

TRANSDUCERIZED TOOLS

MDT series





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 specialized 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 equipment and services according to ISO 9001: 2015 certification.

5 reasons to trust us



Expertise

Our Field experts propose 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 performance 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 a world class assembly technology player, we manufacture and market equipment 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 meeting the requirements of industry 4.0.

We offer products designed to last and high value-added services by relying on our team's 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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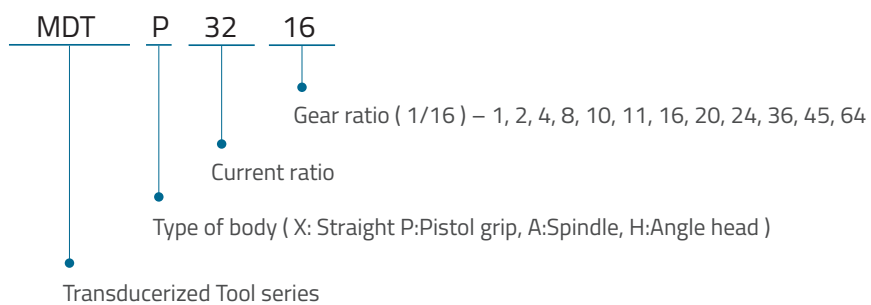
MAIN FEATURE

- ▶ 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

| | |
|-----------------------|--|
| Electric power | DC38V, 5A max |
| Motor | Swiss DC servo motor |
| Speed | 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 |

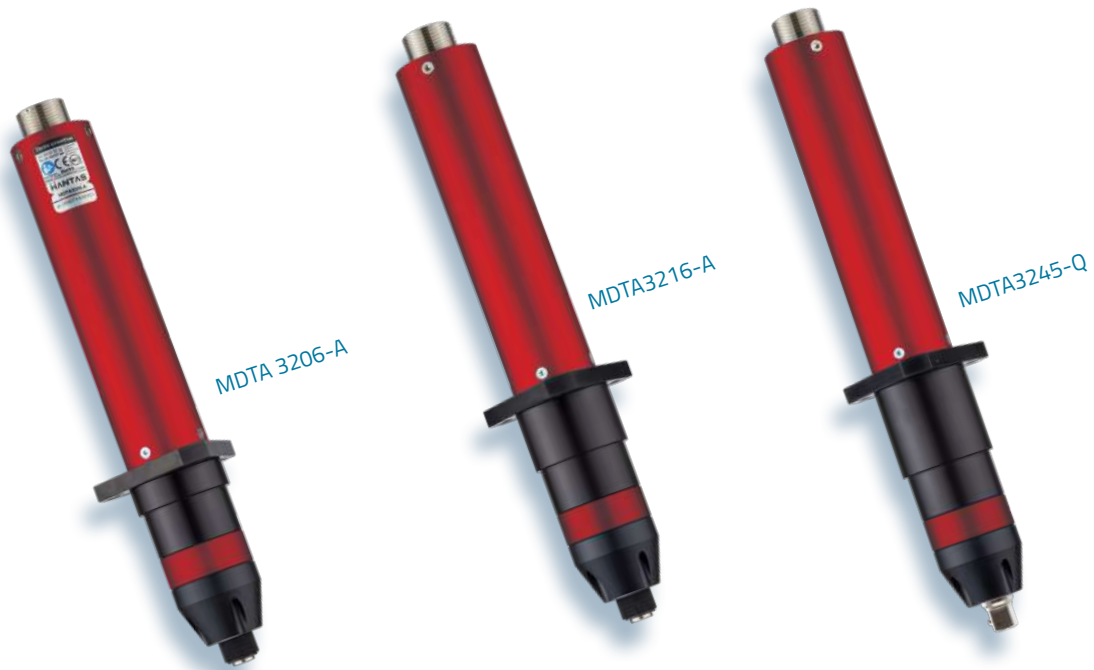
Angle head screwdrivers from 0,2 Nm to 57 Nm



MDTH 3236-Q/L

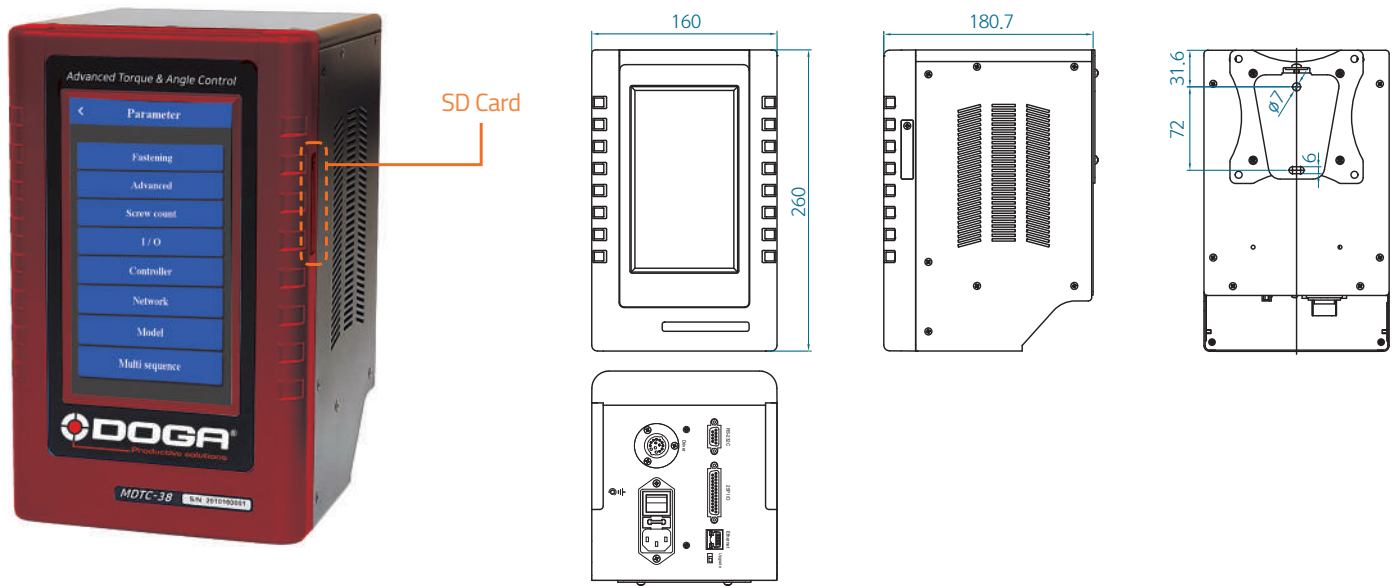
| Model | Torque (Min Nm) | Torque (Max Nm) | Speed (rpm) | Weight (gr) | Bit Socket | Controller | Code |
|------------------|-----------------|-----------------|-------------|-------------|------------|------------|-----------|
| MDTH2604-A | 0,2 | 1,4 | 150 - 1500 | 895 | Hex 1/4" | MDTC-38 | 4-1055241 |
| 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

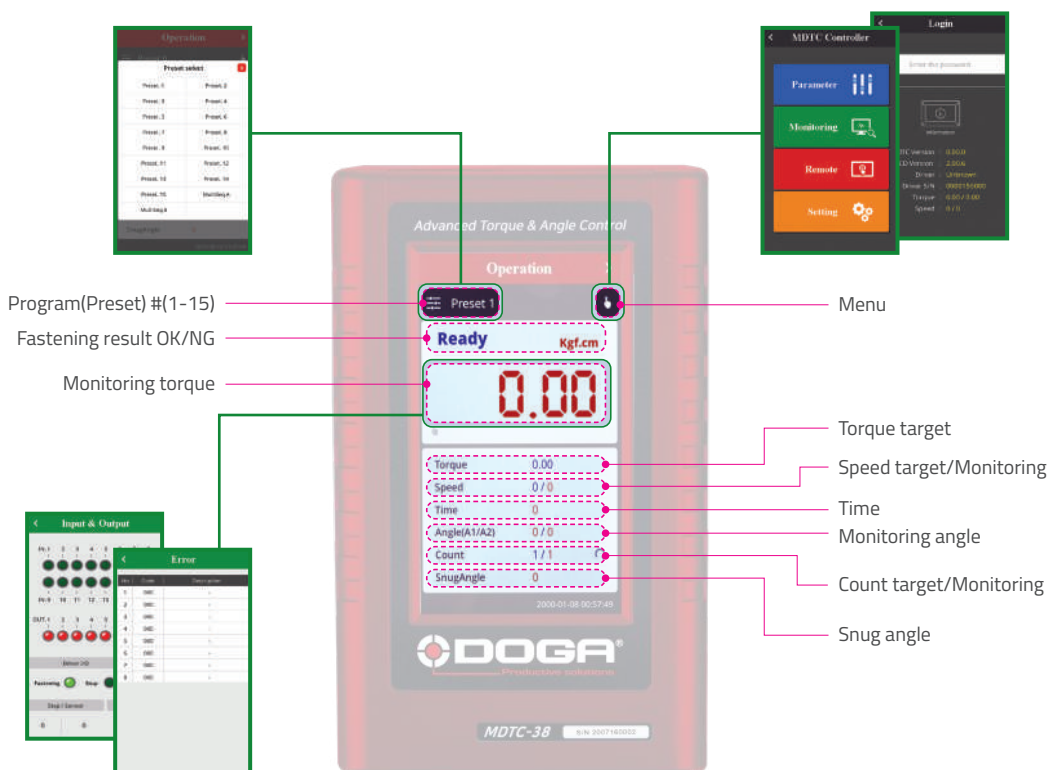
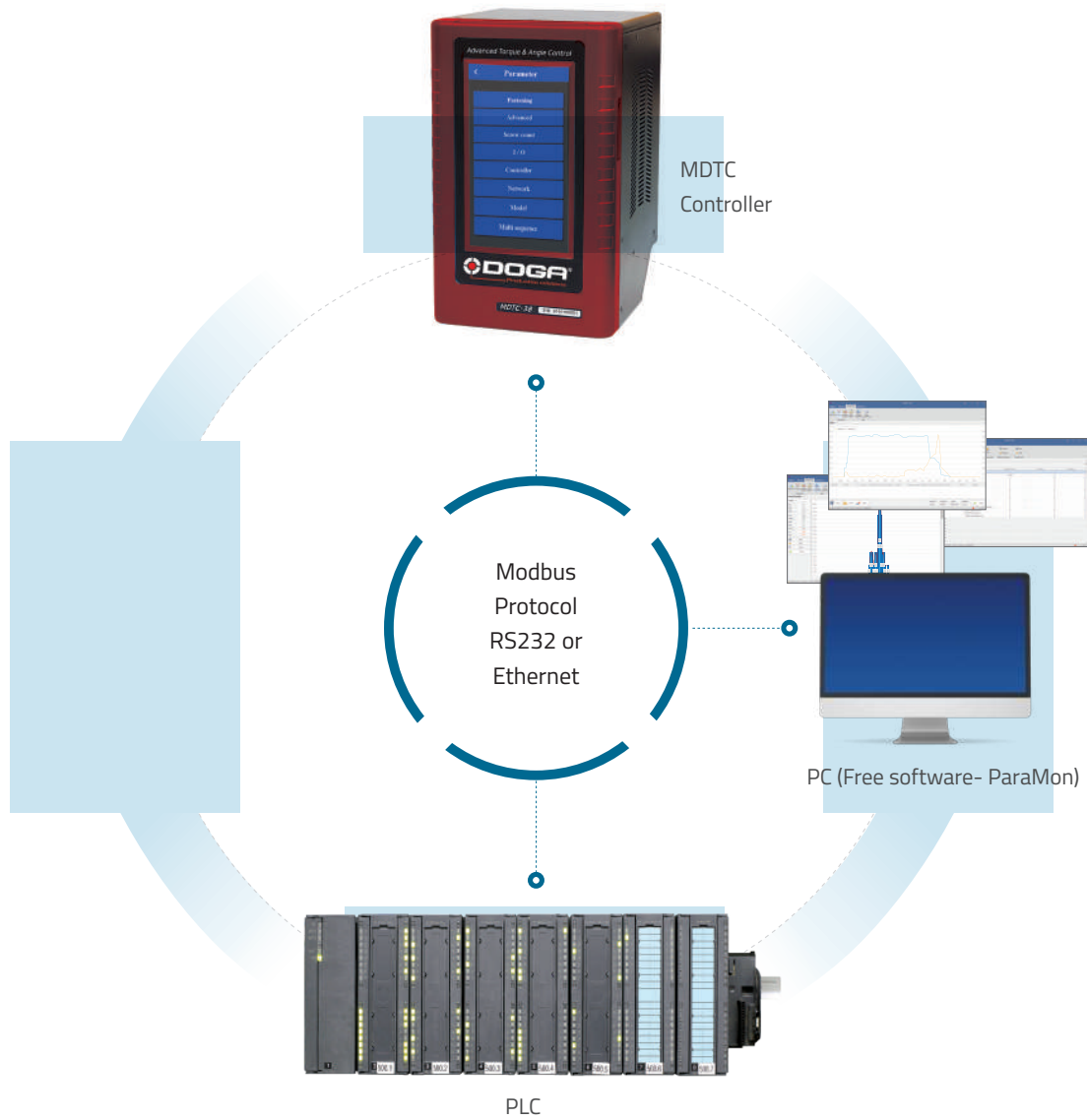
| | |
|-----------|-------------------------------|
| Dimension | 160(w) x 260(h) x 180(d) |
| AC Input | AC 230V 50/60 Hz |
| LCD | 7 inch |
| Storage | Standard Built-in 8GB SD Card |
| I/O | 15 Input & 8 Output |

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 |

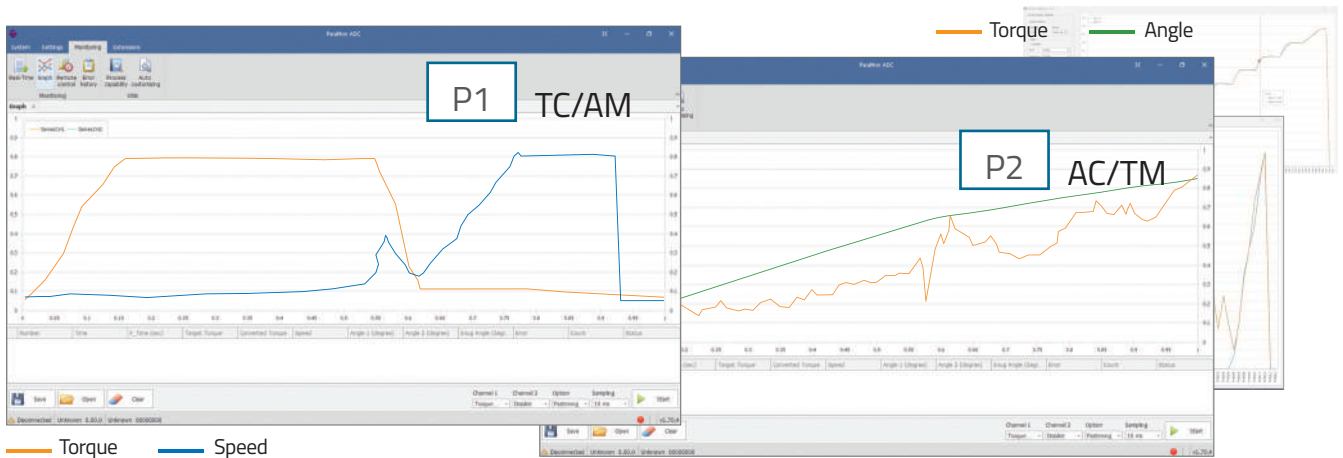
| Model | Available tools | Code |
|---------|--|------------------|
| MDTC-38 | MDT32XX Series, MDTP32XX Series, MDTH32XX Series, MDTA32X Series, MDT26XX Series | 4-1055182 |

CONTROLLER COMMUNICATION AND DISPLAY



TORQUE AND ANGLE TIGHTENING STRATEGIES

Total 15 tightening presets consist of each 15 keys parameters



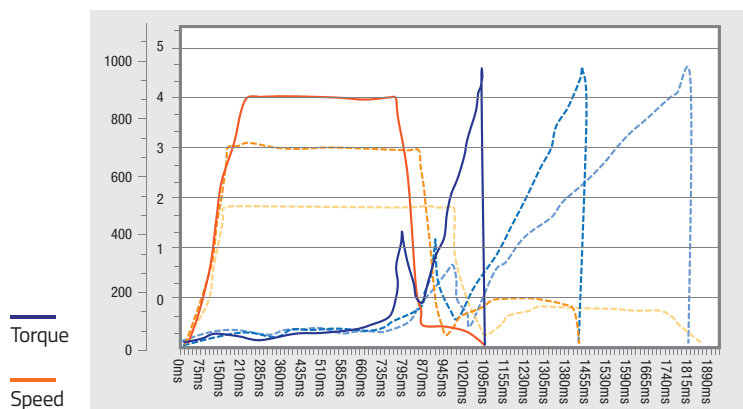
Each preset programs have the customized parameters as below:

- ▶ 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.



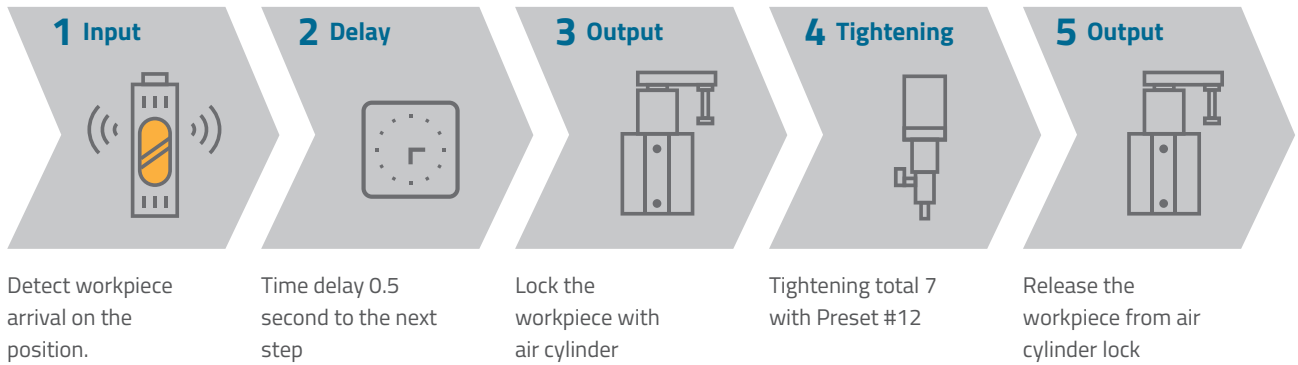
MODELS AND DATA COMMUNICATION

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 |
|----------|--------|------|-----|

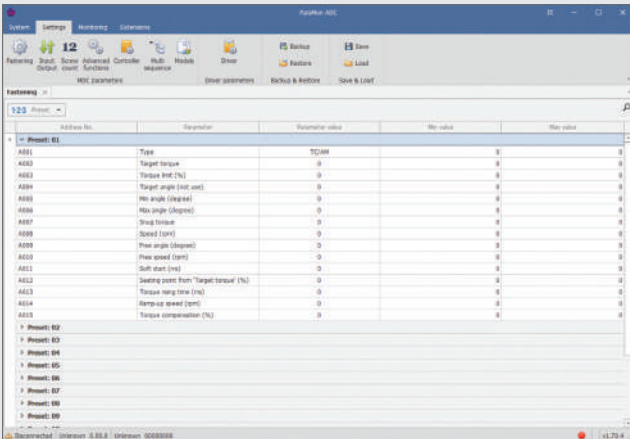
Modbus TCP

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

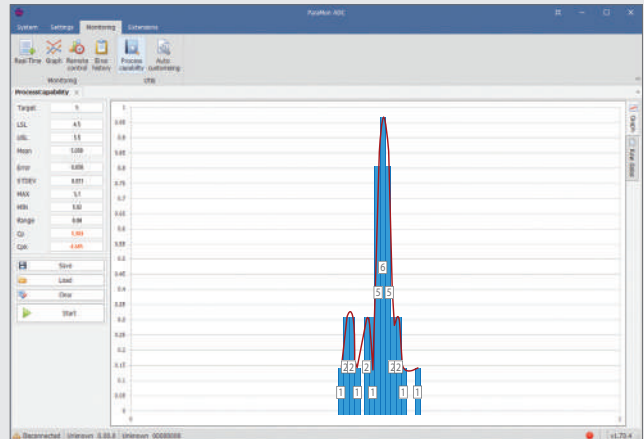
FREE PARAMON SOFTWARE

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

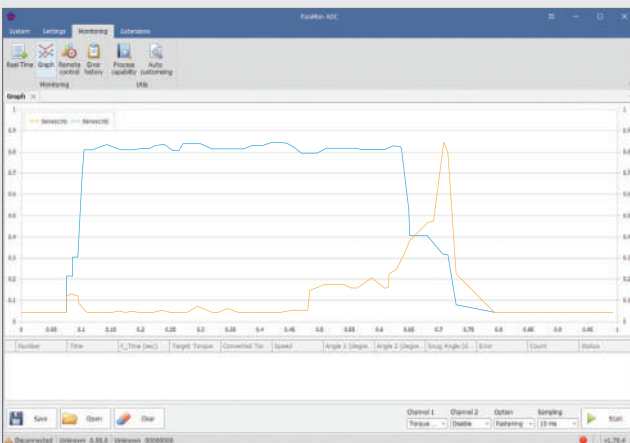
- ▶ 2 channel realtime curve display for torque, speed, angle
- ▶ Torque capability analysis for mean value, standard deviation, CP and CPK
- ▶ Auto data output on every event in Modbus protocol



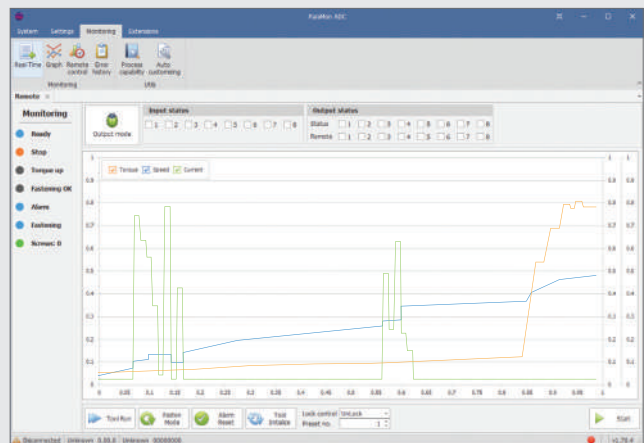
Fastener parameter setting



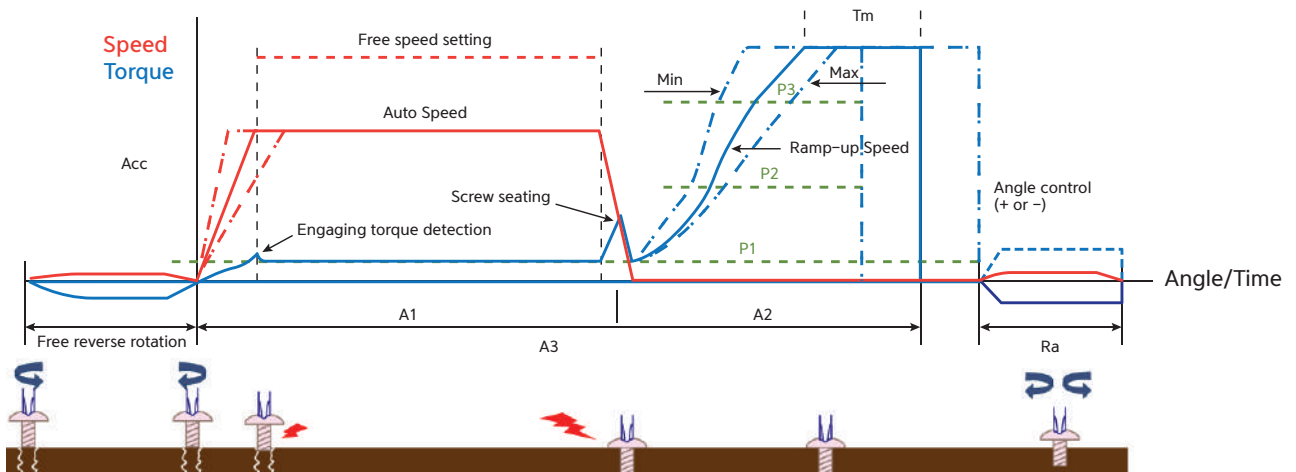
Process capability analysis



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.

SPECIAL CONNECTOR



| Designation | Code |
|---|------------------|
| 90° connector lg 80 mm Position not adjustable | 4-1000349 |

SCREWDRIVER CABLE

Standard cable

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



VACUUM PICK-UP ASSY (VPA)

| 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 barcode readers - 1D and 2D

To select preset or model.

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

| Designation | Specification | Code | |
|---|---|-----------|---|
| 1D / 2D wired scanner kit RS232 DS2208 Type | Scanner type DS2208 for 1D and 2D barcode reading 2 m USB straight cable, 2 m DB19 RS232 straight cable, 5,2 V power supply for RS232 cable, MDC null modem adapter, M / M MDC gender changer, holder, reading distance from 1 to 35 cm, optical sensor resolution 640 pixels, reading on paper or screen, IP 42, color black | 4-5000004 |  |
| 1D / 2D wireless scanner kit RS232 DS2278 Type | Scanner type DS2278 for 1D and 2D barcode reading Bluetooth wireless (max. range 100 m), charging station / holder, 2 m USB straight cable, 2 m DB19 RS232 straight cable, MDC null modem adapter, M / M MDC gender changer, reading distance from 1 to 35 cm, optical sensor resolution 640 pixels, reading on paper or screen, IP 52, color black | 4-5000005 |  |
| 1D / 2D wired scanner kit RS232 DS3608 Type | Scanner type DS3608 for 1D et 2D barcode reading Programmable and intelligent, 2 m DB19 RS232 straight cable, 12 V power supply for RS232 cable, MDC null modem adapter, M / M MDC gender changer, holder, reading distance from 1 to 150 cm, optical sensor resolution 1280 pixels, reading on paper or screen, IP 67, color black / green | 4-5000008 |  |
| 1D / 2D wireless scanner kit RS232 DS3678 Type | Scanner type DS3678 for 1D and 2D barcode reading. Programmable and intelligent, Bluetooth wireless (max. range 100 m), charging station / holder, 2 m USB straight cable, 2 m DB19 RS232 straight cable, MDC null modem adapter, M / M MDC gender changer, reading distance from 1 to 150 cm, optical sensor resolution 1280 pixels, reading on paper or screen, IP 67, color black / green | 4-5000009 |  |



Necessary to adapt scanner RS232 to MDC controller serial port.



All scanners can read barcodes as well as 2D codes



No : 12345678900000000000

I/O BOX : wiring box SUB-D44

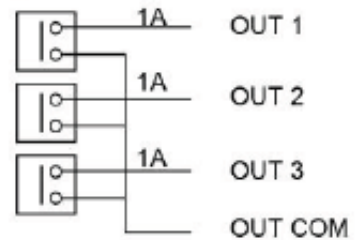
For easy and convenient wiring – 8 inputs and outputs of MDTC controller by sharing one single 24V power source.



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 Adaptater + 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 analyze 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 for our industries:

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

Find all our ASSEMBLY TECHNOLOGY products on our website by scanning this QR code



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