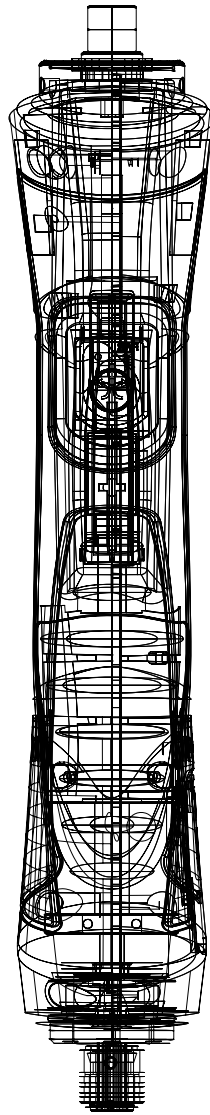


ϕTensil

Fiam Electric Tightening Solutions



Handheld tightening solutions with:

- | Mechanical clutch and automatic shut off |
- | Torque/angle current control |
- | Torque/angle control by built-in transducer |



eTensil.

Fiam's electrical revolution continues.

eTensil is a complete range of electric solutions designed and manufactured by Fiam for truly smart assembly.

Today's production lines are increasingly heterogeneous and requirements change depending on the components to be tightened, which are characterized by an ever-growing variety of versions. This calls for **extreme production flexibility** supported by efficient, versatile, and smart tools offering different levels of precision.

Thanks to its **different control systems, the eTensil range meets all these needs**, ensuring full adaptability to diverse operating requirements and complete traceability of all tightening data.

Electric, efficient and green, eTensil is engineered for applications ranging from precision mechanics to automotive, from electronics to household appliances. Design, reliability, and Made-in-Italy manufacturing quality—everything required to face the challenges of modern industry.

p. 4

A range of versatile
and productive hand tools



p. 8

Tightening systems with
mechanical clutch and
automatic shut off



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Tightening systems
with torque/angle
current control



p. 18

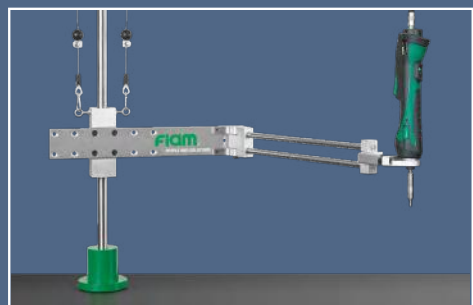
Tightening systems
with torque/angle
control by built-in
transducer



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Accessories
for workstation ergonomics

- Pick&Place systems
- Positioning devices
- Poka Yoke devices
- Accessories for interconnectivity
- Reaction arms



p. 41

Automatic tightening
systems



Versatile and productive tools. Efficiency at hand.

Ergonomic grip

- Designed for maximum handling comfort and increased productivity
- Made of innovative, impact-resistant materials
- Extremely low weight and compact dimensions
- Suitable for both right- and left-handed operators
- Also ideal for operators with smaller hands

Signaling LEDs

Three LEDs ensure precision and immediate signaling

- **Blue LED:** near the reverse button, it remains lit during the untightening phase (left-hand rotation)
- **White LED:** indicates that the tool is ready for use
- **Front LED:** illuminates the working area and signals anomalies at the end of the tightening cycle (flashing in sync with the blue LED)
- **Front LED** programmed for maintenance alerts: continuous flashing when scheduled maintenance is required – not available on pistol and angle models

In the pistol models, the following tightening process feedbacks are also available:

- **Green LED:** tightening OK
- **Red LED:** tightening NOK
- **Yellow LED:** tool in RUN phase
- **Flashing red LED:** alarm signal

Reversibility

- **Activation** with a single press on the “zero-effort” push button
- **Reverse rotation** is indicated by the “blue LED”
- **Reverse command** recessed into the housing to protect it from wear, impacts and accidental activation

Reduced-effort Start-Up

- Activation lever pressure: **only 0.9 N, the lowest on the market**
- Drastically reduced operator effort → higher production efficiency
- **Contactless start-up lever** with a highly robust analogic sensor, completely wear-free
- Once pressed, it integrates seamlessly into the tool housing, providing ergonomic support
- Ergonomically negligible activation force → minimal fatigue, maximum productivity



Ergonomic design. Perfection in handling.

Model for every application

- **Straight models:** ideal for tightening on horizontal surfaces; the low-profile grip, positioned close to the tightening point, ensures immediate and accurate centering
- **Angle models:** lever-start only; perfect for tight spaces and hard-to-reach points, thanks to their compact and wear-resistant 30° or 90° heads
- **Pistol models:** for tightening on vertical surfaces; available with supply cable from the top or bottom, and featuring a balanced grip even without suspension systems
- **UpGrip models:** Fiam's patented reversed pistol grip; enables access to points otherwise unreachable with traditional pistol tools (, e.g. in the assembly of ovens or refrigerators)

Low noise and high comfort

- Components engineered for maximum quietness: motor, gear reductions, and clutch group (when present)
- Quick-change chuck: fast and safe bit replacement
- Suspension device: eliminates the need for the operator to support the tool's weight

Screw suction systems (Pick & Place systems)

- **Automate screw pick-up and manual positioning** → smooth and continuous operations
- Fully integrable **with all eTensil straight screwdrivers**, which synchronize perfectly with the vacuum pumps in line-control logic
- **Operation:** special head connected to a vacuum pump; customizable nozzles based on screw type or assembled parts; bits shaped according to the screw specifications

Discover the Pick & Place systems on [page 30](#).



Safety. Green performance.

Ecological

- **Brushless electric motors:** no sliding electrical contacts → no carbon or copper dust → healthier working environments
- Components made of **recyclable materials** → easy disposal
- Design based on Life Cycle Assessment: from supply chain to disposal, to reduce overall environmental impact

ESD certification

- ESD-dissipative plastic housings: prevent the build-up of electrostatic charges
- Any charges transferred between the operator and the tool are safely discharged to ground without affecting the tightening area
- **Fully compliant with the latest European Directives:** immune to electromagnetic disturbances and does not interfere with surrounding equipment
 - ideal for assembling electronic components in electrostatically protected areas
 - ideal for producing high-quality electronic components that must be safeguarded from electrostatic charge build-up

“Dust proof” construction

- **Casing** designed to minimize dust and residues infiltration → protects the internal components of the tool
- **Seals** placed on the most exposed areas to ensure proper protection
- **Labels** recessed into the housing → protected from wear and always readable

Low voltage

- **32 V operating voltage** → maximum operational safety
- Perfect **thermal insulation** ensured by ergonomic grips



Reliability. A project for the long-term.

Latest generation brushless motor

- High-precision **brushless electric** motor → maximum efficiency and performance stability
- Practically **endless electrical lifespan**: no wear-prone components, reduced rotor inertia, improved cooling
- Equipped with **sensors for perfect rotation control**
- Ironless technology → extremely lightweight design

Reduction assembly

- Designed for **high performance**: efficiency, durability, and extremely low noise
- **Special treatments** protect gear efficiency over time
- **Innovative machining processes** → **performance remains unchanged** even after hundreds of operating hours (certified tests)

Modular structure

- **Reduced** wiring for a clean, organized structure
- Integrated functionalities directly on the **boards**
- Simplified electrical connections
- Optimized mechanical and electronic integration
- Robust design for long service life
- Safe and cost-effective **maintenance**

Connection cable screwdriver - power supply

- **Highly flexible cable**, manufactured entirely in Italy according to Fiam specifications
- Standard length: 3 m, extendable by adding additional cables
- **Connectors designed for long service life**
- Flame-retardant, halogen-free, and resistant to oils and harsh industrial conditions
- Also available with **90° connection** to adapt to different operational layouts



SCREWDRIVERS WITH MECHANICAL CLUTCH AND AUTOMATIC SHUT OFF

Production efficiency.

Torque control system with mechanical clutch

This control system is vital to **tightening torque**, as it automatically cuts off the power supply.

This ensures **high repeatability** - in other words a low Mean Shift value - **even when faced with a variable joint softness level**.

Values remain unchanged over **million of cycles**, guaranteeing high quality that is consistent over time.

Mechanical clutch control

two models:

SAFE CLUTCH CONTROL

A **protective device** controls access to the mechanical clutch, ensuring adjustments are made safely.

EXTERNAL CLUTCH ADJUSTMENT

When dealing instead with the need to **swap often between the components to be assembled and relevant screws**, models with external clutch adjustment are the ideal solution, allowing you to **quickly and repeatedly adjust tightening torque on the outside of the unit**.

The ring is numbered for even easier immediate adjustment.



“Smart Pro” Programming, directly on the tool

With TPU-1 and TPU-2 units, **it is possible to set manually various work processes on the tools themselves**, without having to change the mechanical setup or having to deal with an external accessory.

Holding the reverse button for at least 4 seconds activates the programming mode - which is signaled by the flashing LED - of the various functions can be selected by clicking on the lever.

START UP MODALITIES

Straight models:

4 Models - see drawings below

Pistol models:

• push-button

Angle models:

• lever start

This procedure allows to switch the following functions on/off:

■ front **ILLUMINATION LED** (for straight models only)

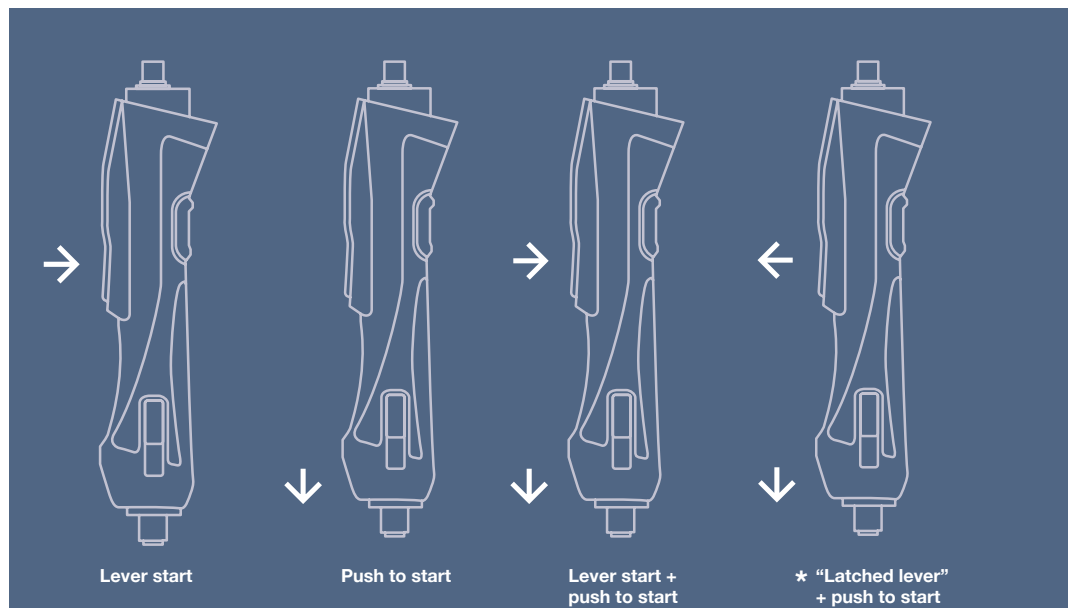
■ **INHIBITION OF UNTIGHTENING**

by setting this option the tool will no longer start in left rotation

■ **SOFT START:** slow screwdriver start (from stopped to rated speed in approx. 1.5 seconds)

■ **PRE-AUTO UNTIGHTENING** by 4 turns (1440 degrees). A useful feature when you have previously tightened parts that need loosening before being tightened to the set torque

■ **POST-AUTO UNTIGHTENING** by 4 turns (1440 degrees). A useful feature when needing to tighten to the set torque and then loosen for a subsequent assembly.



* The "latched lever" + push to start mode allows the screwdriver to work without need to keep the lever pressed. For safety, the screwdriver activates only when pushing on the bit. In this mode, the first pressure applied to the lever starts the screwdriver until clutch shuts off, whereas a second pressure can eventually stop it before the working cycle is completed.

Power supply TPU-1 and TPU-2

The basic power supply units work in perfect synergy with the tool providing the **right electrical power levels appropriate for each operational mode** while constantly monitoring screwdriver's status and the whole tightening process.

Functional design

Casing with exclusive shape designed to:

- Ensure practical access to all functions from the operator's side
- Allow immediate reading of visual indicators

Robust structure, also suitable for vertical mounting.

LEDs

High-visibility LEDs allow continuous monitoring of key parameters, **such as correct functioning, selected speed, clutch engagement, anomalies, or emergency conditions.**

Two models

The TPU-1 model guarantees each screwdriver receives the **correct electrical supply**, as well as allowing the user to monitor key working procedures. The TPU-2 model with "optoisolated" input and output signals allows **activation and remote control of some functionalities and results.**

Tool speed

A membrane switch allows the user to set **two rotation speeds** LOW/HIGH (slow / fast) both in tightening and untightening. It is possible to use HIGH in tightening and LOW in untightening and vice versa.



A.
Green LED:
clutch shut off and motor stop.

B.
Red LED:
error (stalled motor) or "Button" +
push to start activated - straight
models.

C.
Red LED:
screwdriver not enabled (external
signal stop, activable only in the
TPU-2 model).

D.
Status LED (system on/off).

E.
S1
- In the TPU-1 model the LED is
always on
- In the TPU-2 model, the LED
lights up indicating the activation
of the emergency on an external
signal.

S2
- Tool ready to use.

S3
- Tool in use (RUN).

F.
Button for selecting LOW/HIGH
(slow / fast) tool speed.

G.
Port for connecting the supply
cable to the screwdriver.

H.
Start up button with light.

I.
Port for electrical power sup-
ply cable.

L.
Port in TPU-2 version:

Input signals
1. H/L speed
2. Motor stop
3. Reverse
4. Emergency
5. Start

Output signals
1. Ready
2. Stalled Motor
3. Run
4. Reverse
5. Clutch engaged

TPU-M1 Monitoring Unit.

TPU-M1 monitoring unit is **able to monitor and manage all the functions of the matched tool**. A sophisticated instrument designed not only to provide the tools with the correct power supply, but also to handle **large number of functions that can be programmed quickly, easily and intuitively**.

Designed and built entirely by Fiam, it represents a strategic choice providing one of the most advanced solutions for the industrial production

- AUTOMATICALLY AND IMMEDIATELY RECOGNIZING THE CONNECTED TOOL**
and setting the applicable parameters range for it.
- SCREW COUNTING**
this function turns the system into an effective Poka Yoke device.
- STORING**
the outcome of the last 99 cycles.
- SIGNALING LEDS.**
For a synchronized and efficient tightening management:
Red LED = Nok
Yellow LED = End of cycle
Green LED = Cycle progress (screws tightened) according to the set number of screws.
- INDUSTRY 4.0.**
Prepared for data exchange on CLOUD platforms for read/ manage tightening processes even remotely.
- CHECK TIGHTENING TIME**
to detect process anomalies like overtreading and already tightened screws.
- COMMUNICATION WITH MASTER PLC**
and others devices:
8 + 8 signals I/O freely programmable that offer several functionalities to be chosen from 21 + 22 signals.
Allow to communicate the phase, the system status and to control the tool in **remote**.
And, thanks to the **Program Source** function, when external devices – such as automatic accessory selectors – are connected, it is possible to manage the program-selection mode.
- DISPLAYING**

 - OK/NOK status
 - Tightening time value
 - Angle value.
- INTERFACING WITH WORKING STATIONS**
if there are workpiece clamping jigs, the piece locking devices can be activated / deactivated.
- 8 MONITORING PROGRAMS**
The programs can be managed remotely in single mode or with binary combination.
Also, with each program, there can set **both the number of screws to tighten and the time-frame window to conclude the tightening cycle.**
For example, if there are 5 screws to tighten, out of which 3 with 5 mm length and 2 with 10 mm length: there can be set two programs to work in sequence.
The first program will include 3 screws and a maximum time 0.5 sec. Second program for 2 screws with a maximum time of 1.1 sec.
So, through the stop
- by - time tightening, it is possible to discriminate the length of different screws.
- SOLVE TIGHTENING WITH CRITICAL JOINTS**
An advantageous **Poka Yoke system** to manage for example assembly with elastic gaskets, or components made of rubber or other materials.
In all these situations, it is possible to **verify that gaskets are in place** by comparison of the detected angle respect to the set range.
An essential stratagem for the productivity and final product quality.
- RETENTION**
Fonction that allows you to set a waiting interval at the end of the program, giving the operator a clear and immediate view of the results before the automatic switch to the next program.



TPU-M1

- 8 programs to control tightening process
- 1 programmable sequence up to a max of 8 steps
- Retention: programmable waiting interval between programs
- Automatic recognition of the tool and configuration
- Screw counter - Poka Yoke system
- OK / NOK: tightening result displayed
- Min / Max tightening time control - Poka Yoke system
- Settable untightening speed
- 2 levels password: to protect the set parameters or totally block the system
- Serial communication (RS232)
- Language selection (IT, EN, DE, FR, ES, TR)
- Log of the last 99 tightenings
- Interfacing with working stations
- 8 + 8 programmable I/O (21 + 22 signal types)
- Industry 4.0: ready to access the FIAM 4.0/OPC-UA cloud
- Selection of programs from I / 0 (remotely)
- Min / Max tightening angle control - Poka Yoke system

SMART PRO EVO PROGRAMMING

- 4 start-up modes selectable on the unit
- Soft Start - acceleration ramp
- Settable rotation speed
- Pre-auto untightening (can be activated with all tightening strategies)
- Post-auto untightening (can be activated with all tightening strategies)

TIGHTENING STRATEGIES

- Torque control with mechanical clutch
- Torque control with mechanical clutch and tightening time monitoring
- Time control (Stop-by-time tightening)
- Angle control and tightening time monitoring

Smart Pro Evo Programming

In addition to the Smart Pro programming modes directly on the tool illustrated on page 8, with this advanced unit and the Smart Pro Evo programming, you can also manage:

FOUR DIFFERENT PRE-SET START UP MODALITIES

can be set on the monitoring unit:

Modalities are:

- lever start
- push to start
- Lever start + push to start
- “Latched lever” + push to start.

For pistol models, only push-button starting is available.

FRONT ILLUMINATION LED

with intensity adjustable from 0 to 100%.

UNTIGHTENING FUNCTION

activable/deactivable. Settable untightening speed.

SOFT START

function settable: it is possible to set the time acceleration to ease screw engagement

TOOL SPEED

can be freely set within minimum and maximum range, both in tightening and in untightening.

Other additional adjustable features:

PRE-AUTO UNTIGHTENING

it is possible to set the **untightening angle and the pause between the untightening and the subsequent tightening.** This strategy finds its application in the electrical / electronic field, for example when it is necessary to open and then close connectors to insert electrical wires.

POST-AUTO UNTIGHTENING

the **untightening angle** is settable as well as the time pause of left rotation start after the tightening end.

STOP-BY-TIME TIGHTENING

when it is necessary to tighten in **depth and not to defined torque**, by controlling the cycle with set tightening time.

SCREWDRIVERS WITH MECHANICAL CLUTCH AND AUTOMATIC SHUT OFF

FUNCTIONALITY	STRAIGHT MODELS		ANGLE MODELS		PISTOL MODELS	
	With TPU-1 TPU-2	With TPU-M1	With TPU-1 TPU-2	With TPU-M1	With TPU-1 TPU-2	With TPU-M1
START UP	4 type	4 type	Lever start only	Lever start only	Push-button only	Push-button only
SMART PRO from the tool via lever/button	●		●			●
SMART PRO from the unit		●		●		●
Reduced-Effort Start Up	●	●	●	●	●	●
UNTIGHTENING ACTIVABLE/DEACTIVABLE	●	●	●	●	●	●
BLU LED Untightening	●	●	●	●	●	●
WHITE LED Ready	●	●	●	●	●	●
WHITE+BLU LED Alert	●	●	●	●	●	●
FRONT ILLUMINATION LED On/Off	●					
FRONT ILLUMINATION LED Adjustable		●				
GREEN LED tightening OK					●	●
RED LED tightening NOK					●	●
YELLOW LED tool in RUN phase					●	●
FLASHING RED LED alarm signal					●	●
TOOL SPEED	low/high	adjustable	low/high	adjustable	low/high	adjustable
SOFT START high / slow from stopped to rated speed	●		●		●	
INHIBITION OF UNTIGHTENING	●	●	●	●	●	●
UNTIGHTENING with adjustable speed		●		●		●
SOFT START adjustable		●		●		●
PRE AND POST AUTO UNTIGHTENING by 4 turns (1440 degrees)	●		●		●	●
PRE AND POST AUTO UNTIGHTENING adjustable		●		●		●
STOP-BY-TIME TIGHTENING tighten in depth and not to torque		●		●		●
EXTERNAL CLUTCH Adjustable	●	●				
PICK AND PLACE SYSTEMS	●	●				
ESD	●	●	●	●	●	●
Interconnection CLOUD		●		●		●
Software TOOLMANAGER		●		●		●
Connecting cable (3 mt) included	●	●	●	●	●	●
Extended warranty 24 months/1 million cycles	●	●	●	●	●	●

Screwdrivers technical features: straight and angle models

	Type of screwdriver		Grip	Tightening torque		*Idle speed range with TPU-M1	*Idle speed slow-L / fast-H with TPU-1 and TPU-2	Starting system	Reversibility	Weight		Dimensions mm	Power consumption	Accessories
	Model	Code	Type	Nm	in lb	r.p.m.	r.p.m.	Type	Type	kg	lb	L x Ø	Volt	Drive
STRAIGHT MODELS	E8C1A-1200	111712011		0,3÷1,6	2,6÷14.1	590÷1180	980 / 1180	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C1A-900	111712012		0,3÷1,6	2,6÷14.1	435÷870	740 / 870	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C1A-650	111712013		0,3÷1,6	2,6÷14.1	320÷640	530 / 640	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C2A-2000	111712000		0,6÷2,5	5,3÷22.1	1000÷2000	1650 / 2000	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C3A-1200	111712001		0,6÷3,0	5,3÷26.5	590÷1180	980 / 1180	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C3A-900	111712002		0,6÷3,5	5,3÷31.0	435÷870	740 / 870	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C4A-650	111712003		0,6÷4,0	5,3÷35.4	320÷640	530 / 640	*		0,78	1.72	257x39	32	⊕ F1/4"
	E8C5A-350	111712004		0,6÷4,5	5,3÷39.8	170÷340	285 / 340	*		0,78	1.72	257x39	32	⊕ F1/4"
MODELS WITH EXTERNAL CLUTCH ADJUSTMENT	E8C1ARE-1200	111712076		0,3÷1,6	2,6÷14.1	590÷1180	980 / 1180	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C1ARE-900	111712077		0,3÷1,6	2,6÷14.1	435÷870	740 / 870	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C1ARE-650	111712078		0,3÷1,6	2,6÷14.1	320÷640	530 / 640	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C2ARE-2000	111712070		0,6÷2,5	5,3÷22.1	1000÷2000	1650 / 2000	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C3ARE-1200	111712071		0,6÷3,0	5,3÷26.5	590÷1180	980 / 1180	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C3ARE-900	111712072		0,6÷3,5	5,3÷31.0	435÷870	740 / 870	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C4ARE-650	111712073		0,6÷4,0	5,3÷35.4	320÷640	530 / 640	lever start		0,84	1.85	287x39	32	⊕ F1/4"
	E8C5ARE-350	111712074		0,6÷4,5	5,3÷39.8	170÷340	285 / 340	lever start		0,84	1.85	287x39	32	⊕ F1/4"
90° ANGLE MODELS	E8C2A90-2000	111712030		0,6÷2,5	5,3÷22.1	1000÷2000	1650 / 2000	lever start		0,84	1.85	309x39	32	□ M1/4"
	E8C3A90-1200	111712031		0,6÷3,0	5,3÷26.5	590÷1180	980 / 1180	lever start		0,84	1.85	309x39	32	□ M1/4"
	E8C3A90-900	111712032		0,6÷3,5	5,3÷31.0	435÷870	740 / 870	lever start		0,84	1.85	309x39	32	□ M1/4"
	E8C4A90-650	111712033		0,6÷4,0	5,3÷35.4	320÷640	530 / 640	lever start		0,84	1.85	309x39	32	□ M1/4"
	E8C5A90-350	111712034		0,6÷4,5	5,3÷39.8	170÷340	285 / 340	lever start		0,84	1.85	309x39	32	□ M1/4"
	E8C2A90-2000-BITS	111712040		0,6÷2,5	5,3÷22.1	1000÷2000	1650 / 2000	lever start		0,84	1.85	309x39	32	⊕ F1/4" BITS
	E8C3A90-1200-BITS	111712041		0,6÷3,0	5,3÷26.5	590÷1180	980 / 1180	lever start		0,84	1.85	309x39	32	⊕ F1/4" BITS
	E8C3A90-900-BITS	111712042		0,6÷3,5	5,3÷31.0	435÷870	740 / 870	lever start		0,84	1.85	309x39	32	⊕ F1/4" BITS
	E8C4A90-650-BITS	111712043		0,6÷4,0	5,3÷35.4	320÷640	530 / 640	lever start		0,84	1.85	309x39	32	⊕ F1/4" BITS
	E8C5A90-350-BITS	111712044		0,6÷4,5	5,3÷39.8	170÷340	285 / 340	lever start		0,84	1.85	309x39	32	⊕ F1/4" BITS
30° ANGLE MODELS	E8C2A30-2000	111712035		0,6÷2,5	5,3÷22.1	1000÷2000	1650 / 2000	lever start		0,84	1.85	322x39	32	□ M1/4"
	E8C3A30-1200	111712036		0,6÷3,0	5,3÷26.5	590÷1180	980 / 1180	lever start		0,84	1.85	322x39	32	□ M1/4"
	E8C3A30-900	111712037		0,6÷3,5	5,3÷31.0	435÷870	740 / 870	lever start		0,84	1.85	322x39	32	□ M1/4"
	E8C4A30-650	111712038		0,6÷4,0	5,3÷35.4	320÷640	530 / 640	lever start		0,84	1.85	322x39	32	□ M1/4"
	E8C5A30-350	111712039		0,6÷4,5	5,3÷39.8	170÷340	285 / 340	lever start		0,84	1.85	322x39	32	□ M1/4"

Legend

E8C4A-650 = Electric screwdriver with torque control with mechanical clutch
E = Electric
8 = Power of motor in watt/10
C = Screwdriver

4 = Maximum tightening torque in Nm
A = With automatic power-off
90 = 90° angle model
30 = 30° angle model
RE = External clutch adjustment

650 = Speed
BITS = female hexagonal output coupling for inserting tools

Legend

Reversibility: all models are suitable for tightening and untightening operation

♦ Tools speed range varies according to the unit used:
 - with **TPU-1** and **TPU-2**, the LOW (slow) speed is approximately equal to 80% of the max speed indicated in the table and can only be set through the LOW/HIGH (slow / fast) speed setting
 - with **TPU-M1**, the speed is adjustable and the minimum speed value is equal to 50% of the max speed, as indicated in the table.

* Starting system: 4 modalities availables for straight models

Lever start
 ↓ Push to start
 + ↓ Lever start + push to start
 - ↓ Latched lever + push to start

• Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173); Male square drive (ISO 1174).
 • The code number must be used when ordering.

Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening speed, assembly conditions (free standing screwdriver, screwdriver mounted on a torque arm), operator behavior during the tightening phase.
 For any further details, please address to Fiam Technical Service.

Screwdrivers technical features: pistol models

Type of screwdriver	Code	Grip	Tightening torque		*Idle speed range with TPU-M1	*Idle speed slow-L / fast-H with TPU-1 and TPU-2	Starting system	Reversibility	Weight		Dimensions mm	Power consumption	Accessories
			Min. / Max.						kg	lb			
Model		Type	Nm	in lb	r.p.m.	r.p.m.	Type	Type			L x H x Ø	Volt	Drive
E8C1AP-1200	111712149		0,3÷1,6	2,6÷14,1	590÷1180	980 / 1180	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C1AP-900	111712150		0,3÷1,6	2,6÷14,1	435÷870	740 / 870	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C1AP-650	111712151		0,3÷1,6	2,6÷14,1	320÷640	530 / 640	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C2AP-2000	111712144		0,6÷2,5	5,3÷22,1	1000÷2000	1650 / 2000	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C3AP-1200	111712145		0,6÷3,0	5,3÷26,5	590÷1180	980 / 1180	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C3AP-900	111712146		0,6÷3,5	5,3÷31,0	435÷870	740 / 870	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C4AP-650	111712147		0,6÷4,0	5,3÷35,4	320÷640	530 / 640	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C5AP-350	111712148		0,6÷4,5	5,3÷39,8	170÷340	285 / 340	P		0,85	1,87	251x174x44	32	⊖ F1/4"
E8C1APT-1200	111712157		0,3÷1,6	2,6÷14,1	590÷1180	980 / 1180	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C1APT-900	111712158		0,3÷1,6	2,6÷14,1	435÷870	740 / 870	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C1APT-650	111712159		0,3÷1,6	2,6÷14,1	320÷640	530 / 640	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C2APT-2000	111712152		0,6÷2,5	5,3÷22,1	1000÷2000	1650 / 2000	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C3APT-1200	111712153		0,6÷3,0	5,3÷26,5	590÷1180	980 / 1180	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C3APT-900	111712154		0,6÷3,5	5,3÷31,0	435÷870	740 / 870	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C4APT-650	111712155		0,6÷4,0	5,3÷35,4	320÷640	530 / 640	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C5APT-350	111712156		0,6÷4,5	5,3÷39,8	170÷340	285 / 340	PT		0,85	1,87	251x177x44	32	⊖ F1/4"
E8C1APU-1200	111712165		0,3÷1,6	2,6÷14,1	590÷1180	980 / 1180	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C1APU-900	111712166		0,3÷1,6	2,6÷14,1	435÷870	740 / 870	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C1APU-650	111712167		0,3÷1,6	2,6÷14,1	320÷640	530 / 640	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C2APU-2000	111712160		0,6÷2,5	5,3÷22,1	1000÷2000	1650 / 2000	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C3APU-1200	111712161		0,6÷3,0	5,3÷26,5	590÷1180	980 / 1180	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C3APU-900	111712162		0,6÷3,5	5,3÷31,0	435÷870	740 / 870	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C4APU-650	111712163		0,6÷4,0	5,3÷35,4	320÷640	530 / 640	PU		0,85	1,87	251x175x44	32	⊖ F1/4"
E8C5APU-350	111712164		0,6÷4,5	5,3÷39,8	170÷340	285 / 340	PU		0,85	1,87	251x175x44	32	⊖ F1/4"

Legend

E8C1AP-1200 = Electric screwdriver with torque control with mechanical clutch
E = Electric

8 = Power of motor in watt/10
C = Screwdriver
1 = Maximum tightening torque in Nm

A = With automatic power-off
P = Pistol Grip
1200 = Speed

Legend

Reversibility: all models are suitable for tightening and untightening operation
 † Tools speed range varies according to the unit used:
 - with **TPU-1** and **TPU-2**, the LOW (slow) speed is approximately equal to 80% of the max speed indicated in the table and can only be set through the LOW/HIGH (slow / fast) speed setting
 - with **TPU-M1**, the speed is adjustable and the minimum speed value is equal to 50% of the max speed, as indicated in the table.

Type of feeding/Push button start up

P= Pistol
 With feeding from the **BOTTOM**
PT = Pistol Top
 With feeding from the **TOP**
PU= Pistol UpGrip
 With feeding from the **TOP**

• Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173).
 • The code number must be used when ordering.
 Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening speed, assembly conditions (free standing screwdriver, screwdriver mounted on a torque arm), operator behavior during the tightening phase.
 For any further details, please address to **Fiam Technical Service**.

Standard equipment (supplied with the tool)

- Connection cable to power supply unit (code 686903834); lenght 3 mt and with error proof connection system
- Clutch adjustment key (except for models with external adjustment)

- Hanging ring
- Eco-friendly packaging
- Use and maintenance manual.

Accessories available upon request

Discover the many accessories from page 30 of this catalogue.

Power supply unit technical features

Model	Code	Speed	Nr. of connectable tools	Tool feed tension	Feed input	I/O	Visual indicators	Weight kg lb	L x Width x H mm
TPU-1	686200100	LOW / HIGH (slow / fast)	1	32 VDC	230 Vac ±10% 50-60 Hz	-	6 LED	0,6 1.32	185x150x63
TPU-1 120V	686200102	LOW / HIGH (slow / fast)	1	32 VDC	120 Vac ±10% 50-60 Hz	-	6 LED	0,6 1.32	185x150x63
TPU-2	686200101	LOW / HIGH (slow / fast)	1	32 VDC	230 Vac ±10% 50-60 Hz	5 inputs 5 outputs	6 LED	0,6 1.32	185x150x63
TPU-2 120V	686200103	LOW / HIGH (slow / fast)	1	32 VDC	120 Vac ±10% 50-60 Hz	5 inputs 5 outputs	6 LED	0,6 1.32	185x150x63

Monitoring unit technical features

Model	Code	Speed	Nr. of connectable tools	Tool feed tension	Feed input	I/O	Visual indicators	Weight kg lb	L x Width x H mm
TPU-M1	686200109	Adjustable	1	32 VDC	230 Vac ±10% 50-60 Hz	8 inputs 8 outputs	7 LED DISPLAY	0,8 1.76	185x150x105
TPU-M1 120V	686200110	Adjustable	1	32 VDC	120 Vac ±10% 50-60 Hz	8 inputs 8 outputs	7 LED DISPLAY	0,8 1.76	185x150x105

Standard equipment

- I/O Connector (only for TPU-2 model)
- Use and maintenance manual
- Eco-friendly packaging
- The TPU-M1 unit is equipped with adjustable tilt foot

AutoPowerOn Models

- Enable automatic power-on of the unit, allowing the entire workstation to be managed with a single main switch.
- TPU-M1 AutoPowerOn. Code 686200114
 - TPU-M1 120V AutoPowerOn. Code 686200118

Accessories available upon request

- **Fixing plate to position** the power supply unit on any surface. It is supplied complete with screws, and can be anchored vertically or on a horizontal support (code 692080000).

Discover the many accessories from page 30 of this catalogue.



eTensil screwdrivers, nutrunner motors and TPU control units, are covered by an extended warranty of 24 months or 1.000.000 cycles (first goal achieved).

Production flexibility.



Flexibility in operational lines is a constant need and having tools that intelligently adapt to the **variability of production batches** and therefore the screws to be used depending on the numerous variations of components, represents a fundamental element of choice.

Torque/angle current control system

This technology offers the **possibility of adjusting the torque during operation**. This can be done simply **by changing the specific parameter on the control unit**, which is the “smart core” of this range of solutions. In this system the torque is **detected by measuring the current used by the motor**. The angle is detected through specific Hall sensors built-in.

“Smart Pro Evo” Programming from the unit

From the control unit it's possible to change screwdriver starting mode without modifying the mechanical configuration.

■ START-UP For straight models, 4 modalities are available:

- lever start
- push-to-start
- lever start + push-to-start
- “latched lever” + push-to-start

For pistol models: • push-button start For straight and 90° angle models with high torques above 4 Nm:

- lever start

■ Other functions can be activated / deactivated acting directly on the control unit

- **CONFIRMATION REQUESTED FOR ANOMALY** (by pressing ESC button)

Unit light LEDs

- **CONFIRMATION REQUESTED FOR END OF CYCLE** (by press ENTER button)
- **UNTIGHTENING**
- **CLOCKWISE** or tightening **COUNTERCLOCKWISE** tightening.

The main feature of these advanced units is the **possibility to set different control functions**:

- **SOFT START**
the ramp speed acceleration is not fixed but it is possible to set the **time** acceleration to ease screw engagement
- **TOOL SPEED**
can be set within the minimum / maximum range
- **MANAGEMENT OF ALLOWED ERRORS**
- **FRONT LED LIGHTING** adjustable with intensity from 0 to 100%.

The **high-visibility** LEDs, with adjustable intensity, placed above the display, allow immediate viewing of the process status. For a synchronized and efficient tightening management:
Red LED = Nok
Yellow LED = End of cycle
Green LED = Cycle progress (screws tightened) according to the set number of screws.

Two control units: TPU-C1 and TPU-C3

The two control units, TPU-C1 basic model and TPU-C3 advanced model, with a fast and intuitive programming, offer essential functions to correctly and quickly manage a tightening process and make it reliable as well as versatile.



AUTOMATICALLY AND IMMEDIATELY RECOGNIZING THE CONNECTED TOOL

and setting the applicable parameters range for it.

ALLOW IN-PROCESS TORQUE ADJUSTMENTS

by modifying the relevant parameter on the operating panel.

SCREW COUNTING

this function turns the system into an effective Poka Yoke device. The tightening results are visualized on the unit display, highlighted by the leds.

STORING

the outcome of the last 99 tightening.

CHECK TIGHTENING TIME

to detect process anomalies like over-treating and already tightened screws.

COMMUNICATION WITH MASTER PLC

and others devices: **8 + 8 signals I/O** freely programmable that offer several functionalities to be chosen from 9 + 11 signals (TPU-C1) and 21 + 22 signals (TPU-C3). Allow to communicate:

- outcome of a phase
- system status
- the remote control of the tool.

And, thanks to the **Program Source** function, when external devices – such as automatic accessory selectors – are connected, it is possible to manage the program-selection mode.

DISPLAYING OF TIGHTENING RESULTS

TPU-C1 model:

- OK/ NOK status
- torque value in Nm or other unit of measurement
- tightening time value

TPU-C3 model:

- OK/ NOK status
- torque value in Nm in Nm or other unit of measurement
- tightening time value
- angle value.

INTERFACING WITH WORKING STATIONS

in presence of Jigs, workpieces locking devices can be activated/deactivated.

“SMART THREAD” FUNCTION

for processing of self-threading, self-tapping, self-drilling screws, or else where the **final torque value is lower than thread forming torque.**

“SMART SPEED” FUNCTION

useful for speeding up the production process. It is possible to create a “two-phase” tightening strategy:

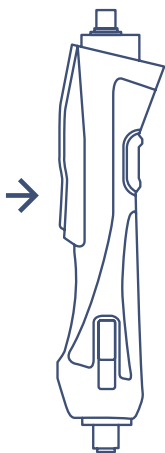
- The first with a high-speed screwdriver rotation until reaching the set angle
- The second with a pre-defined speed that allows to maintain the accuracy of the result.

S.R.O. FUNCTION:

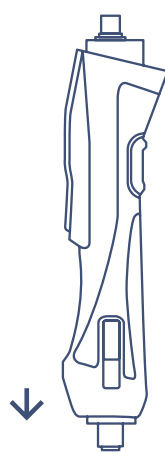
The Smart Range Optimizer function, when activated, **automatically identifies the appropriate final speed range** to achieve the best tightening result based on the set torque.

- the unit analyzes the set torque value and **dynamically calculates the optimal speed range**, which varies according to the connected screwdriver model
- the operator can select the most suitable speed for the application within the most appropriate speed range

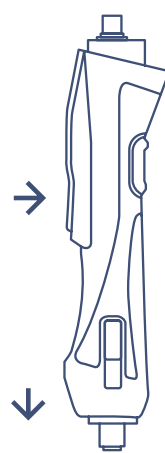
This function **prevents over-torque errors** that may compromise tightening quality and improves the reliability of the tightening cycle.



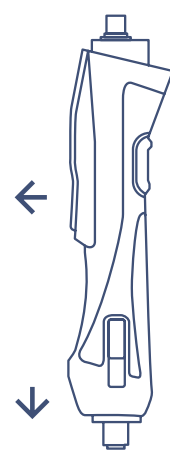
Lever start



Push to start



Lever start + push to start



* “Latched lever” + push to start

* The “latched lever” + push to start mode allows the screwdriver to work without need to keep the lever pressed. For safety, the screwdriver activates only when pushing on the bit. In this mode, the first pressure applied to the lever starts the screwdriver until clutch shuts off, whereas a second pressure can eventually stop it before the working cycle is completed.

TPU-C3 control unit. Advanced model with additional features.

The advanced TPU-C3 control unit is equipped with all the features of the basic model. It guarantees the status control of the tool and of the assembly process with **additional programming features**.

Programming

Possibility to set up to **8 tightening programs with torque, angle and time control/monitoring**. **The programs can be managed in sequence and can also be selected remotely in single mode or with binary combination**, which allow to **set both the number of screws and the torque/angle/time values**.

- The **RETENTION** function makes the operator's work more intuitive and immediate: **it allows you to set a waiting interval between one program and the next**.

At the end of each program, the system keeps the results (torque, angle, OK/NOK status, etc.) visible for a few seconds, enabling clear reading before the automatic switch to the following program.

Displaying all tightening parameters

The advanced TPU-C3 model provides:

- the **display of the angle value** detected during tightening
- the **OK/NOK status**
- the **torque value in Nm** or another selectable unit of measurement
- the **tightening time**

To always keep the assembly process under control.

Monitoring of the tightening angle

Another key difference comparing this unit with the basic version TPU-C1 is represented by this functionality. For example, **it can work as Poka Yoke system when tightening critical joints**. Should you have elastic gaskets, rubber elements or other materials, **the control unit verifies that these are present or not during the process**. This is made by measuring the angle and comparing it with a range set by the operator during the programming phase. A fundamental measure for the productivity and quality of the finished product.

Smart Pro Evo additional functions

Other additional settable features are:

- **PRE-AUTO UNTIGHTENING:** it is possible to set the **untightening angle and the pause between the untightening and the subsequent tightening**. This strategy finds its application in the electrical / electronic field, for example when it is necessary to open and then close connectors to insert electrical wires.
- **POST-AUTO UNTIGHTENING:** it is possible to set the **untightening angle** as the pause **time** between untightening and subsequent tightening.
- **STOP-BY-TIME TIGHTENING** when it is necessary to tighten threaded fasteners to a certain **height and not to a defined torque**. This is made by checking the tightening time.

TPU-C3 control unit, advanced model



Functionalities compared

TPU-C1	TPU-C3
<ul style="list-style-type: none"> • 1 program to control tightening process 	<ul style="list-style-type: none"> • 8 programs to control the tightening process
<ul style="list-style-type: none"> • Automatic recognition of the tool and configuration 	<ul style="list-style-type: none"> • 1 programmable sequence up to a max of 8 steps
<ul style="list-style-type: none"> • Screw counter - Poka Yoke system 	<ul style="list-style-type: none"> • Retention: programmable waiting interval between programs
<ul style="list-style-type: none"> • OK / NOK and torque value display in Nm or other unit of measurement 	<ul style="list-style-type: none"> • Automatic recognition of the tool and configuration
<ul style="list-style-type: none"> • “Smart Thread” function 	<ul style="list-style-type: none"> • Screw counter - Poka Yoke system
<ul style="list-style-type: none"> • “Smart Speed” function 	<ul style="list-style-type: none"> • OK/NOK and torque value display in Nm or other unit of measurement
<ul style="list-style-type: none"> • Min / Max tightening time control - Poka Yoke system 	<ul style="list-style-type: none"> • “Smart Thread” function
<ul style="list-style-type: none"> • Settable untightening speed 	<ul style="list-style-type: none"> • “Smart Speed” function
<ul style="list-style-type: none"> • Clockwise or Counterclockwise tightening 	<ul style="list-style-type: none"> • Min / Max tightening time control - Poka Yoke system
<ul style="list-style-type: none"> • 2 levels password: to protect the set parameters or totally block the system 	<ul style="list-style-type: none"> • Settable untightening speed
<ul style="list-style-type: none"> • Unit calibration 	<ul style="list-style-type: none"> • Clockwise or Counterclockwise tightening
<ul style="list-style-type: none"> • Available measurement units Nm / Lb / In. / Kgf.cm 	<ul style="list-style-type: none"> • 2 levels password: to protect the set parameters or totally block the system
<ul style="list-style-type: none"> • Serial communication (RS232) 	<ul style="list-style-type: none"> • Unit calibration
<ul style="list-style-type: none"> • Language selection (IT, EN, DE, FR, ES, TR) 	<ul style="list-style-type: none"> • Available measurement units Nm / Lb / In. / Kgf.cm
<ul style="list-style-type: none"> • Log of the last 99 tightenings 	<ul style="list-style-type: none"> • Serial communication (RS232)
<ul style="list-style-type: none"> • Interfacing with working stations 	<ul style="list-style-type: none"> • Language selection (IT, EN, DE, FR, ES, TR)
<ul style="list-style-type: none"> • 8 + 8 programmable I/O (9 + 11 signal types) 	<ul style="list-style-type: none"> • Log of the last 99 tightenings
<ul style="list-style-type: none"> • Industry 4.0: ready to access the FIAM 4.0/OPC-UA cloud 	<ul style="list-style-type: none"> • Interfacing with working stations
<p>SMART PRO EVO PROGRAMMING</p> <ul style="list-style-type: none"> - 4 start-up modes selectable on the unit - Soft Start - acceleration ramp - Settable rotation speed - S.R.O. Speed Range Optimizer 	<ul style="list-style-type: none"> • 8 + 8 programmable I/O (21 + 22 signal types) • Industry 4.0: ready to access the FIAM 4.0/OPC-UA cloud • Selection of programs from I / 0 (remotely) • Min / Max tightening angle control - Poka Yoke system
<p>TIGHTENING STRATEGIES</p> <ul style="list-style-type: none"> ▪ Torque control ▪ Torque control with tightening time monitoring 	<p>SMART PRO EVO PROGRAMMING</p> <ul style="list-style-type: none"> - 4 start-up modes selectable on the unit - Soft Start - acceleration ramp - Settable rotation speed - S.R.O. Speed Range Optimizer • Pre-auto Untightening (can be activated with all tightening strategies) • Post-auto Untightening (can be activated with all tightening strategies)
	<p>TIGHTENING STRATEGIES</p> <ul style="list-style-type: none"> ▪ Torque control ▪ Torque control with tightening time monitoring ▪ Torque control with tightening angle monitoring ▪ Torque control with time and tightening angle monitoring ▪ Angle control and torque and time monitoring ▪ Time control and torque and angle monitoring (Stop-by-time tightening)

Additional features of TPU-C3 compared to the basic unit are highlighted in red on the chart above

SCREWDRIVERS WITH TORQUE/ANGLE CURRENT CONTROL

FUNCTIONALITY	STRIGHT MODELS		ANGLE MODELS		PISTOL MODELS	
	With TPU-C1	With TPU-C3	With TPU-C1	With TPU-C3	With TPU-C1	With TPU-C3
START UP	4 type (models E8CC10/14A... lever start only)	4 type (models E8CC10/14A... lever start only)	Lever start only	Lever start only	Push-button only	Push-button only
SMART PRO from the unit	●	●	●	●	●	●
Reduced-Effort Start Up	●	●	●	●	●	●
UNTIGHTENING ACTIVABLE/DEACTIVABLE	●	●	●	●	●	●
BLU LED Untightening	●	●	●	●	●	●
WHITE LED Ready	●	●	●	●	●	●
WHITE+BLU LED Alert	●	●	●	●	●	●
FRONT ILLUMINATION LED Adjustable	● (except for models E8CC10/14A...)	●				
GREEN LED tightening OK					●	●
RED LED tightening NOK					●	●
YELLOW LED tool in RUN phase					●	●
FLASHING RED LED alarm signal					●	●
TOOL SPEED	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable
SOFT START	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable
SMART THREAD	●	●	●	●	●	●
SMART SPEED “two-phase” tightening	●	●	●	●	●	●
S.R.O. Speed Range Optimizer	●	●	●	●	●	●
PRE AND POST AUTO UNTIGHTENING adjustable		●		●		●
STOP-BY-TIME TIGHTENING tighten in depth and not to torque		●		●		●
PICK AND PLACE SYSTEMS	●	●				
ESD	●	●	●	●	●	●
Interconnection CLOUD	●	●	●	●	●	●
Software TOOLMANAGER	●	●	●	●	●	●
Connecting cable (3 mt) included	●	●	●	●	●	●
Extended warranty 24 months/1 million cycles	●	●	●	●	●	●

Screwdrivers technical features: straight and angle models

	Type of screwdriver		Grip	Tightening torque on soft joint		Idle speed range	Starting system	Reversibility	Weight		Dimensions mm	Power consumption	Accessories
	Model	Code	Type	Min. / Max. Nm	Min. / Max. in lb	Min. / Max. r.p.m.	Type	Type	kg	lb	L x Ø	Volt	Drive
STRAIGHT MODELS	E8CC2A-2000	111712100		0,3 ÷ 2	2.6 ÷ 17.7	300 ÷ 2000	*		0,76	1.68	257x39	32	⬡ F1/4"
	E8CC3A-1200	111712101		0,3 ÷ 3	2.6 ÷ 26.5	180 ÷ 1200	*		0,76	1.68	257x39	32	⬡ F1/4"
	E8CC4A-900	111712102		0,3 ÷ 4	2.6 ÷ 35.4	135 ÷ 900	*		0,76	1.68	257x39	32	⬡ F1/4"
	E8CC5A-650	111712103		0,3 ÷ 5	2.6 ÷ 44.2	100 ÷ 650	*		0,76	1.68	257x39	32	⬡ F1/4"
	E8CC7A-350	111712104		0,4 ÷ 7	3.5 ÷ 61.9	55 ÷ 350	*		0,76	1.68	257x39	32	⬡ F1/4"
	E8CC10A-200	111712201		3 ÷ 10	26.5 ÷ 88.5	30 ÷ 200	lever start		0,80	1.76	255,5x40	32	⬡ F1/4"
	E8CC14A-160	111712202		4 ÷ 14	35.4 ÷ 123.9	25 ÷ 160	lever start		0,80	1.76	255,5x40	32	⬡ F1/4"
30° ANGLE MODELS	E8CC2A30-2000	111712135		0,3 ÷ 2	2.6 ÷ 17.7	300 ÷ 2000	lever start		0,76	1.68	322x39	32	□ M1/4"
	E8CC3A30-1200	111712136		0,3 ÷ 3	2.6 ÷ 26.5	180 ÷ 1200	lever start		0,76	1.68	322x39	32	□ M1/4"
	E8CC4A30-900	111712137		0,3 ÷ 4	2.6 ÷ 35.4	135 ÷ 900	lever start		0,76	1.68	322x39	32	□ M1/4"
	E8CC5A30-650	111712138		0,3 ÷ 4,5	2.6 ÷ 39.8	100 ÷ 650	lever start		0,76	1.68	322x39	32	□ M1/4"
90° ANGLE MODELS	E8CC2A90-2000	111712130		0,3 ÷ 2	2.6 ÷ 17.7	300 ÷ 2000	lever start		0,76	1.68	309x39	32	□ M1/4"
	E8CC3A90-1200	111712131		0,3 ÷ 3	2.6 ÷ 26.5	180 ÷ 1200	lever start		0,76	1.68	309x39	32	□ M1/4"
	E8CC4A90-900	111712132		0,3 ÷ 4	2.6 ÷ 35.4	135 ÷ 900	lever start		0,76	1.68	309x39	32	□ M1/4"
	E8CC5A90-650	111712133		0,3 ÷ 4,5	2.6 ÷ 39.8	100 ÷ 650	lever start		0,76	1.68	309x39	32	□ M1/4"
	E8CC8A90-250	111712134		0,5 ÷ 8	4.4 ÷ 70.8	40 ÷ 250	lever start		0,93	2.05	309x39	32	□ M3/8"
	E8CC10A90-140	111712203		5 ÷ 12	44.2 ÷ 106.2	20 ÷ 140	lever start		1,20	2.64	344,5x40	32	□ M3/8"
	E8CC14A90-100	111712204		6 ÷ 16	53.1 ÷ 141.6	16 ÷ 100	lever start		1,20	2.64	344,5x40	32	□ M3/8"
	E8CC2A90-2000-BITS	111712140		0,3 ÷ 2	2.6 ÷ 17.7	300 ÷ 2000	lever start		0,76	1.68	309x39	32	⬡ F1/4" BITS
	E8CC3A90-1200-BITS	111712141		0,3 ÷ 3	2.6 ÷ 26.5	180 ÷ 1200	lever start		0,76	1.68	309x39	32	⬡ F1/4" BITS
	E8CC4A90-900-BITS	111712142		0,3 ÷ 4	2.6 ÷ 35.4	135 ÷ 900	lever start		0,76	1.68	309x39	32	⬡ F1/4" BITS
	E8CC5A90-650-BITS	111712143		0,3 ÷ 4,5	2.6 ÷ 39.8	100 ÷ 650	lever start		0,76	1.68	309x39	32	⬡ F1/4" BITS

Legend

E8CC2A-2000 = Electric screwdriver with torque/angle current control system
E = Electric
8 = Power of motor in watt/10
C = Screwdriver
C = Torque/angle current control system

2 = Maximum tightening torque in Nm
A = With automatic power-off
90 = 90° angle model
30 = 30° angle model
2000 = Speed
BITS = Female hexagonal output coupling for inserting tools

All screwdrivers are supplied with a working speed equal to 15% of the nominal one to guarantee tightening quality and precision. In order to obtain the nominal torque and speed range, it is necessary to set parameters following the instructions given in Use and Maintenance Manual. For any further information, contact the Fiam Technical Service.

Legend

Reversibility: all models are suitable for tightening and untightening operation

* Starting system: 4 available modalities for straight models

- Lever start
- Push to start
- Lever start + push to start
- Latched lever + push to start

The "latched lever" + push to start mode allows the screwdriver to work without need to keep the lever pressed. For safety, the screwdriver activates only when pushing on the bit. In this mode, the first pressure applied to the lever starts the screwdriver until clutch shuts off, whereas a second pressure can eventually stop it before the working cycle is completed.

• Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173); Male square drive (ISO 1174).

• The code number must be used when ordering.

Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening speed, assembly conditions (free standing screwdriver, screwdriver mounted on a torque arm), operator behavior during the tightening phase. For any further details, please address to Fiam Technical Service.

Screwdrivers technical features: pistol models

Type of screwdriver	Code	Grip Type	Tightening torque on soft joint		Idle speed range	Starting system	Reversibility	Weight		Dimensions mm	Power consumption	Accessories
			Min. / Max.					kg	lb			
Model		Type	Nm	in lb	r.p.m.	Type	Type			L x Ø	Volt	Drive
E8CC2AP-2000	111712176		0,3 ÷ 2,0	2,6 ÷ 17,7	300 ÷ 2000	P		0,67	1,32	196x174x44	32	⊕ F1/4"
E8CC3AP-1200	111712177		0,3 ÷ 3,0	2,6 ÷ 26,5	180 ÷ 1200	P		0,67	1,32	196x174x44	32	⊕ F1/4"
E8CC4AP-900	111712178		0,3 ÷ 4,0	2,6 ÷ 35,4	135 ÷ 900	P		0,67	1,32	196x174x44	32	⊕ F1/4"
E8CC5AP-650	111712179		0,3 ÷ 5,0	2,6 ÷ 44,2	100 ÷ 650	P		0,67	1,32	196x174x44	32	⊕ F1/4"
E8CC7AP-350	111712180		0,4 ÷ 7,0	3,5 ÷ 61,9	55 ÷ 350	P		0,67	1,32	196x174x44	32	⊕ F1/4"
E8CC2APT-2000	111712181		0,3 ÷ 2,0	2,6 ÷ 17,7	300 ÷ 2000	PT		0,67	1,32	196x177x44	32	⊕ F1/4"
E8CC3APT-1200	111712182		0,3 ÷ 3,0	2,6 ÷ 26,5	180 ÷ 1200	PT		0,67	1,32	196x177x44	32	⊕ F1/4"
E8CC4APT-900	111712183		0,3 ÷ 4,0	2,6 ÷ 35,4	135 ÷ 900	PT		0,67	1,32	196x177x44	32	⊕ F1/4"
E8CC5APT-650	111712184		0,3 ÷ 5,0	2,6 ÷ 44,2	100 ÷ 650	PT		0,67	1,32	196x177x44	32	⊕ F1/4"
E8CC7APT-350	111712185		0,4 ÷ 7,0	3,5 ÷ 61,9	55 ÷ 350	PT		0,67	1,32	196x177x44	32	⊕ F1/4"
E8CC2APU-2000	111712186		0,3 ÷ 2,0	2,6 ÷ 17,7	300 ÷ 2000	PU		0,67	1,32	196x175x44	32	⊕ F1/4"
E8CC3APU-1200	111712187		0,3 ÷ 3,0	2,6 ÷ 26,5	180 ÷ 1200	PU		0,67	1,32	196x175x44	32	⊕ F1/4"
E8CC4APU-900	111712188		0,3 ÷ 4,0	2,6 ÷ 35,4	135 ÷ 900	PU		0,67	1,32	196x175x44	32	⊕ F1/4"
E8CC5APU-650	111712189		0,3 ÷ 5,0	2,6 ÷ 44,2	100 ÷ 650	PU		0,67	1,32	196x175x44	32	⊕ F1/4"
E8CC7APU-350	111712190		0,4 ÷ 7,0	3,5 ÷ 61,9	55 ÷ 350	PU		0,67	1,32	196x175x44	32	⊕ F1/4"

Legend

E8CC2AP-2000 = Electric screwdriver with torque/angle current control system
E = Electric
8 = Power of motor in watt/10

C = Screwdriver
C = Torque/angle current control system
2 = Maximum tightening torque in Nm
A = With automatic power-off

P = Pistol grip
2000 = Speed

All screwdrivers are supplied with a working speed equal to 15% of the nominal one to guarantee tightening quality and precision. In order to obtain the nominal torque and speed range, it is necessary to set parameters following the instructions given in Use and Maintenance Manual. For any further information, contact the Fiam Technical Service.

Legend	Type of feeding/Push button start up	
Reversibility: all models are suitable for tightening and untightening operation	P= Pistol, With feeding from the BOTTOM PT = Pistol Top With feeding from the TOP PU= Pistol UpGrip With feeding from the TOP	<ul style="list-style-type: none"> Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173). The code number must be used when ordering. <p>Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening speed, assembly conditions (free standing screwdriver, screwdriver mounted on a torque arm), operator behavior during the tightening phase. For any further details, please address to Fiam Technical Service.</p>

Standard equipment (supplied with the tool)

• Connection cable to control unit (code 686903834); length 3 mt and with error proof connection system

- Hanging ring
- Eco-friendly packaging
- Use and maintenance manual

Accessories available upon request

Discover the many accessories from page 30 of this catalogue.

Control unit technical features

Model	Code	Speed	Nr. of connectable tools	Tool feed tension	Feed input	I/O	Visual indicators	Weight kg	lb	L x Width x H mm
TPU-C1	686200105	Adjustable	1	32 VDC	230 Vac \pm 10% 50-60 Hz	8 inputs 8 outputs 9 + 11 signal types	7 LED DISPLAY	0,8	1.76	185x150x105
TPU-C3	686200107	Adjustable	1	32 VDC	230 Vac \pm 10% 50-60 Hz	8 inputs 8 outputs 21 + 22 signal types	7 LED DISPLAY	0,8	1.76	185x150x105
TPU-C1-120V	686200106	Adjustable	1	32 VDC	120 Vac \pm 10% 50-60 Hz	8 inputs 8 outputs 9 + 11 signal types	7 LED DISPLAY	0,8	1.76	185x150x105
TPU-C3-120V	686200108	Adjustable	1	32 VDC	120 Vac \pm 10% 50-60 Hz	8 inputs 8 outputs 21 + 22 signal types	7 LED DISPLAY	0,8	1.76	185x150x105

Standard equipment

- Use and maintenance manual
- Eco-friendly packaging
- The unit is equipped with adjustable tilt foot

AutoPowerOn Models

Enable automatic power-on of the unit, allowing the entire workstation to be managed with a single main switch.

- TPU-C1 AutoPowerOn. Code 686200121
- TPU-C1 120V AutoPowerOn. Code 686200120
- TPU-C3 AutoPowerOn. Code 686200115
- TPU-C3 120V AutoPowerOn. Code 686200119

Accessories available upon request

- **Fixing plate to position** the power supply unit on any surface. It is supplied complete with screws, and can be anchored vertically or on a horizontal support (code 692080000)



eTensil screwdrivers, nutrunner motors and TPU control units, are covered by an extended warranty of 24 months or 1.000.000 cycles (first goal achieved).

Production accuracy.



Thanks to their advanced technology, they ensure maximum tightening accuracy and precision, making them essential in industrial sectors where controlling the assembly process is crucial for the quality of the finished product. Moreover, by eliminating post-process checks required in traditional systems, they help reduce both production time and costs.

Torque/angle control system by built-in transducer

These screwdrivers are equipped with an **integrated electronic torque transducer**. Designed and manufactured by Fiam, it ensures high resolution in measuring torque parameters. The angle, instead, is detected through the integrated Hall sensors. **Tightening accuracy of the screwdriver:**
 $\pm 5\%$ accuracy with Cm and CmK ≥ 1.67

This torque/angle control technology allows the tool to be programmed to perform different assembly operations with various tightening parameters such as torque, speed, and more, making it suitable for multiple applications.

“Smart Pro Evo” Programming from the unit

- **Lever start.**
- **Other functions can be activated / deactivated** acting directly on the control unit
 - **CONFIRMATION REQUESTED FOR ANOMALY** (by pressing ESC button)
 - **CONFIRMATION REQUESTED FOR END OF CYCLE** (by press ENTER button)
 - **UNTIGHTENING** or tightening
 - **CLOCKWISE COUNTERCLOCKWISE** tightening.

The main feature of these advanced units is the **possibility to set different control functions:**

- **SOFT START** the ramp speed acceleration is not fixed but it is possible to set the **time** acceleration to ease screw engagement
- **TOOL SPEED** can be set within the minimum / maximum range
- **MANAGEMENT OF ALLOWED ERRORS**
- **FRONT LED LIGHTING** adjustable with intensity from 0 to 100%.

Unit light LEDs

The **high-visibility LEDs**, with adjustable intensity, placed above the display, allow immediate viewing of the process status. For a synchronized and efficient tightening management:
Red LED = Nok
Yellow LED = End of cycle
Green LED = Cycle progress (screws tightened) according to the set number of screws.

Functionalities for reliable and versatile tightening processes

AUTOMATICALLY AND IMMEDIATELY RECOGNIZING THE CONNECTED TOOL

and setting the applicable parameters range for it.

ALLOWING IN-PROCESS TORQUE ADJUSTMENTS

by modifying the relevant parameter on the operating panel.

SCREW COUNTING

this function turns the system into an effective Poka Yoke device. The tightening results are visualized on the unit display, highlighted by the leds.

STORING

the outcome of the last 99 tightening.

CHECKING TIGHTENING TIME

to detect process anomalies like over-treading and already tightened screws.

COMMUNICATION WITH MASTER PLC and others devices:

8 + 8 signals I/O freely programmable that offer several functionalities to be chosen from 9 + 11 signals (TPU-C1) and 21 + 22 signals (TPU-C3).

It allows to communicate:

- outcome of a phase
- system status
- the remote control of the tool.

And, thanks to the **Program Source** function, when external devices – such as automatic accessory selectors – are connected, it is possible to manage the program-selection mode.

DISPLAYING OF TIGHTENING RESULTS

- OK/ NOK status
- torque value in Nm or other unit of measurement
- tightening time value
- angle value.

INTERFACING WITH WORKING STATIONS

in presence of Jigs, workpieces locking devices can be activated/ deactivated.

“SMART THREAD” FUNCTION

for processing of self-threading, self-tapping, self-drilling screws, or else where the **final torque value is lower than thread forming torque.**

“SMART SPEED” FUNCTION

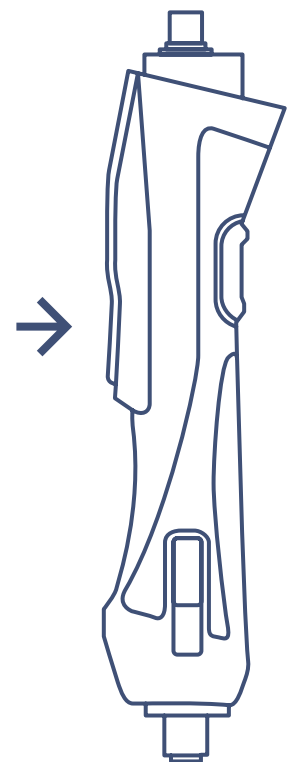
useful for speeding up the production process. It is possible to create a “two-phase” tightening strategy:

- The first with a high-speed screwdriver rotation until reaching the set angle
- The second with a pre-defined speed that allows to maintain the accuracy of the result.

This function optimizes the tool's behavior in applications with very hard joints, where it is necessary to precisely manage the progressive reduction of the initial speed in order to reach the final torque in a controlled mode.

Thanks to the integrated torque transducer and the parametrization of the threading angle, it is possible to:

- control the approach to the target torque with greater accuracy
- reduce speed progressively and repeatably improving process control and tightening reliability.



Lever start

TPU-A3 control unit.

The TPU-A3 control unit is specifically designed to work in perfect synergy with screwdrivers equipped with an integrated torque transducer.

Programming

- Up to 8 **tightening programs**
- Control of parameters: torque / angle / time
- **Remote management and program selection** in:
 - single-mode
 - binary-combination mode
- For each program: setting of the **number of screws** and definition of **torque / angle / time** values
- **Torque tolerance:** the adjustable parameters “minimum torque” and “maximum torque” increase operational flexibility according to the needs of the application
- **RETENTION** function: allows you to set a waiting interval between one program and the next, ensuring a clear reading of the data before the automatic switch to the following program.

Display information

It provides:

- the **display of the angle value** detected during tightening
- the **OK/NOK status**
- the torque value in Nm or another selectable unit of measurement
- the **tightening time**

To always keep the assembly process under control.

Monitoring of the tightening angle

- Functionality acting as a Poka Yoke system
- Suitable for critical joints (e.g., **elastic gaskets**, rubber elements, or similar materials).
- It allows verifying the **presence of gaskets during tightening:** this is done by comparing the measured angle with the range set during the programming phase.
- A fundamental measure to ensure both **productivity and the quality of the finished product.**

Smart Pro Evo additions functions

Other additional settable features are:

- **PRE-AUTO UNTIGHTENING:** it is possible to set the **untightening angle and the pause between the untightening and the subsequent tightening.** This strategy finds its application in the electrical / electronic field, for example when it is necessary to open and then close connectors to insert electrical wires.
- **POST-AUTO UNTIGHTENING:** it is possible to set the **untightening angle** as the pause time between untightening and subsequent tightening.
- **STOP-BY-TIME TIGHTENING** when it is necessary to tighten threaded fasteners to a certain **height and not to a defined torque.** This is made by checking the tightening time.
- **SMART TORQUE PROGRAMMING** allows setting a **torque limit value** beyond which the system automatically stops the tightening cycle. Is useful to prevent abnormal and unsafe conditions for the operator, such as hand-arm system kickbacks caused by high torque generated by damaged threads or non-conforming components. It enhances process safety and reliability by enabling the immediate identification of component non-conformities (defective threads, irregular materials, etc.).

• PREVALING TORQUE

When this function is active, it provides:

- **Monitoring of the average torque** detected over the entire threading angle, with **configurable minimum and maximum acceptance thresholds**, possibility to choose whether to display only the **Peak Torque** of the final phase or the **Peak Torque** of the final phase + the **Average Torque** detected during the threading phase. At the end of the threading angle, the screwdriver considers as the target torque the sum of **the set torque + the detected average torque**, in order to compensate for possible torque losses caused by friction.
- Benefits of adjustable thresholds (min/max): material quality control and rejection of components with out-of-range values. For example, in applications with self-locking nuts, where it is necessary to overcome the high friction generated by the plastic insert to prevent possible loosening of the nut. This function therefore allows monitoring the quality of the self-locking nuts used.
- **AVERAGE TORQUE MONITORING (ROLLING)** “Test” function designed to **visualize and verify the average torque** on the component by setting an angle strategy with: $\text{threading angle} = \text{maximum angle} = \text{minimum angle}$.
By setting the MIN and MAX Prevailing Torque according to the limits required by the customer, it is possible to verify the integrity of the component within the defined acceptability range.
Typical application: integrity check of bearings.

TPU-A3 control unit



TPU-A3

- 8 programs to control the tightening process
- 1 programmable sequence up to a max of 8 steps
- Retention: programmable waiting interval between programs
- Automatic recognition of the tool and configuration
- Screw counter - Poka Yoke system
- OK/NOK and torque value display in Nm or other unit of measurement
- “Smart Thread” function
- “Smart Speed” function
- Min / Max tightening time control - Poka Yoke system
- Settable untightening speed
- Clockwise or Counterclockwise tightening
- 2 levels password:
to protect the set parameters or totally block the system
- Unit calibration
- Available measurement units Nm / Lb / In. / Kgf.cm
- Serial communication (RS232)
- Language selection (IT, EN, DE, FR, ES, TR)
- Log of the last 99 tightenings
- Interfacing with working stations
- 8 + 8 programmable I/O (21 + 22 signal types)
- Selection of programs from I / O (remotely)
- Min / Max tightening angle control - Poka Yoke system

SMART PRO EVO PROGRAMMING

- 1 start-up modes selectable on the unit
- Soft Start - acceleration ramp
- Settable rotation speed
- Smart Torque Programming
- Pre-auto Untightening (can be activated with all tightening strategies)
- Post-auto Untightening (can be activated with all tightening strategies)

TIGHTENING STRATEGIES

- Torque control
- Torque control with tightening time monitoring
- Torque control with tightening angle monitoring
- Torque control with time and tightening angle monitoring
- Angle control and torque and time monitoring
- Time control and torque and angle monitoring (Stop-by-time tightening)
- Prevailing torque
- Average torque monitoring (rolling)

SCREWDRIVERS WITH TORQUE/ANGLE CONTROL BY BUILT-IN TRANSDUCER

FUNCTIONALITY	STRAIGHT MODELS
	With TPU-A3
START UP	Lever start only
SMART PRO from the unit	●
Reduced-Effort Start Up	●
UNTIGHTENING ACTIVABLE/DEACTIVABLE	●
BLU LED Untightening	●
WHITE LED Ready	●
WHITE+BLU LED Alert	●
FRONT ILLUMINATION LED Adjustable	●
TOOL SPEED	adjustable
SOFT START	adjustable
SMART THREAD	●
SMART SPEED “two-phase” tightening	●
PRE AND POST AUTO UNTIGHTENING adjustable	●
STOP-BY-TIME TIGHTENING tighten in depth and not to torque-	●
PREVAILING TORQUE	●
AVERAGE TORQUE MONITORING (rolling)	●
PICK AND PLACE SYSTEMS	●
ESD	●
Interconnessione CLOUD	
Software TOOLMANAGER	●
Connecting cable (3 mt) included	●
Torque performance certificate (valid 1 year)	●
Extended warranty 24 months/1 million cycles	●

Screwdrivers technical features: straight models

	Type of screwdriver	Code	Grip	Tightening torque on soft joint		Idle speed range	Starting system	Reversibility	Weight		Dimensions mm	Power consumption	Accessories
				Min. / Max.	Min. / Max.				kg	lb			
	Model	Code	Type	Nm	in lb	r.p.m.	Type	Type	kg	lb	L x Ø	Volt	Attacco
STRAIGHT MODELS	E8CA1A-2000	111712196		0,3 ÷ 1,2	2.6 ÷ 10.6	200 ÷ 2000	lever start		0,81	1.77	257x39	32	⬡ F1/4"
	E8CA2A-1200	111712197		0,3 ÷ 2	2.6 ÷ 17.7	120 ÷ 1200	lever start		0,81	1.77	257x39	32	⬡ F1/4"
	E8CA3A-900	111712198		0,3 ÷ 3	2.6 ÷ 26.5	90 ÷ 900	lever start		0,81	1.77	257x39	32	⬡ F1/4"
	E8CA4A-650	111712199		0,3 ÷ 4	2.6 ÷ 35.4	65 ÷ 650	lever start		0,81	1.77	257x39	32	⬡ F1/4"
	E8CA6A-350	111712200		0,6 ÷ 6,5	2.6 ÷ 57.5	35 ÷ 350	lever start		0,81	1.77	257x39	32	⬡ F1/4"

Legend

E8CA1A-2000 = Electric screwdriver with torque/angle control by built-in transducer
E = Electric
8 = Power of motor in watt/10
C = Screwdriver

A = Built-in torque transducer
2 = Maximum tightening torque in Nm
A = With automatic power-off
2000 = Speed

All screwdrivers are supplied with a working speed equal to 10% of the nominal one to guarantee tightening quality and precision. In order to obtain the nominal torque and speed range, it is necessary to set parameters following the instructions given in Use and Maintenance Manual. For any further information, contact the Fiam Technical Service.

Legend

Reversibility: all models are suitable for tightening and untightening operation

Starting system

Lever start

• Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173)
 • The code number must be used when ordering.

Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening speed, assembly conditions (free standing screwdriver, screwdriver mounted on a torque arm), operator behavior during the tightening phase. For any further details, please address to Fiam Technical Service.

Standard equipment (supplied with the tool)

- Connection cable to control unit (code 686903834); length 3 mt and with error proof connection system
- Torque performance certificate (valid 1 year) (code: 681400100)
- Hanging ring
- Eco-friendly packaging
- Use and maintenance manual

Control unit technical features

Model	Code	Speed	Nr. of connectable tools	Tool feed tension	Feed input	I/O	Visual indicators	Weight		L x Width x H mm
								kg	lb	
TPU-A3	686200116	Adjustable	1	32 VDC	230 Vac ±10% 50-60 Hz	8 inputs 8 outputs 21 + 22 signal types	7 LED DISPLAY	0,8	1.76	185x150x105
TPU-A3-120V	686200117	Adjustable	1	32 VDC	120 Vac ±10% 50-60 Hz	8 inputs 8 outputs 21 + 22 signal types	7 LED DISPLAY	0,8		185x150x105

Standard equipment

- Eco-friendly packaging
- Use and maintenance manual
- The unit is equipped with adjustable tilt foot

Accessories available upon request

- **Fixing plate to position** the power supply unit on any surface. It is supplied complete with screws, and can be anchored vertically or on a horizontal support (code 692080000).



eTensil screwdrivers, nutrunner motors and TPU control units, are covered by an extended warranty of 24 months or 1.000.000 cycles (first goal achieved).

Accessories

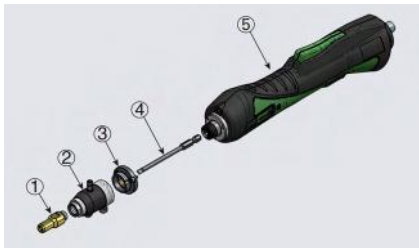
Pick and Place systems

Screw suction system



Screw suction head

The screw suction system allows effective picking even with types of screws where the blade/screw head engagement is often critical (see screws with Torx head print). A particular nozzle is applied to the head of the straight screwdriver, to be customized according to the screws or the piece to be assembled, to be sent to Fiam as a sample. The bits will also be evaluated and proposed based on the type of screws. The SSU vacuum pump must be connected to the screw suction head.



Position	Type	Code
1	Nozzle	Standard or customized
2	Screw suction head (equipped with a suction hose to be connected to the SSU vacuum pump)	682119050
3	Ring connection kit for connecting the suction head to eTensil screwdriver	681041036
	Ring connection kit for connecting the suction head to eTensil nutrunner motor	681041038
4	Bits	Standard or customized
5	Type of tools: - eTensil electric screwdrivers - eTensil electric nutrunner motors	



SSU

SSU - Vacuum pump

Designed and manufactured by Fiam. Necessary for the suction of the screws. Supplied with power cable.

The model **SSU-E**, to be combined with eTensil TPU-2, TPU-M1, TPU-C1, TPU-C3 and TPU-A3 units, in addition to the features of the SSU model, it features a screw presence detection system on the nozzle of the screw suction device to which it is connected and that automatically manages, via an external signal, the switch-on and switch-off, optimizing the energy saving and reducing noise. Is equipped with a LED device on the front which indicates the functioning when in the suction phase.



SSU-E

Model	Feed input	Code
Vacuum pump SSU	230Vac-50Hz	676000120
Vacuum pump SSU	120Vac-60Hz	676000132
Vacuum pump SSU-E	230Vac-50Hz	676000121
Vacuum pump SSU-E	120Vac-60Hz	676000133
Connection cable DB15/M - L 3 mt • To connect SSU-E to TPU-2		686990058
Connection cable DB25/M - L 3 mt • To connect SSU-E to TPU-C1, TPU-C3, TPU-A3, TPU-M1 or to the client PLC		686990059

Automatic screws presenters



The supply includes screw presenter, 1 rail compliant with the chosen model and magnetizing device. The screw presenter is supplied with **linear rail already installed and calibrated**. It also works at 120V with the adapter provided.

For manual Pick & Place with magnetic bit

NJ automatic screw presenters effectively feed:

- **Magnetisable screws** with PHILLIPS (or POZIDRIV) head print

- **Different screws** (shank diameter 2 ÷ 5 mm, max shank length 18 mm) simply replacing the rails.

Model	Code	For screws with shank ø mm
NJ23-R20	199923020	2,0
NJ23-R23	199923023	2,3
NJ23-R26	199923026	2,6
NJ23-R30	199923030	3,0
NJ45-R35	199923035	3,5
NJ45-R40	199923040	4,0
NJ45-R50	199923050	5,0

Rail model	Code	Screws with shank ø mm
R/RR20	649021001	2,0
R/RR23	649021002	2,3
R/RR26	649021003	2,6
R/RR30	649021004	3,0
R/RR35	649021005	3,5
R/RR40	649021006	4,0
R/RR50	649021007	5,0



The supply includes screw presenter, 1 rail compliant with the chosen model and magnetizing device. The screw presenter is supplied with **linear rail already installed and calibrated**. It also works at 120V with the adapter provided.

For manual Pick & Place with magnetic bit or screw suction systems

NJR automatic screw presenters effectively feed:

- **Any type of screw/head** print even those with Torx or hexagon sockets
- **Different screws** (shank diameter 2 ÷ 5 mm, max shank length 18 mm) simply replacing the rails

- **Convenient pick-up point:** has a screw detection sensor with a signal output cable. The built-in cable provides a signal (on/off) that indicates if there is a screw in the pick-up area and therefor connect the screw presenter to Poka Yoke devices as e.g. LED INDICATORS

Model	Code	For screws with shank ø mm
NJR23-RR20	199923120	2,0
NJR23-RR23	199923123	2,3
NJR23-RR26	199923126	2,6
NJR23-RR30	199923130	3,0
NJR45-RR35	199923135	3,5
NJR45-RR40	199923140	4,0
NJR45-RR50	199923150	5,0

Rail model	Code	Screws with shank ø mm
RR20	649021101	2,0
RR23	649021102	2,3
RR26	649021103	2,6
RR30	649021104	3,0
RR35	649021105	3,5
RR40	649021106	4,0
RR50	649021107	5,0



The supply includes screw presenter, 1 rail compliant with the chosen model and magnetizing device. The screw presenter is supplied with **linear rail already installed and calibrated**. It also works at 120V with the adapter provided.

For manual Pick & Place with magnetic bit and magnetizable steel screws

OM automatic screw presenters effectively feed:

- **Exclusively magnetizable steel screws** from M2 to M6 with under-head length up to 25 mm
- **Convenient pick-up point** on the rotating

escape: has a screw detection sensor with a signal output cable. The built-in cable provides a signal (on/off) that indicates if there is a screw in the pick-up area and therefor connect the screw presenter to Poka Yoke devices as e.g. LED INDICATORS.

Model	Code	For screws with shank ø mm
OM-26M20	*	2,0
OM-26M23	199924023	2,3
OM-26M26	*	2,6
OM-26M30	199924030	3,0
OM-26M35	199924035	3,5
OM-26M40	*	4,0
OM-26M50	199924050	5,0
OM-26M60	199924060	6,0

Rail model	Code	Screws with shank ø mm
OMM20SET	*	2,0
OMM23SET	649021042	2,3
OMM26SET	*	2,6
OMM30SET	649021044	3,0
OMM35SET	649021045	3,5
OMM40SET	*	4,0
OMM50SET	649021047	5,0
OMM60SET	649021048	6,0

Automatic nut presenters



For manual Pick & Place

The **NE D feeders** efficiently supply nuts:

- ✓ Standard ISO 4032 – UNI 5588 M4–M5–M6–M8
- ✓ Self-locking ISO 10511 – UNI 7474 M4–M5–M6–M8
- ✓ Flanged ISO 4161 – DIN 6923 M4–M5–M6–M8

- **Front nut pick-up** using a reduced-clearance pick-up socket, to be mounted on the screwdriver
- **Integrated electronic unit** for servomechanism speed adjustment
- **Pull-out drawer** for collecting defective nuts
- **Suitable** for use with straight air and electric screwdrivers with lever start, and it can also be used in automation with nutrunner motors.

Model	Code
N ED	2995500.....*

* Customized code based on the specific application

Nut pick up and retaining socket



With small radial encumbrance, which makes the system usable even in the tightest tightening points with restricted space and access.

Nut type	Nut pick up socket code
M4	605180170
M5	605180171
M6	605180172
M8	605180173



The length of the stud (dimension F) where the nut is tightened must be a maximum of 16 mm to fall within the standard solutions. For longer lengths, the pick-up keys must be customized.

SOCKET GUIDE FOR MANUAL USE:

- with air screwdriver: code 395501359
- with electric screwdriver: code 395502822



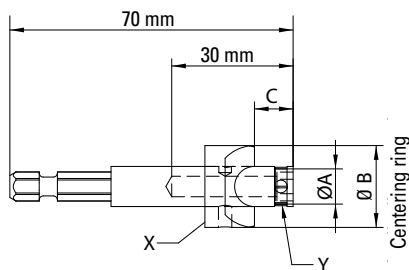
For manual Pick & Place

The **AM feeders** can be used only with straight pneumatic and electric screwdrivers with lever start.

- For hex nuts from 5.5 to 13 mm
- **Nut pick-up station** using a pick-up socket, to be mounted on the screwdriver and supplied with a retaining spring
- **Integrated electronic unit** for servomechanism speed adjustment

Model	Code	EXAGONAL NUTS			Special socket mm
		Minimum height mm	Maximum height mm	Hexagon mm	
AM55B	199971001	2,15	2,4	5,5	5,5
AM60B	199971002	2,55	3	6	6
AM70B	199971003	2,75	3,2	7	7
AM80B	199971004	3,7	4	8	8
AMB100B	199971005	4,7	5	10	10
AMB110B	199971006	5,2	5,5	11	11
AMB130B	199971007	6,15	6,5	13	13

SPECIAL PICK UP SOCKET



C dimension: minimum measure to avoid that the centering ring (Ø B) touches the components to be assembled during the tightening phase.

Special socket mm	Code	Socket with hexagonal drive 1/4"			SPARE PART Retaining spring (as spare part) code
		"C" dimens.	Ø A mm	Ø B mm	
5,5	605181055	9,5	8,8	20	528505500
6	605181060	9,5	9,8	20	528506000
7	605181070	9,5	11,5	21,5	528507000
8	605181080	9,5	13	23	528508000
10	605181100	8,5	14,8	25	528510000
11	605181110	8,5	18	29	528511000
13	605181130	8,5	19,8	29	528513000

Discover all the features here

Poka Yoke devices



LED Indicator.

3 colours bulb, to be connected to units through 1,5 mt long cable included in supply. It allows the immediate feedback of the tightening process status. It can be fixed to the workbench.

Model	For units	Code
LED Indicator	TPU-2	686990034
LED Indicator	TPU-M1	686990039
LED Indicator	TPU-C1 / TPU-C3 / TPU-A3	686990039



Tower-light with audible buzzer.

3 colours tower-light, equipped with an audible buzzer to be connected to TPU C1/TPU C3 control units. through 3 mt long cable included in supply. It allows, with lights and sound signals, the immediate feedback of the tightening process status. Diameter of 55 mm, it can be fixed to the workbench.

Model	For units	Code
Tower-light with audible buzzer	TPU-M1	686990040
Tower-light with audible buzzer	TPU-C1 / TPU-C3 / TPU-A3	686990040



SPS - Socket and Program Selector.

Poka Yoke device for selection of fastening program by picking up of sockets/bits, can work together with TPU control units. It allows the selection of up to 8 sockets or bits (with diameter up to 80 mm) and checks correspondence between socket and pre-set tightening program as indicated from linked controller. Selection LEDs and socket pick-up acoustic signal (buzz): each socket spot is indeed connected to a particular program in the controller so that, when the worker picks one socket the controller is automatically set in accordance.

Available for OPS-Open Program Selection or CPS-Controlled Program Selection.

For further information refer to the catalogue No. 97: *SPS - Socket Program Selector.*

Model	Code	Unit to use	Dimensions (hpxL) mm	Weight Kg
SPS for TPU-M1	687010055	TPU-M1	239x310x63	5,8
SPS for TPU-C3	687010055	TPU-C3 / TPU-A3	239x310x63	5,8

- For diameters higher than 42 mm, special socket tray:
until 64 mm code 687019016 / until 80 mm code 687019022

Interconnectivity for the Smart Factory

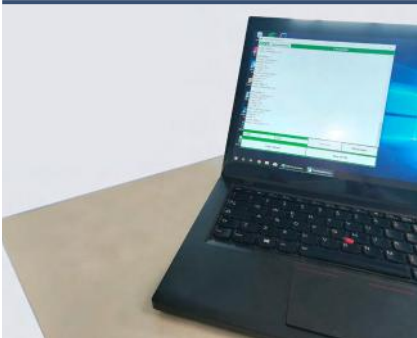


Software eTensil TOOLMANAGER

code 686200920

Software to be installed on a PC to communicate, via the serial port, with eTensil TPU-C1/C3/M1 units. It allows you to read from the units all the configurations of the tightening programs, the sequence, the I/O, as well as to save them on a PC; it is also possible to modify them or create new ones on PC and reload them on units.

Useful for facilitating configuration modification, speeding up the recall of pre-set programs and sequences and/or saved on a PC Supplied with USB stick, serial cable, RS232-to-USB adapter.



Kit Fiam HyperTerminal

code 686200913

Fiam HyperTerminal Kit **allows to connect all Personal Computers** (including those of the latest generation) **so the network systems**, with Fiam units equipped with an RS 232 serial port.

For example, by connecting TPU control unit, it is possible to obtain the tightening results or download the configuration parameters of the set programs, thus allowing data storing to PC.

The kit includes:



USB key containing the HyperTerminal software

The exclusive software designed by Fiam with which it is possible:

- display on the PC text strings received via serial communication
- create both text files and CSV format files for Excel with the collected data
- save the data on the PC for the processing of statistics and analysis on production processes.



Adapter cable

RS232 to USB converter cable, to connect the Unit to the Personal Computer. To use this cable, it is necessary to install the relative Drivers contained in the USB key on the Personal Computer.



NULL Modem adapter

Optional adapter that can be used with other control units produced by Fiam such as shown in the table below.



Gender Changer Serial Adapter

Optional 9-pole "Female Female" type adapter that can be used with the other control units produced by Fiam as shown in the table below.



Serial cable

3 meters long with Male / Female connector to connect the unit directly to devices equipped with an RS 232 port or via the Adapter Cable.



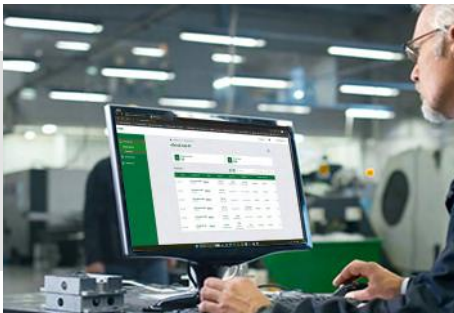
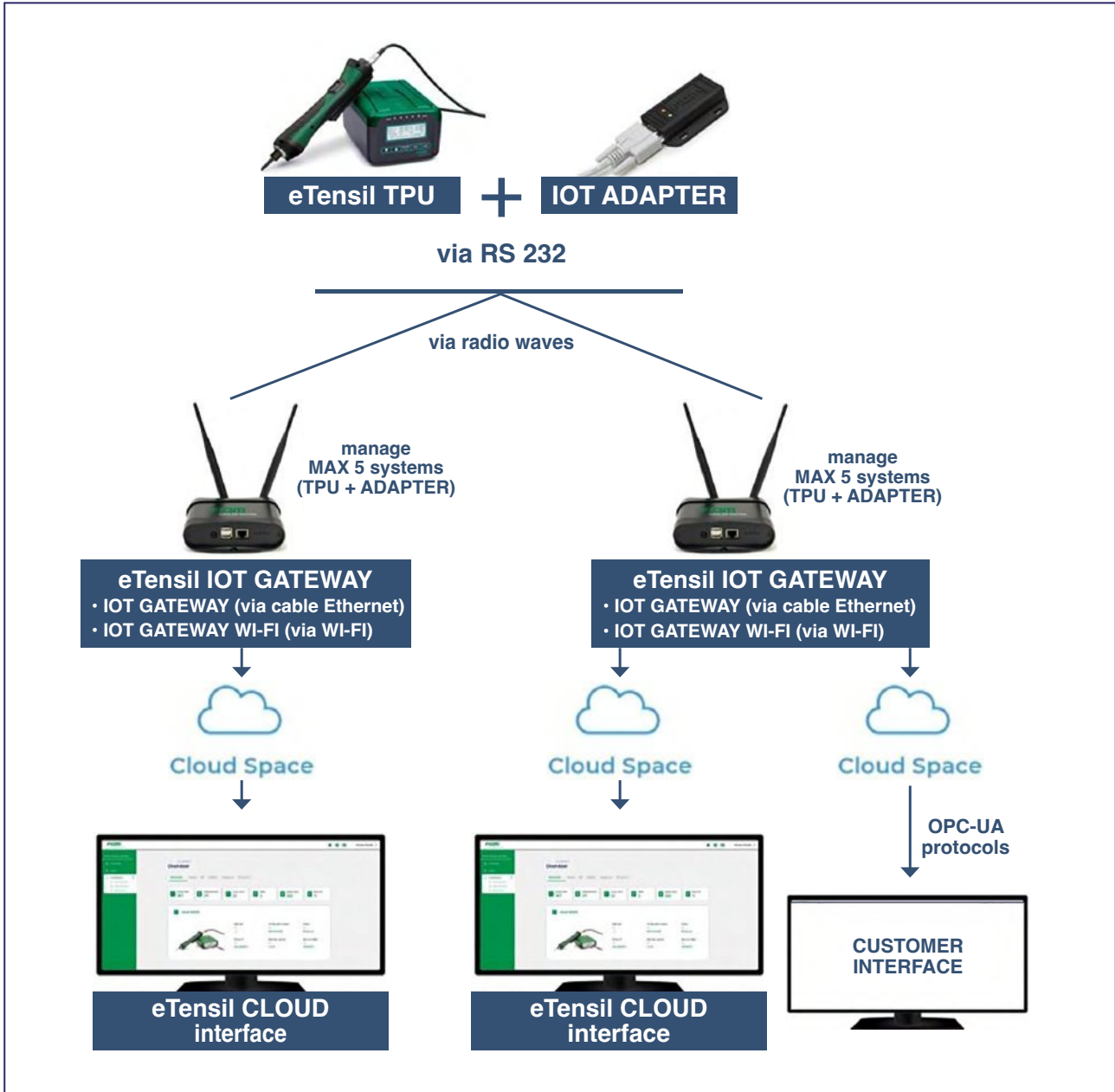
Multiple connector for I/O

code 692079193

To be connected to the 25-pole I/O ports of Fiam TPU units. It allows to make the I/O signals available on 3 connectors and therefore the connection with 3 devices in parallel. Equipped with connection cable between unit and multiple connector and relative power supply, it has 8 status LEDs for Outputs and 8 test buttons for Input signals.

eTensil CLOUD

The eTensil TPU (except for TPU-A3) units interface with the management systems of production plant or they are set up for data exchange, allowing the **remote visualization, control and management of tightening processes** through “open” CLOUD platforms or eTensil Platform Cloud included with wireless Fiam devices that receive and transmit data to the CLOUD server.



REMOTE ASSISTANCE

Assistance to manage your tightening processes? It's simple: just add Fiam as a user in eTensil CLOUD interface platform or alternatively, use an “open” application like such as, for example, TEAMVIEWER for sharing with our Technical Assistance.



eTensil IOT ADAPTER

code 686200500

Device to be connected to the serial port of eTensil TPU-C1/C3/M1 control units. Necessary for the collection and transmission of tightening data to eTensil IOT GATEWAY. The device is equipped with diagnostics LED lights. Included 3m length connection cable.



eTensil IOT GATEWAY

eTensil IOT GATEWAY	Wireless device. Receives data collected by eTensil IOT ADAPTER device and transmits it to the Cloud server. The tightening data are transmitted via Ethernet cable to the included eTensil Cloud interface platform. Supplied with power supply.	code 686200550
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eTensil IOT GATEWAY WIFI	Wireless device. Receives data collected by ETENSIL IOT ADAPTER device and transmits it to the Cloud server. The tightening data are transmitted via WIFI to the included eTensil Cloud interface platform. Supplied with power supply.	code 686200551
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eTensil IOT GATEWAY OPC-UA	Wireless device. Receives data collected by eTensil IOT ADAPTER device and transmits it to the Cloud server. The tightening data are transmitted via Ethernet cable to the included eTensil Cloud interface platform or, via OPC-UA protocol, to the customer's platform. Supplied with power supply.	code 686200552
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eTensil IOT GATEWAY OPC-UA WIFI	Wireless device. Receives data collected by eTensil IOT ADAPTER device and transmits it to the Cloud server. The tightening data are transmitted via WI-FI to the included eTensil Cloud interface platform or, via OPC-UA protocol, to the customer's platform. Supplied with power supply.	code 686200553
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eTensil CLOUD INTERFACE PLATFORM

Included in the supply of each eTensil IOT GATEWAY, it is designed to visualize, modify the set-ups and collect all the tightening data processed by eTensil systems and to remotely manage these processes in a complete and organized way. The platform is accessible through a WEB page on the Cloud.

- For each connected device: display of name and code, if active/offline, the settings, belonging to an operating zone and the parameters of individual programs and tightening sequences, I/O status
- Search filters for operating areas / devices / active or offline devices
 - No. of screws tightened, sequences completed, screws OK/NOK, rejects/reset pressed, operating hours, no. total number of incorrect shutdowns
 - Detailed display of tightening /untightening results with all parameters of date and time, tightening time and angle, torque, program reference
 - The corresponding date/time print, no. of active program on the TPU unit
 - Filterable table with the history of operations performed: time period up to 1 year
 - All system data can also be filtered according to the desired details, displayed in a summary chart and exported as a CSV file

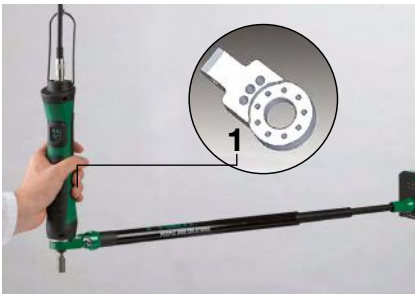
Accessories for ergonomics

Reaction arms

An advanced workstation, Smart, cannot fail to include every aspect of ergonomics, in particular the physical one which avoids any fatigue for the operator. Using Fiam reaction arms with eTensil solutions means: completely cancel the reaction on the operator's hand, the force in holding the tool as well as any vibration in the hand-arm system. They also allow you to maintain a good wrist position and the perpendicularity of the tool on the work point, improving precision and the quality of the production process.



Proven ergonomic results: an applied research study conducted by the University of Padua spin-off confirms that these reaction arms reduce operator fatigue by more than 70% for each tightening.



BT-MG magnesium telescopic arms

Telescopic arms in magnesium alloy, designed and produced by Fiam, extremely resistant to mechanical stress thus guaranteeing reliability and long life span, thanks to accurate manufacturing process and applied innovative materials. Designed with different telescoping extension elements (3 for all models and 2 for BT-MG 10...), they are conform for working areas according to various productive needs. Double terminal coupling guarantees great handiness and maximum freedom of action also for inclined tightening operations. They can be easily installed using a simple plate with reduced dimensions.



Model	Code	Max torque		Max work range (mm)	Min work range (mm)	Ø Tool (mm)
		(Nm)	(in lb)			
BT-MG 10 800	692071420	10	88.5	650	470	26.5÷50
BT-MG 10 1000	692071421	10	88.5	790	540	26.5÷50
BT-MG 15 800	692071409	15	132.7	860	505	26.5÷50
BT-MG 15 1000	692071401	15	132.7	1070	575	26.5÷50
BT-MG 15 1500	692071404	15	132.7	1580	745	26.5÷50

Tool holder accessory (1)

code 692079180

Only for eTensil straight models. To install the screwdriver on BT-MG reaction arm. It allows 9 rotation positions of the screwdriver on its own axis.



BT-TOP telescopic arms

Designed and produced by Fiam to be mounted on the top of the workbench offering an ergonomic and compact layout that allows to work effortlessly, allowing the fluid sliding of any type of tool along the vertical axis of the arm.

La loro corsa telescopica e l'ampia area di d'azione, offrono flessibilità e precisione. Sono la scelta ideale in spazi con ingombri laterali oppure per lavorazioni su dime di posaggio.

Sono dotati di dispositivo NO SPIN, anti-rotazione che impedisce al braccio di ruotare sul proprio asse contrastando la reazione sulla mano dell'operatore in quanto il contraccolpo viene scaricato sul braccio telescopico.

I **modelli BT-TOP** sono dotati di snodo a 360° con raggio di lavoro da 450 mm a 900 mm.

I **modelli BT-TOP Z** invece, sono specifici per essere installati sulle Guide lineari e lavorare su piú assi. Inoltre, essendo privi dello snodo a 360° consentono di lavorare in perfetta perpendicolarità sul banco di lavoro.

Model	Code	Max torque		Ø Tool (mm)	Length max. (mm)	Telescopic stroke (mm)
		(Nm)	(in lb)			
BT-TOP 12 800	692071450	12	106.2	26,5÷50	800	300
BT-TOP 12 1000	692071451	12	106.2	26,5÷50	1000	300
BT-TOP 25 1000	692071452	25	221.2	26,5÷50	1000	300
BT-TOP 25 1500	692071453	25	221.2	26,5÷50	1500	600
BT-TOP 12 800-Z	692071455	12	106.2	26,5÷50	800	300
BT-TOP 12 1000-Z	692071456	12	106.2	26,5÷50	1000	300
BT-TOP 25 1000-Z	692071457	25	221.2	26,5÷50	1000	300
BT-TOP 25 1500-Z	692071458	25	221.2	26,5÷50	1600	600

Accessories for BT-TOP arms

Clamp for straight eTensil screwdrivers - code 692078060

Clamp for angle nutrunners - code 692078059

Telescopic stroke limiter - code 692079254 for model BT-TOP 12, code 692039088 for models BT-TOP 25



BCA Articulated cartesian arm



BCA-TOP Articulated cartesian arm



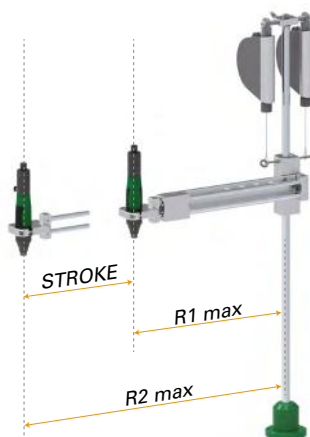
Many other accessories available for facilitate operations with maximum ergonomics (see Accessories Catalogue no. 79).

BC and BCA Cartesian arms

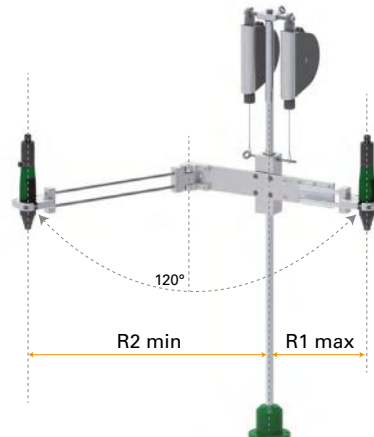
Fundamental solutions for ergonomics workplace, designed and manufactured by Fiam, can be used with any type of tool with a diameter up to 50 mm and weight up to 11 kg.



• Cartesian arms



• Articulated cartesian arms



Model	Code	Max torque		Max work range R1 (mm)	Min work range R2 (mm)
		(Nm)	(in lb)		
BC5 Cartesian arm	692031030	5	44,2	285÷445	600÷760
BC12 Cartesian arm	692031031	12	106,8	285÷445	600÷760
BC25 Cartesian arm	692031032	25	17,7	285÷445	600÷760
BCA5 Articulated cartesian arm	692031034	5	44,2	110÷260	610÷730
BCA12 Articulated cartesian arm	692031035	12	106,8	110÷260	610÷730
BCA25 Articulated cartesian arm	692031036	25	17,7	110÷260	610÷730
BC5-TOP Articulated cartesian arm	692031065	5	44,2	285÷445	600÷760
BC12-TOP Articulated cartesian arm	692031076	12	106,8	285÷445	600÷760
BC25-TOP Articulated cartesian arm	692031066	25	221	285÷445	590÷750
BCA5-TOP Articulated cartesian arm	692031067	5	44,2	110÷260	610÷730
BCA12-TOP Articulated cartesian arm	692031068	12	106,8	110÷260	610÷730
BCA25-TOP Articulated cartesian arm	692031069	25	221	110÷260	610÷730

Tool holder accessories

code 692039108 (2)

For anchoring the straight screwdrivers to the Cartesian arm without damaging it or compromising its operation. Complete with assembly screws.

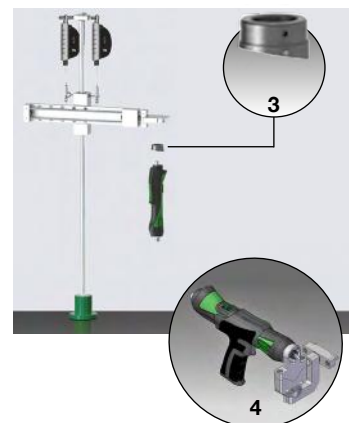
This accessory cannot be used with RE version eTensil screwdrivers (with external clutch adjustment).

code 681041034 (3)

An accessory for anchoring the top of the straight screwdriver to the Cartesian arm for a better view of the tightening point. Complete with assembly screws.

code 692039233 (4)

Universal clamp suitable to work on vertical or inclined surfaces using tools with pistol grip or angled heads. It promotes a good hand-arm system position by rotating around two axes. It cannot be used with BC25PK arm. For the best installation it can be combined with the accessory cod. 692039108 (ref. 2). Complete with assembly screws.





SL linear slide rail for reaction arms

This accessory makes the operating layout even more ergonomic as it allows the installed Cartesian or Telescopic arm to slide along the operating area, along a single working axis. The slide rail is made of predrilled steel for easy installation and it's equipped with a trolley (with eccentric wheels) that slides along the liner rail; wheels are adjustable during installation using the supplied wrenches. It can be bracketed above or on the workbench.

Model	For Reaction Arms	Code	Max Length of the pre-drilled rail (mm)
SL 1000 for BT-TOP	BT - TOP	692078061	1.000
SL 2000 for BT-TOP	BT - TOP	692078062	2.000
SL 500 for BT-TOP -Z	BT-TOP -Z	692078075	500
SL 1000 for BT-TOP -Z	BT-TOP -Z	692078073	1.000
SL 2000 per BT-TOP -Z	BT-TOP -Z	692078074	2.000
SL 1000 for BC and BCA 12/25	BC 12/25	692078063	1.000
	BCA 12/25		
	BC 12/25 TOP		
	BCA 12/25 TOP		
SL 2000 for BC and BCA 12/25	BC 12/25	692078064	2.000
	BCA 12/25		
	BC 12/25 TOP		
	BCA 12/25 TOP		



Cartesian Arm BC25PK with pneumatic pushing device



An extraordinary aid to operators **who can take advantage of its automatic down pressure** and hence **perform tightening without having to apply pressure themselves**. **Pneumatic down pressure** can be set to suit the type of screw used by means of the practical control, which has an indicator showing working pressure. While returning up after tightening, the arm **automatically returns to the rest position**.

Model	Code	Max torque (Nm)	Max torque (in lb)	Max charge (kg)	Push (kg)
BC25PK	692031054	25	221	4	3 ÷ 9

Suitable only for models with lever starting mode (straight models and external clutch adjustment screwdrivers).



CONNECTION CABLE

Connection cable complete with 90 ° angled fitting

code 686903841

3m-long cable connecting the screwdriver and power supply. It can be ordered separately and is useful when the screwdriver has pistol grip and the power cable drops from above.

Connection cable

code 686903834

The 3m-long cable connecting the screwdriver and power supply unit comes with the screwdriver, though it can also be ordered separately and joined to the cable provided to achieve greater lengths.



PISTOL GRIP

AUXILIARY GRIP

Pistol grip

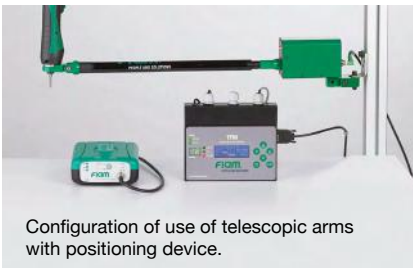
code. 681041029

To convert straight models into pistol models (except for models E8CC10/14A... and E8CA1/6A-...).

Auxiliary grip

code 681041030

When using straight screwdrivers at torques higher than 4 Nm, it is good practice to use the auxiliary grip, which reduces the reaction by distributing it over two hands rather than one. For models E8CC10/14A...the model code to order is 681041210.



Configuration of use of telescopic arms with positioning device.



Cartesian arm with a position monitoring device.

Arms with position monitoring device

All Fiam arms can be fitted with a **position monitoring device and, combined with the TPM monitoring unit**, help make tightening systems very suitable for “Poka-Yoke” processes, while increasing the efficiency and speed of the production cycle.

There are two types:

- Arms with TPM-1: models with single angle movement detection
- Arms with TPM-2: models with angle and linear movement detection.

The arms must be integrated with the TPM monitoring unit code 692078019 (see below).

The guided positioning system operates as follows:

- It works through “self-learning”: it locates the screwdriver position at the various tightening points and stores them together with the sequence of actions and the number of screws (up to 35 positions/program and up to 8 programs).
- The TPM unit display offers a graphical system to guide operators progressively as they approach the tightening point.
- The screwdriver is enabled when it is at the first stored position (the TPM display shows POS-OK and the POS-OK LED on the telescopic arm lights).
- Each time a screw is tightened, the REMAIN display shows how many screws are left, indicating that it is ready to pass on to the next screw.
- The END signal comes on when the stored cycle is complete, and gives the OK to proceed with a new work cycle.
- During the memorization process, a precision tolerance can be programmed within the range: for example, for a length of 1 mm \pm 10% approximately; for the angle 0.1 degrees (maximum tolerances).

Model	Code	Coppia max (Nm)	Max work range (mm)	Min work range (mm)
Models with SINGLE ANGLE movement detection				
BT-MG 15 800 - TPM1	692071425	15	132,70	985
BT-MG 15 1000 - TPM1	692071426	15	132,70	1195
BT-MG 15 1500 - TPM1	692071427	15	132,70	1705
BC5 -TPM1	692031046	5	44,20	285÷445
BC12-TPM1	692031047	12	106,80	285÷445
BC25-TPM1	692031048	25	221	285÷445
Models with ANGLE and LINEAR movement detection				
BT-MG 15 800 - TPM2	692071422	15	132,70	985
BT-MG 15 1000 - TPM2	692071412	15	132,70	1195
BT-MG 15 1500 - TPM2	692071415	15	132,70	1705
BC5 -TPM2	692031042	5	44,20	285÷445
BC12-TPM2	692031043	12	106,80	285÷445
BC25-TPM2	692031044	15	132,70	285÷445
BCA5 -TPM2	692031050	5	44,20	110÷260
BCA12-TPM2	692031051	12	106,80	110÷260
BCA25-TPM2	692031052	25	221	110÷260

I Bracci Cartesiani Articolati BCA sono disponibili solo con il dispositivo TPM2 essendo configurati per rilevare le posizioni angolare e lineare.



TPM – Tightening Position Monitor

Tightening position monitoring unit, to be used in combination with the arm equipped with the position monitoring device. Connection cable for TPU-M1, TPU-C1, TPU-C3 or TPU-A3 control units code 692079192 (code 692079185 for TPU-2).

Length accuracy (mm): 1 \pm 10%

Angle accuracy (degrees): 0,1°

Maximum number of screws per program: 35

Number of programs: 8

Total number of screws: 280 (35 per program, 8 programs).

Model	Code	Dimensions (mm)	Electric feed
TPM - Monitoring Unit	692078019	208 x 128 x 42	24 V, 110/230V - 50/60 Hz

In case of use with CA autofeed screwdrivers, where TPU unit I/O port is used for connection to the screw feeder, to have connection with TPM, the Multiple connector for I/O is required. Code 692076193. See page 32.



Tightening automation. Innovating production.

The eTensil electric solutions also include a wide range of nutrunner motors which, with their compact design, dimensions and limited weight, are ideal for **multi-spindle tightening units** to assemble several fasteners simultaneously or to be installed on electronic axis to ease assembly on different surfaces or be **manipulated by anthropomorphic robots**. Multiple solutions entirely designed and produced in Fiam suitable for integration into any Smart production and with any level of control.

Nutrunner motors

Equipped with brushless motors which are the avant-garde in efficient and consistent performance, due to their **high-precision mechanics**. eTensil has been designed in order to obtain **endless electric lifespan**, thanks to the implementation of low wearing components, to low motor inertia and to a lower heating of the assembly. Hall sensors allow the user to have full control of rotation and ironless systems make the motor so light. Operating at low-voltage (32 volts) means maximum safety. **They are available with different torque / angle control technologies.**

CA automatic screwdrivers

Essential when tackling tightening jobs with medium and large runs of identical screws, they are great for speeding up the production cycle with their continuous supply of screws that are automatically sent to the tightening point. Using systems like these, which interconnect with management systems of smart factories (INDUSTRY 4.0), does away with the manual stages of picking up the screw and positioning it on the bit or on the part, **with a 30%-plus reduction in cycle times**. Available in several versions:

- **with Auto-advance or Telescopic device**
- **with different type of screw feeders**
- **with tightening heads suitable for screw points and components**
- **with different torque / angle control.**

Equipped with EDM software, Webserver interface for remote connection to tightening system, they interconnect with management systems production plant.

MCA tightening modules

Tightening modules **ready and tested for integration into existent production lay out to increase production capacity**. They comprise:

- **eTensil nutrunner motor with any type of torque/ angle control**
- **fastening slide**
- **customised screw-retaining head**
- **screw feeder.**

With MCA modules:

- screws are sent continuously and quickly from the bowl feeder to the screwretaining device
- the approach and subsequent tightening of the screw on the component is automatic and accurate
- the whole tightening cycle is controlled and monitored by an integrated PLC that interfaces with the automated production systems (Industry 4.0) and can be managed remotely.

The MCA module for Cobots

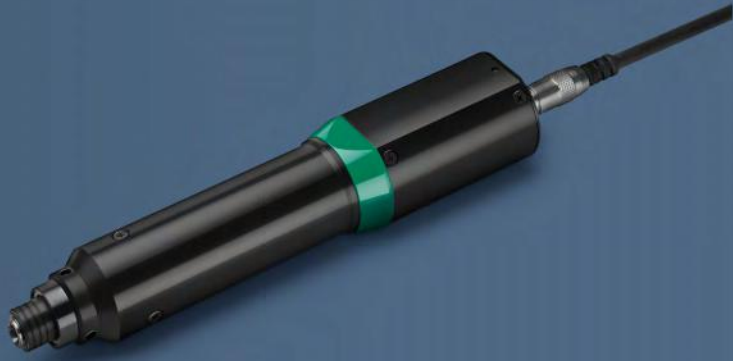
These modules **pair perfectly with all collaborative robots on the market**. There is a growing use of smaller cobots on assembly lines as they are ideal for:

- **automating repetitive operations** and making the best use of the operators' skills
- carrying out most tightening jobs automatically
- being **quickly reprogrammed** and used for different applications. Ease of programming and very fast setup.

Strength points:

- **Auto-advance device:** the automatic bit advance to the tightening point not allows it to withdraw
- **Quality assembly:** during tightening stage, the screwdriver's head does not rest on the surfaces, protecting them from any potentially damaging contact
- **Safe:** the tip of the screw is never exposed during handling and hence cannot hit the operator.

Discover all the automation solutions here:
[**Automatic Solutions | Fiamgroup**](#)





Do you need to automate your tightening processes?

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