



ASSEMBLY TOOLS AND SYSTEMS



Torque and Angle control Tools



The MD series is a complete line of Torque and Angle control tightening tools developed with productivity and manufacturing quality in mind.

Productivity :

- Self-learning mode determines the best parameters to provide with the best torque accuracy with the highest possible speed.
- Highest MTBF thank to its high quality DC brushless motor.

Manufacturing Quality :

- Extreme torque repeatability (+/-3%) thanks to innovative shut off management (Torque rising time - Torque holding time) according to joint features.
- All errors checked thanks to Poka Yoke functions and AC/TM - TC/AM tightening strategies.



Straight Screwdrivers from 0,03 to 49 Nm – Lever start



Pistol screwdrivers from 0,1 to 49 Nm – Trigger start – handle or top exit cable



Angle nutrunners from 0.2 to 49 Nm



Fixtured spindle for automation 0.01 to 49 Nm (Remote start through I/O of the controller)

Torque and Angle control Tools



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MD Series

Main features



MDCV2 features :

- Multilingual menus : choice between German, English, Spanish, French, Czech
- 15 tightening programs (torque and angle control)
- Rotation direction can be set differently for each program
- Advanced functions with independent settings for each preset.
4 functions : free reverse rotation, engaging torque detection, thread tapping, angle after torque-up.
- 2 multi sequences programs – for several presets run with one cycle start
- 15 models of 20 steps with assignable tightening strategies, batch counting. Logical IO management.
- Large color LCD touch screen 5" with user friendly graphical interface and full tightening reporting
- Automatic or manual adjustment of speed
- Self learning mode for optimization of tightening parameters.
- Detailed alarm display with error code
- Integrated web server for set up with a standard web browser
- Free PC software for programming and real time monitoring called ParaMon
- Tightening curve display in real time
- Real time fastening data output
- RS232C and Ethernet communication ports, Modbus protocol
- Preset / Model selection with barcode reader (RS232)
- Built-in card reader and 8GB industrial SD card included
for settings backup and restore – real time fastening data record - controller firmware update
- 15 inputs / 8 output assignables digital IO's
- ESD free by conductive body grounding
- Long life time over 5 million cycles

MD Series

Straight screwdrivers from 0,03 to 49 Nm



Lever start

Model	Torque (Nm)	Speed range (rpm)	Drive	Weight (g)	Suitable Controller	Code
MD2601-A	0.03 – 0.39	150 - 2000	Hex1/4"	430 g	MDC-26	4-1050500
MD2601-E	0.03 – 0.39	150 - 2000	Half moon	430 g	MDC-26	4-1050501
MD2602-A	0.05 – 0.68	150 - 2000	Hex1/4"	435 g	MDC-26	4-1050502
MD2602-E	0.05 – 0.68	150 - 2000	Half moon	435 g	MDC-26	4-1050503
MD2604-A	0.2 – 1.37	150 - 1500	Hex1/4"	515 g	MDC-26	4-1050504
MD2611-A	0.4 – 3.3	100 - 900	Hex1/4"	545 g	MDC-26	4-1090138
MD2616-A	0.5 – 4.9	100 - 620	Hex1/4"	545 g	MDC-26	4-1050506
MD3201-A	0.1 – 1.17	150 - 2000	Hex1/4"	675 g	MDC-32	4-1050507
MD3202-A	0.2 – 2.15	150 - 2000	Hex1/4"	685 g	MDC-32	4-1050508
MD3204-A	0.4 – 3.9	150 - 1500	Hex1/4"	850 g	MDC-32	4-1050509
MD3211-A	1 – 8.8	50 - 690	Hex1/4"	910 g	MDC-32	4-1050510
MD3216-A	2 – 13.7	50 - 470	Hex1/4"	905 g	MDC-32	4-1050511
MD3236-Q	4 – 27	50 - 210	SQ3/8"	1340 g	MDC-32	4-1050512
MD3264-Q	8 – 49	50 - 115	SQ1/2"	1330 g	MDC-32	4-1050513

Delivered without tool cable.

Push to start

Model	Torque (Nm)	Speed range (rpm)	Drive	Weight (g)	Suitable Controller	Code
MD2602-A/P	0.05 – 0.68	150 - 2000	Hex1/4"	435 g	MDC-26	4-1050652
MD2602-E/P	0.05 – 0.68	150 - 2000	Half moon	435 g	MDC-26	4-1050653
MD2604-A/P	0.2 – 1.37	150 - 1500	Hex1/4"	515 g	MDC-26	4-1050654
MD2611-A/P	0.4 – 3.3	100 - 900	Hex1/4"	545 g	MDC-26	4-1050655
MD2616-A/P	0.5 – 4.9	100 - 620	Hex1/4"	545 g	MDC-26	4-1050656
MD3201-A/P	0.1 – 1.17	150 - 2000	Hex1/4"	675 g	MDC-32	4-1050657
MD3202-A/P	0.2 – 2.15	150 - 2000	Hex1/4"	685 g	MDC-32	4-1050658
MD3204-A/P	0.4 – 3.9	150 - 1500	Hex1/4"	850 g	MDC-32	4-1050659

Delivered without tool cable.

Model	Code
Cable MD 3 m	4-1050582
Reinforced cable II MD 3 m	4-1050661
Cable MD 5 m	4-1050584
Reinforced cable II MD 5 m	4-1050662
Cable MD 8 m	4-1050605
Reinforced cable II MD 8 m	4-1050663



Standard cable

Reinforced cables are highly recommended for angle and pistol screwdrivers applications.

Screwdriver max torque can be lower than it's specification by 5% and 20% with extra long 5 and 8 meters cables.



Reinforced cable II



MDP Series

Pistol screwdrivers from 0,1 to 49 Nm



Model	Torque (Nm)	Speed range (rpm)	Drive	Weight (g)	Suitable Controller	Code
MDP3201-A/U	0.1 - 1.17	150 - 2000	Hex1/4"	735 g	MDC-32	4-1050514
MDP3201-A/D	0.1 - 1.17	150 - 2000	Hex1/4"	735 g	MDC-32	4-1050515
MDP3202-A/U	0.2 - 2.15	150 - 2000	Hex1/4"	745 g	MDC-32	4-1050516
MDP3202-A/D	0.2 - 2.15	150 - 2000	Hex1/4"	745 g	MDC-32	4-1050517
MDP3204- A/U	0.4 - 3.9	150 - 1500	Hex1/4"	910 g	MDC-32	4-1050518
MDP3204- A/D	0.4 - 3.9	150 - 1500	Hex1/4"	910 g	MDC-32	4-1050519
MDP3211-A/U	1 - 8.8	50 - 690	Hex1/4"	970 g	MDC-32	4-1050520
MDP3211-A/D	1 - 8.8	50 - 690	Hex1/4"	970 g	MDC-32	4-1050521
MDP3216-A/U	2 - 13.7	50 - 470	Hex1/4"	965 g	MDC-32	4-1050522
MDP3216-A/D	2 - 13.7	50 - 470	Hex1/4"	965 g	MDC-32	4-1050523
MDP3236-Q/U	4 - 27	50 - 210	SQ3/8	1400 g	MDC-32	4-1050524
MDP3236-Q/D	4 - 27	50 - 210	SQ3/8	1400 g	MDC-32	4-1050525
MDP3264-Q/U	8 - 49	50 - 115	SQ1/2	1410 g	MDC-32	4-1050526
MDP3264-Q/D	8 - 49	50 -115	SQ1/2	1410 g	MDC-32	4-1050527

** MDP32xx-A/U – Top exit cable connector MDP32xx-A/D – Handle cable connector
Delivered without tool cable.

Model	Code
Cable MD 3 m	4-1050582
Reinforced cable II MD 3 m	4-1050661
Cable MD 5 m	4-1050584
Reinforced cable II MD 5 m	4-1050662
Cable MD 8 m	4-1050605
Reinforced cable II MD 8 m	4-1050663



Standard cable

Reinforced cables are highly recommended for angle and pistol screwdrivers applications.

Screwdriver max torque can be lower than it's specification by 5% and 20% with extra long 5 and 8 meters cables.



Reinforced cable II

MDH Series

Angle nutrunners from 0,2 to 49 Nm



Model	Torque (Nm)	Speed range (rpm)	Bit socket	Weight (g)	Suitable Controller	Code
MDH2604-A	0.2 - 1.37	150 - 1500	Hex1/4"	875 g	MDC-26	4-1050528
MDH2611-A	0.4 - 3.3	100 - 900	Hex1/4"	905 g	MDC-26	4-1050529
MDH2616-A	0.5 - 4.9	100 - 620	Hex1/4"	900 g	MDC-26	4-1050530
MDH3201-A	0.1 - 1.17	150 - 2000	Hex1/4"	1085 g	MDC-32	4-1050531
MDH3202-A	0.2 - 2.15	150 - 2000	Hex1/4"	1095 g	MDC-32	4-1050532
MDH3204-A	0.4 - 3.9	150 - 1500	Hex1/4"	1260 g	MDC-32	4-1050533
MDH3211-A	1 - 8.8	50 - 690	Hex1/4"	1320 g	MDC-32	4-1050534
MDH3216-A	2 - 13.7	50 - 470	Hex1/4"	1315 g	MDC-32	4-1050535
MDH3236-Q	4 - 27	50 - 210	SQ3/8	1940 g	MDC-32	4-1050536
MDH3264-Q	8 - 49	50 - 115	SQ1/2	1930 g	MDC-32	4-1050537

Delivered without tool cable.

Model	Code
Cable MD 3 m	4-1050582
Reinforced cable II MD 3 m	4-1050661
Cable MD 5 m	4-1050584
Reinforced cable II MD 5 m	4-1050662
Cable MD 8 m	4-1050605
Reinforced cable II MD 8 m	4-1050663



Reinforced cables are highly recommended for angle and pistol screwdrivers applications.

Screwdriver max torque can be lower than it's specification by 5% and 20% with extra long 5 and 8 meters cables.





MDA Series

Fixtured spindle for automation 0,01 to 49 Nm



Model	Torque (Nm)	Speed range (rpm)	Drive	Weight (g)	Suitable Controller	Code
MDA2601-E	0.03 - 0.39	150 - 2000	Half moon	525 g	MDC-26	4-1050539
MDA2602-A	0.05 - 0.68	150 - 2000	Hex1/4" or dia.4	530 g	MDC-26	4-1050541
MDA2604-A	0.2 - 1.37	150 - 1500	Hex1/4" or dia.4	610 g	MDC-26	4-1050542
MDA2611-A	0.4 - 3.3	100 - 900	Hex1/4"	640 g	MDC-26	4-1050543
MDA2616-A	0.5 - 4.9	100 - 620	Hex1/4"	640 g	MDC-26	4-1050544
MDA3201-A	0.1 - 1.17	150 - 2000	Hex1/4"	770 g	MDC-32	4-1050545
MDA3202-A	0.2 - 2.15	150 - 2000	Hex1/4"	780 g	MDC-32	4-1050546
MDA3204-A	0.4 - 3.9	150 - 1500	Hex1/4"	945 g	MDC-32	4-1050547
MDA3211-A	1 - 8.8	50 - 690	Hex1/4"	1005 g	MDC-32	4-1050548
MDA3216-A	2 - 13.7	50 - 470	Hex1/4"	1000 g	MDC-32	4-1050549
MDA3236-Q	4 - 27	50 - 210	SQ3/8	1550 g	MDC-32	4-1050550
MDA3264-Q	8 - 49	50 - 115	SQ1/2	1560 g	MDC-32	4-1050551

Delivered without tool cable.



With built-in telescoping system

Model	Torque (Nm)	Speed range (rpm)	Drive	Stroke (mm)	Suitable Controller	Code
MDA2201-E+VC*	0.010 - 0.068	100 - 1000	Half moon	5	MDC-26	4-1050538
MDA3204-A/TBC	0.4 - 3.9	150 - 1500	Hex1/4"	20	MDC-32	4-1050645
MDA3211-A/TBC	1 - 8.8	50 - 690	Hex1/4"	20	MDC-32	4-1050646
MDA3216-A/TBC	2 - 13.7	50 - 470	Hex1/4"	20	MDC-32	4-1050647
MDA3236-Q/TBC	4 - 27	50 - 210	SQ3/8	20	MDC-32	4-1050648
MDA3264-Q/TBC	8 - 49	50 - 115	SQ3/8	20	MDC-32	4-1050649

Delivered without tool cable.
* equipped with vacuum pickup.

Model	Code
Cable MD 3 m	4-1050582
Reinforced cable II MD 3 m	4-1050661
Cable MD 5 m	4-1050584
Reinforced cable II MD 5 m	4-1050662
Cable MD 8 m	4-1050605
Reinforced cable II MD 8 m	4-1050663



Reinforced cables are highly recommended for angle and pistol screwdrivers applications.

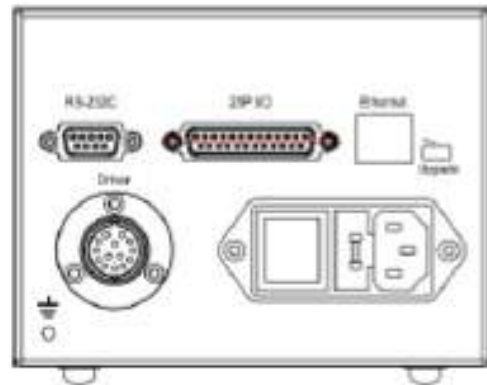
Screwdriver max torque can be lower than it's specification by 5% and 20% with extra long 5 and 8 meters cables.



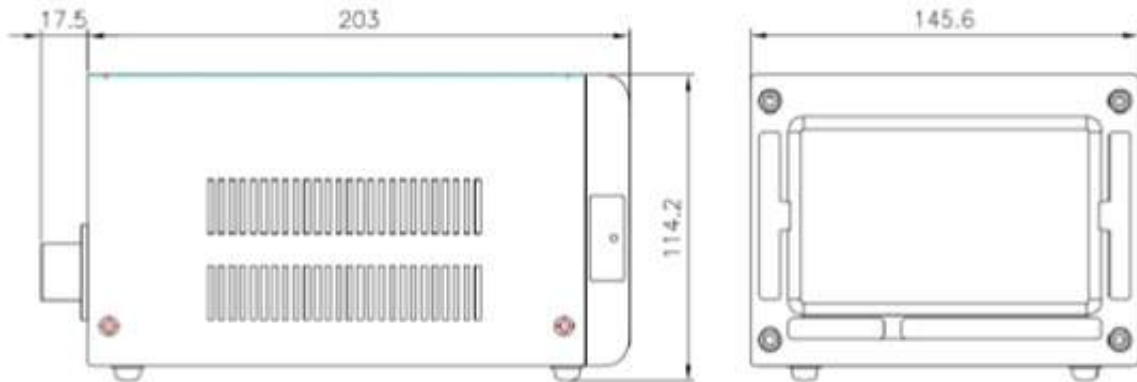
MDC Controller Features



SD card reader
protected with a plate



Optional lift-up Stand



Item	Spécifications MDC v2	
	MDC-26 v2 Code 4-1050665	MDC-32 v2 Code 4-1050666
Voltage in	AC230V, 50/60Hz, 2,5A	
Voltage out	DC38V 3.5A	
Fuse	2x T5A / 230V	
Operating environment	0 ~ 40°C / 15 ~ 80% RH (without dew)	
Front panel	5" LCD Color 800x480 dots – Touch & Multilingual menus	
Communication	1 x RS232C, 1 x Ethernet	
Protocol	Modbus RTU, Modbus TCP/IP	
I/O	15x inputs et 8x outputs assignable I/O SUB-D25 (7 inputs assigned to models)	
Tightening strategies	15	
Torque calibration	- 10% ~ +10%	
Screwdriver recognition	Auto detection of connected driver when power ON of controller	
Error display	Error code display (3 groups)	
Fastening verification	Fastening data verification (NG/OK) by the preset pattern of angle.	
SD card	Included one 8GB SD card- Industrial grade	
Dimensions et weight	146(L)x114(H)x203(P) – 2,5kg	

Optional accessories :

- RS232 Cable DB9 Male/DB9 Female 3 meters **Code : 4-1050598**
- USB to RS232 converter **Code : 4-1050597**
- Lift-up stand kit **Code : 4-1050592**
- Industrial SD card 8G **Code : 4-1290024**



MDC Controllers

Main features



PC - MDC web server

Modbus protocol
RS232 Ethernet



PC - ParaMon free software



PLC

Program or Model select

Fastening result

Torque monitoring

Connexion

Contrôleur MDC

Paramètres

Commandes

Règlages

Opération

Programme 1

2019-04-21 11:54:37

OK

N.m

Couple 1.00

Vitesse 189 / 0

Temps 940

Angle(A1/A2) 786 / 30

Comptage 1 / 1

Angle contrôlé 29

Torque target

Speed target/Monitoring

Tightening time

Run down angle/ final angle

Count target / Monitoring

Snug angle

Monitoring

Monitoring

Monitoring

Monitoring

Monitoring

MDC Controllers

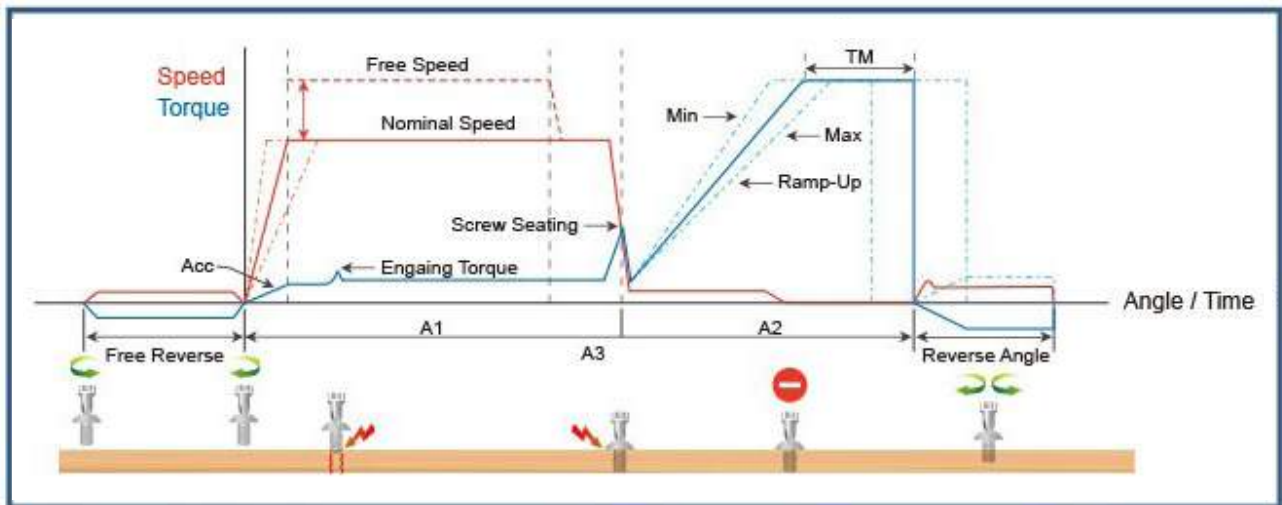
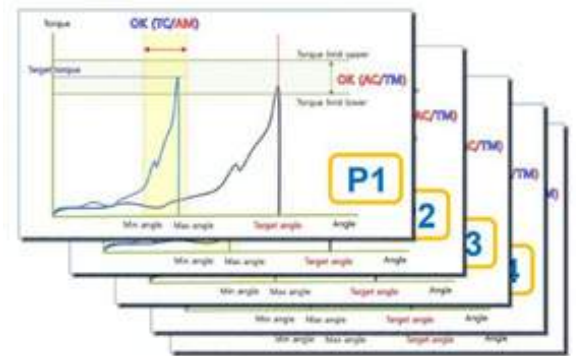
Torque and Angle tightening strategies

15 different tightening programs can be set in each MDC controllers.

Tightening direction may be different for each preset.

All parameters can be set independantly in each program as :

- Tightening strategy
 - Torque control + angle/monitoring TC / AM
 - Angle control + torque monitoring AC / TM
- Torque
 - Torque target, min torque, max torque, snug torque, seating point, torque compensation
- Angle
 - Angle target, angle min, angle max, angle for free speed
- Speed
 - Auto speed, free speed, ramp up speed
- Time
 - Soft start, torque rising time

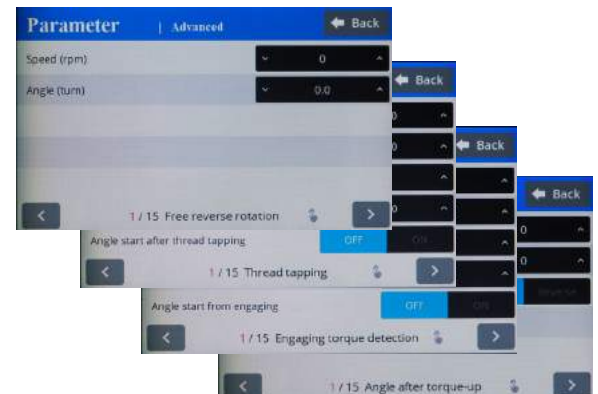


Advanced functions

Usefull advanced functions can be added to each preset :

- Free reverse rotation - to engage screw
- Thread tapping - to overcome a thread torque higher than target torque
- Engaging torque detection – to detect a lock nut
- Angle after torque up - to go reverse for inserts fitting

All functions can be set with different parameters for each program.





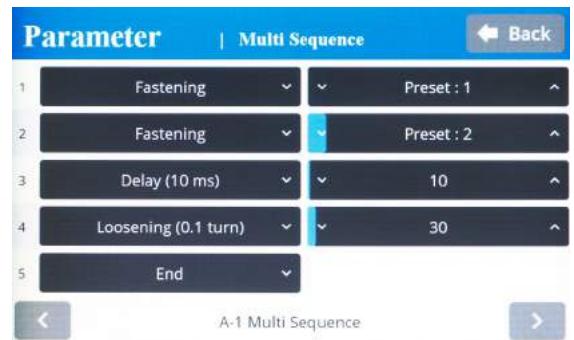
MDC Controllers

Models, Multisequences & Auto customizing

Multisequences programs

- MA and MB allow to chain several programs in a single cycle with a maintained trigger.
- A multisequence can be made up of 10 steps.
- A step is either a program, a loosening or a delay and can be repeated several times.

Example : achieving capability on a test bench.



Sequencing Models

- There are 15 sequencing models of 20 steps with assignable tightening program, batch counting and logical I/O management.
- Each step can control :
 - A tightening batch(TC/AM ou AC/TM) with a counter of Ok result
 - An Output activation
 - An Input monitoring
 - A time delay
 - A bar code reading



- A report « model complete » validates the end of the model (sequence end) .

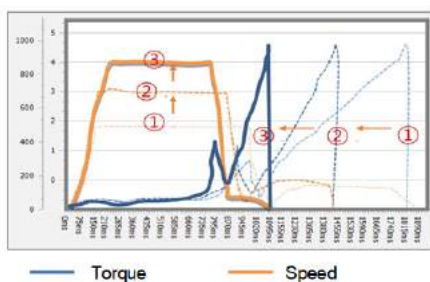
Sample program of sequence control :

- Step 1 - Input
 - Detect workpiece arrival on the position
- Step 2 - Delay
 - Time delay 0.5second to th next step
- Step 3 - Output
 - Lock the workpiece with air cylinder
- Step 4 - Tightening
 - Tightening total 7 with Preset #12
- Step 5 - Output
 - Release the work piece from air cylinder



Auto customizing program

- Optimize the tightening parameters and the cycle time :



- optimized speed according to the target torque level
- free angle and free speed calculation for fast run down
- seating point adjustment



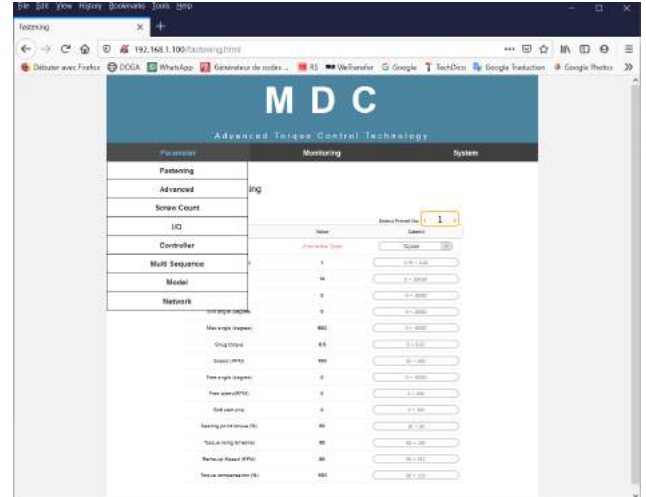
Free PC software

Integrated Web server – ParaMon Software

MDC controller integrated Web Server

Without software preinstalled on your computer you have the ability to access each MDC controller connected via Ethernet using your web browser and simply entering the IP address of each controller in a navigation tab.

All functions for parameters setting and saving and monitoring are available.



Software ParaMon MDCv2 – free download from www.doga.fr

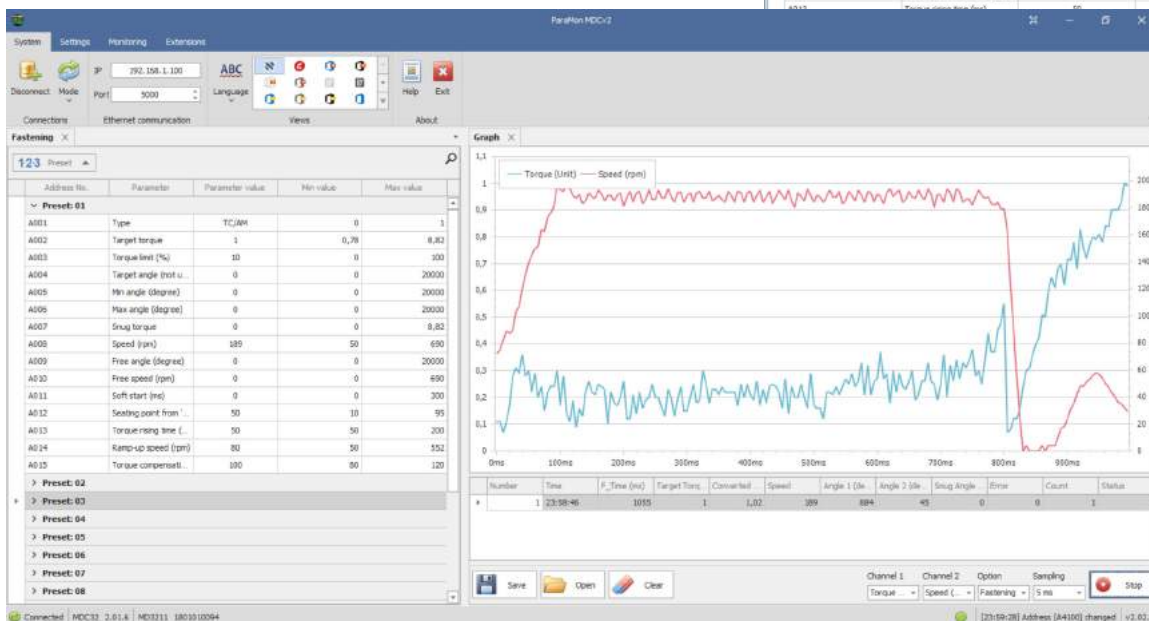
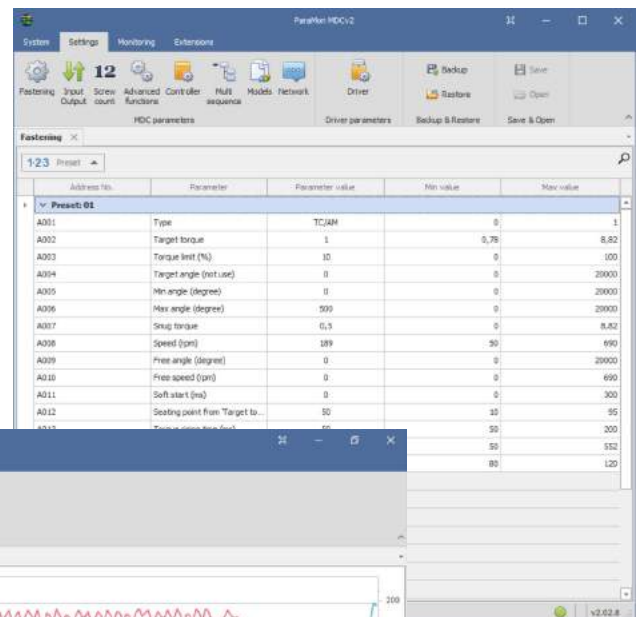
Ethernet or RS232 connection.

It includes all parameters configuration and saving and monitoring functions also available on the web server.

Several windows can be opened at same time to display and edit settings simultaneously.

Multi-channel graph (torque, angle, speed, time) allow a precise analysis of your assembly and settings optimization.

Tightening curves and results can be monitored in real time and saved for later offline viewing.





Optional accessories

■ Telescopic cushions

Model	Suitable tools	Code
Telescopic bit cushion Assy [TBC 3204-16-A]	MDA 3204, MDA3211	4-1050650
Telescopic bit cushion Assy [TBC 3204-16-Q]	MDA3204, MDA3211	4-1050651



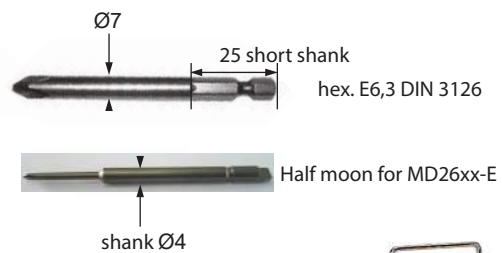
Bit socket Hex1/4" Bit socket SQ3/8

■ Vacuum pick-up assy (VPA)



Custom made :
Mouthpiece and sleeve are not included
It should be customized according
screw features and application details.

Bit type for vacuum and bit holder



Item	Specification	Screwdriver	Bit length*	Code
Vacuum Pick-up Assy	Hex 1/4" M20	MD26xx-A, MD3201, MD3202, MDP3204P	90 mm min	4-1050589
Vacuum Pick-up Assy	Hex 1/4" M23	MD32xx-A, except MD3236 & MD3264	90 mm min	4-1050590
Vacuum Pick-up Assy	Half moon M20	MD26xx-E	90 mm min	4-1050591
Vacuum system		Vacuum pump DLP2570		4-3004101

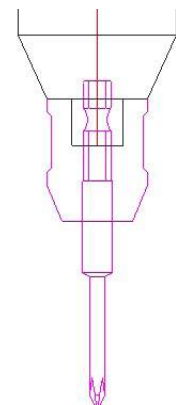
* Bit not included

■ Bit holder assy

• Extra bit holder with bearing provide better bit concentricity.



1/4 Hex M23 1/4 Hex M20 4mm, M20



Item	Specification	Screwdriver	Bit diam*	Bit length*	Code
Bit Holder Assy	Hex 1/4" M20	MD26xx-A, MD3201, MD3202	7 mm	70 mm	6-1050586
Bit Holder Assy	Hex 1/4" M23	MD32xx-A, except MD3236 & MD3264	7 mm	70 mm	4-1050587
Bit Holder Assy	Dia. 4 mm M20	MD26xx-E	4 mm	70 mm	4-1050588

* Bit not included

■ Screwdriver calibration with controller on 3 preset values on customer choice

• Service done in Doga facilities Code : 4-7500312

Optional accessories

■ RS232 Bar code reader for MDC 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

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

* necessary to adapt scanner RS232 to MDC controller serial port.

■ I/O BOX : Wiring box SUB-D44

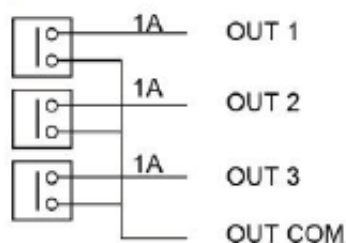
For easy and convenient wiring – 8 inputs and outputs of MDC controller by sharing one single 24V power source.



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.

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



Nota :

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



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