired - serial connection to MDTC	Wired scanner RS232 + Power supply 230V 50Hz + stand	4-5000320
Wireless 1D laser scanner serial connection to MDTC	Wireless scanner + cradle + RS232 cable 2 m Power supply 230V 50Hz	4-5001118 4-5000428 4-5001180
Null modem adapter MDTC*	Sub-D 9 P "crossed wire" M/F	4-3100211
Gender changer M/M MDTC*	Sub-D 9P M/M	4-3100212

\* necessary to adapt scanner RS232 to MDTC controller serial port.

## I/O BOX : wiring box SUB-D44

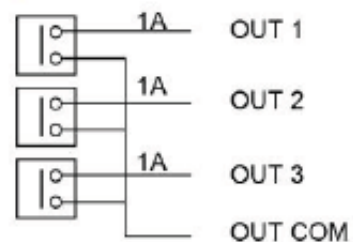
For easy and convenient wiring – 8 inputs and outputs of MDTC controller by sharing one single 24V power source.



Output port has the relay contact with the max 1A capacity for each port.

Be sure that the 24VDC power supply should have enough capacity for total output load.

Model	Code
44P I/O wiring box	4-1050593
I/O cable/MDC controller	4-1050595
DC Adapter + Power cable	4-1050599 + 4-1050600



### Information

Inputs 9 to 15 dedicated to models cannot be connected to IO box..

# BIT SOCKET TRAY

The bit socket tray makes sure your operator selects the correct bit and the correct tightening program.

It can be used in two ways:

- ▶ Slave: it tells the operator which bit to use to perform the assembly operation.
- ▶ Master: It selects the tightening program associated with this bit when the operator takes a tightening bit.

## BS-5C color ID bit tray



- ✓ **No default**  
Bit coding by color recognition
- ✓ **Easy setting**  
Self-learning of bit color on each slot position, choice of program assignment for each bit, several languages available
- ✓ **Bit's capacity**  
Suitable for all types of bits and sockets: halfmoon, hex. 1/4"; (max. Ø 19 mm, length 49 to 250 mm)
- ✓ **Ergonomics**  
Horizontal or vertical mounting, angle adjustment, visible bit footprint, rings leds around slots for easy selection, bright OLED display

## BST - LCD with magnet sensor



- ✓ **Wide capacity**  
4 models from 4 slots to 16 slots to lay flat on a small foot print
- ✓ **Easy setting**  
AMOLED color display with operation and settings menu  
Number of active slots can be set up
- ✓ **Adaptive bit mapping**  
Assignment of Socket no and screwdriver Preset # can be direct 1 to 1 matching of flexible
- ✓ **Bit's capacity**  
Suitable for all types of steel bits and sockets up to 18 mm

# OUR SERVICES

At DOGA we put at your disposal our reliable, accurate and user friendly tightening solutions. It is our duty to advise you of the right solution for your application.

Our Product Manager and Support engineering teams are here to analyse your manufacturing process and share with you our innovative solutions to improve your assembly process. Thanks to our technical integration service CELPRO, we provide you with turnkey solutions from design to commissioning.



## TURNKEY SOLUTIONS

Using all the options of our complete product range, we offer you solutions adapted to your needs.

- ▶ Custom Design
- ▶ Adaptation of existing models
- ▶ Integration of automation system



## TECHNICAL ASSISTANCE

To ensure the optimal performance and durability of our tools, we put our technical assistance at your disposal.

- ▶ Installation and start-up
- ▶ Maintenance agreement
- ▶ On-site maintenance
- ▶ Maintenance in our workshop



## TRAINING

DOGA offers specialized training courses around its trades :

- ▶ Theoretical
- ▶ Technical & practical
- ▶ Audit & Consulting

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