



THE WORLD'S ONLY PATENTED
WIRELESS ROTARY TORQUE TRANSDUCER

Anti-Vibration · Shock-Proof · Torque Sensing · Data Collection

Compatible with Impact · Pulse · Clutch-Type · Auto-shutoff-Type Torque Tools

Passion for Innovation

Your Problems ~ Our Inspiration

www.zipptork.com

Features

- The world's only patented anti-vibration and shock-proof wireless rotary torque transducer.
- Easily detachable for use with any torque tool, ensuring accurate torque sensing and transmission.
- Compatible with all brands of torque tools.
- Patented shock-proof design, making it ideal for impact wrenches.
- Wireless feature enhances maneuverability, especially during bolting tasks.
- Cost-effective and fully protected by DMIT patents.
- Wireless torque data collection for increased efficiency.
- Flexible application software suite designed for seamless IIoT connectivity and integration with Industry 4.0.
- The only durable wireless rotary torque transducer backed by a one-year warranty or for up to 200,000 dynamic bolting cycles and 500,000 static bolting cycles (whichever comes first).

Wireless Rotary Torque Transducers

The only patented anti-vibration design specifically designed for impact and pulse torque wrenches.

Wireless design in RF or BT, ideal for dynamic operations with power torque tools or impact mechanisms from any manufacturer



TTAS/TTEB/TTES/TTEH/TTEM
Wireless
Rotary-Type Torque Transducer

- Patented anti-vibration design for durability.
- The **only** wireless rotary-type torque transducer applicable to air impact wrenches and Air/DC-driven pulse wrenches.
- Wireless feature for the most excellent maneuverability, especially during bolting.
- For measuring, monitoring, and recording torque before, during, or after assembly.
- Designed for torque testing, provides solutions for most of the torque auditing applications in manufacturing and quality departments.
- For testing the capability of your power torque tools, verifying the accuracy of your hand tools, monitoring the capability of your fastening process, or auditing the quality of your assembled joints.
- Data logging to peripheral devices or a cloud server for multiple transducers via the Gateway.
- Capacity range from **5Nm to 2,000Nm, 3,000Nm** & above can be custom-made upon request.
- Socket drive type-**TTEH** can be custom-made.
- The only durable wireless rotary torque transducer with a **warranty of ONE year or 200,000 times dynamic bolting & 500,000 cycles static bolting.**

Wireless Rotary-Type Torque Transducers

Key Features

- Static torque calibration accuracy: $\pm 1\%$ CW / $\pm 2\%$ CCW
- Static angle measurement range: 0.5° - 360°
- Applicable to any power impact or pulse tools regardless of brands and the type of impact mechanism for torque calibration, measurement, control, and verification.
- The type and size of both ends can be custom-made.
- Records the over-limit vibration level, the count of cycles and the over-torque value for the ease of warranty judgement.
- No slip ring design, more durable under shock and vibration for long dynamic service life.
- RF2.4G Hz or BT 5.0 for transmitting torque and angle signal wirelessly within 15M working distance.
- Power: 3.7V, rechargeable battery.

Specifications

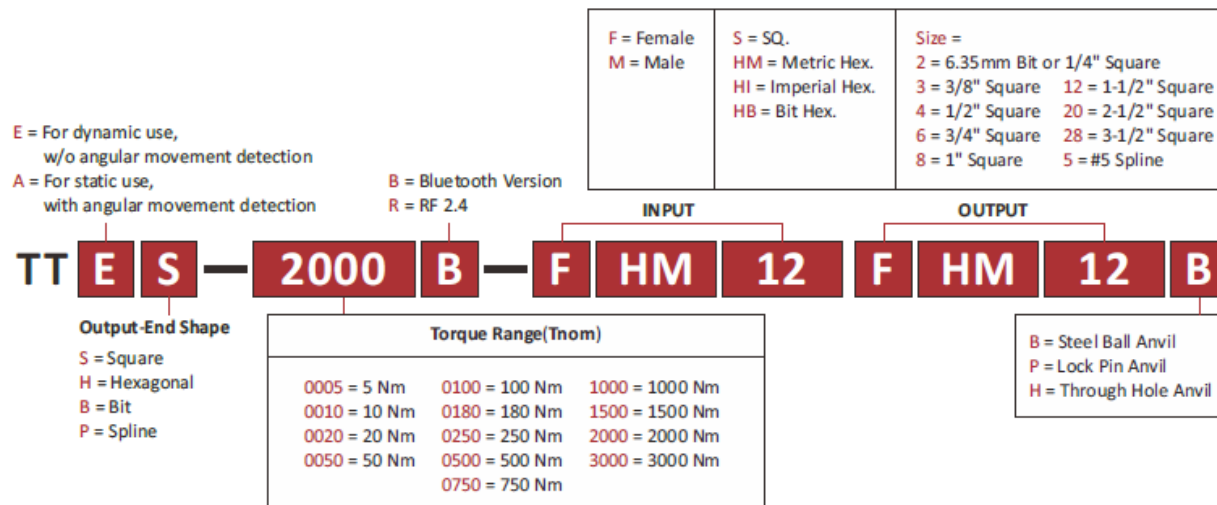
T_{nom}	50~3000Nm	5~20Nm
Power	DC 3.7V / 650 mAh	DC 3.7V / 650 mAh
Measured Range	10% T_{nom} ~100% T_{nom}	10% T_{nom} ~100% T_{nom}
Torque Resolution (Nm)	0.1% T_{nom}	0.1% T_{nom}
Accuracy (CW)	$\pm 1\%$	$\pm 1\%$
Accuracy (CCW)	$\pm 2\%$	$\pm 2\%$
Static Measured Angle Range	0° ~ 360°	0° ~ 360°
Angle Resolution (Degree)	0.5°	0.5°
Maximum Torque (Nm)	100% T_{nom}	100% T_{nom}
Wireless communication	RF 2.4GHz or Bluetooth	
Cable	USB-Type C	
Charger	USB (5V/1A)	
Operation Temperature ($^\circ$ C)	0° C~ 50° C	
Storage Temperature ($^\circ$ C)	-10° C~ 60° C	



ITEM NO.	Torque Range Nm	Inlet Size	Outlet Size	Profile Dimension O.D. X Length (mm)	Net Weight kgs	Battery Capacity
TTEB-5-MHB6FHB6	0.5~5	Hex. 6.35	Hex. 6.35	45x121	0.15	DC3.7V/650mAh
TTEB-10-MHB6FHB6	1~10	Hex. 6.35	Hex. 6.35	45x121	0.15	DC3.7V/650mAh
TTEB-20-MHB6FHB6	2~20	Hex. 6.35	Hex. 6.35	45x121	0.15	DC3.7V/650mAh

Wireless Rotary Torque Transducer

Standard Type / Hybrid Type





Detent ball anvil

ITEM NO.	Torque Range Nm	Inlet Size	Outlet Size	Profile Dimension O.D. X Length (mm)	Net Weight kgs	Battery Capacity
TTES-20-FS3MS3(B)	2~16	3/8"	3/8"	45x83	0.18	DC3.7V/650mAh
TTES-50-FS3MS3(B)	5~40	3/8"	3/8"	45x83	0.2	DC3.7V/650mAh
TTES-100-FS3MS4(B)	10~80	3/8"	1/2"	45x90	0.21	DC3.7V/650mAh
TTES-180-FS4MS4(B)	18~145	1/2"	1/2"	45x97	0.26	DC3.7V/650mAh
TTES-250-FS4MS4(B)	25~200	1/2"	1/2"	45x97	0.35	DC3.7V/650mAh
TTES-500-FS4MS6	50~400	1/2"	3/4"	57x114	0.7	DC3.7V/650mAh
TTES-750-FS6MS6	75~600	3/4"	3/4"	57x114	0.75	DC3.7V/650mAh
TTES-1000-FS8MS8	100~800	1"	1"	57x127	0.85	DC3.7V/650mAh
TTES-1500-FS8MS8	150~1200	1"	1"	57x134	0.95	DC3.7V/650mAh
TTES-2000-FS8MS12	200~1600	1"	1-1/2"	57x144	1.14	DC3.7V/650mAh
TTES-3000-FS12MS12	300~2400	1-1/2"	1-1/2"	86x166	3.8	DC3.7V/650mAh
TTAS-20-FS3MS3(B)	2~20	3/8"	3/8"	45x83	0.18	DC3.7V/650mAh
TTAS-50-FS3MS3(B)	5~50	3/8"	3/8"	45x83	0.2	DC3.7V/650mAh
TTAS-100-FS3MS4(B)	10~100	3/8"	1/2"	45x90	0.21	DC3.7V/650mAh
TTAS-180-FS4MS4(B)	18~180	1/2"	1/2"	45x97	0.26	DC3.7V/650mAh
TTAS-250-FS4MS6	25~250	1/2"	3/4"	45x104	0.35	DC3.7V/650mAh
TTAS-500-FS6MS6	50~500	3/4"	3/4"	57x114	0.55	DC3.7V/650mAh
TTAS-750-FS6MS8	75~750	3/4"	1"	57x114	0.75	DC3.7V/650mAh
TTAS-1000-FS8MS8	100~1000	1"	1"	57x127	0.85	DC3.7V/650mAh
TTAS-1500-FS8MS8	150~1500	1"	1"	57x134	0.95	DC3.7V/650mAh
TTAS-2000-FS8MS12	200~2000	1"	1-1/2"	57x144	1.14	DC3.7V/650mAh
TTAS-3000-FS12MS12	300~3000	1-1/2"	1-1/2"	86x166	3.8	DC3.7V/650mAh



ITEM NO.	Torque Range Nm	Inlet Size	Outlet Size	Profile Dimension O.D. X Length (mm)	Net Weight kgs	Battery Capacity
TTEH-180-FS4FH17L	18~145	1/2"	Hex. 17	45x134	0.5	DC3.7V/650mAh
TTEH-180-FS4FH19L	18~145	1/2"	Hex. 19	45x134	0.5	DC3.7V/650mAh
TTEH-180-FS4FH21L	18~145	1/2"	Hex. 21	45x131	0.5	DC3.7V/650mAh
TTEH-250-FS4FH18	25~200	1/2"	Hex. 18	45x94	0.28	DC3.7V/650mAh
TTEH-250-FS4FH24	25~200	1/2"	Hex. 24	45x97	0.34	DC3.7V/650mAh
TTEH-500-FS4FH27	50~400	1/2"	Hex. 27	57x102	0.7	DC3.7V/650mAh
TTEH-500-FS6FH27	50~400	3/4"	Hex. 27	57x111	0.75	DC3.7V/650mAh
TTEH-750-FS6FH46	75~600	3/4"	Hex. 46	57x128	0.8	DC3.7V/650mAh
TTEH-1000-FS8FHM30L	100~800	1"	Hex. 30	57x169	1.65	DC3.7V/650mAh
TTEH-1000-FS8FHM32L	100~800	1"	Hex. 32	57x169	1.6	DC3.7V/650mAh
TTAH-180-FS4FH17L	18~180	1/2"	Hex. 17	45x134	0.5	DC3.7V/650mAh
TTAH-180-FS4FH19L	18~180	1/2"	Hex. 19	45x134	0.5	DC3.7V/650mAh
TTAH-180-FS4FH21L	18~180	1/2"	Hex. 21	45x131	0.5	DC3.7V/650mAh
TTAH-250-FS4FH18	25~250	1/2"	Hex. 18	45x94	0.28	DC3.7V/650mAh
TTAH-250-FS4FH24	25~250	1/2"	Hex. 24	45x97	0.34	DC3.7V/650mAh
TTAH-500-FS4FH27	50~500	1/2"	Hex. 27	57x102	0.7	DC3.7V/650mAh
TTAH-500-FS6FH27	50~500	3/4"	Hex. 27	57x111	0.75	DC3.7V/650mAh
TTAH-750-FS6FH46	75~750	3/4"	Hex. 46	57x128	0.8	DC3.7V/650mAh

Wireless Rotary Torque Transducer Applications

Before Assembly

For checking the torque tool capability & calibrating the torque setting

During Assembly

For controlling or monitoring while recording the bolting torque being applied to the bolted joint instantly and wirelessly

After Assembly

For effectively verifying the bolted joint residual torque accuracy with Angle/Torque Mode

Features

- Suitable for use with manual torque wrenches, air or cordless impact/pulse wrenches, torque multipliers for both static and dynamic bolting, as well as for verifying residual torque.
- Designed to monitor the bolting torque of a torque tool equipped with a clutch or auto-shutoff mechanism. It transmits relevant data such as operator ID, job ID, and work time instantly for data collection, which can be uploaded to a tablet, notebook, or further to peripheral devices or a cloud server.
- The tool features a patented anti-vibration mechanism, making it ideal for static torque and angle measurement or verification. It is also compatible with both continuous and discontinuous type torque tools.
- A patented algorithm works in conjunction with a torque multiplier to measure the residual torque of a high-torque bolted joint with the desired angular movement, all while efficiently recording personnel ID, job ID, and measurement time.

Wireless Rotary Torque Transducer Applications

For Bolting

Application 1: Use any brand of manual torque wrench or click wrench in conjunction with the TTA series of torque transducers and a cellphone, tablet, or laptop. Tighten to the target torque until a warning alert is triggered, then stop. The system will display and assess whether the result is OK or NOK while recording and transmitting relevant data to peripheral devices. Accuracy can be controlled within $\pm 5\%$. We aim to "make audible clicks visible."

Application 2: Employ any brand of manual torque wrench or click wrench in combination with the TTA series of torque transducers and a torque multiplier (with 1 to 3 stacks), along with a cellphone, tablet, or laptop. Tighten to the target torque until a warning alert is triggered, then stop. The system will display and assess whether the result is OK or NOK while recording and transmitting relevant data to peripheral devices. Accuracy is controllable within $\pm 5\%$. Our goal is to "make audible clicks visible."

Application 3:

- a. Use any brand of air or DC-driven impact wrench to tighten to 80% of the target torque.
- b. Then, switch to any brand of manual torque wrench or click wrench, along with the TTA series of torque transducers and a cellphone, tablet, or laptop. Tighten to the target torque until a warning alert is triggered, then stop. The system will display and assess whether the result is OK or NOK while recording and transmitting relevant data to peripheral devices. We aim to "make audible clicks visible" with accuracy controllable within $\pm 5\%$.

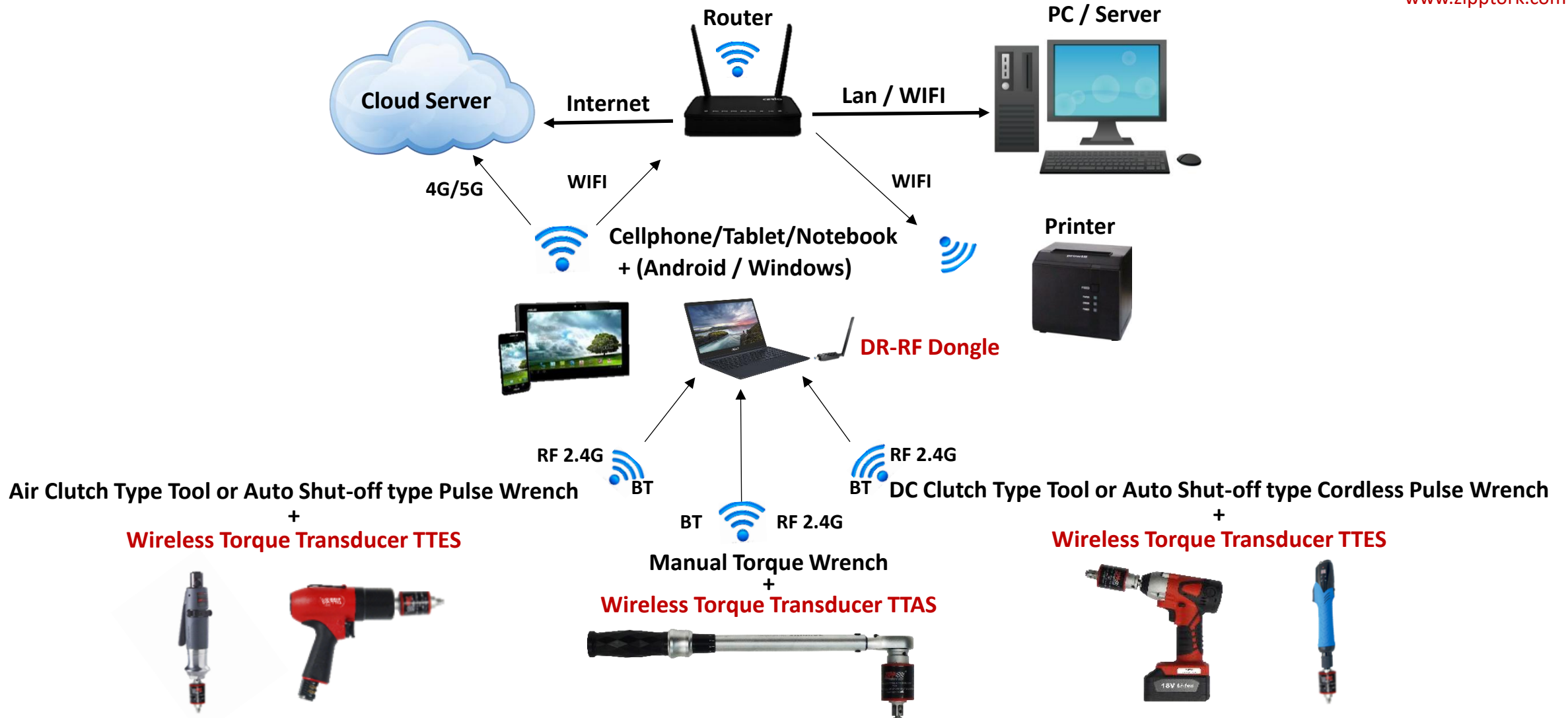
Application 4: Attach to any air or DC-driven clutch-type or auto-shutoff-type torque tool. Use the provided free software to monitor real-time bolting torque and collect data, including operator ID, workpiece code, and operation time.

Application 5: Use with any brand of air or DC-driven impact wrench, along with free software, to tighten the bolt to the target torque. Release the trigger according to alerts from the tablet or laptop. Accuracy is controllable within $\pm 10\%$ to $\pm 20\%$.

Application 6: Utilize in conjunction with the patented Torque Controller under Transducer Mode for any brand of air or DC-driven impact wrench or pulse wrench. Tighten the bolt to the target torque and release the trigger according to alerts from the tablet or laptop. Accuracy can be controlled within $\pm 5\%$ to $\pm 15\%$.

Application 7: Access free application software to verify the residual torque of bolted joints. Measure the residual torque value at any angular displacement and record the inspector's code, the object, and the inspection time.

Application System Architecture



The ONLY anti-vibration wireless Rotary-Type Torque Transducer that can be installed in clutch-type or auto-shutoff-type torque wrenches for bolting torque monitoring

Data Collection for Manual Torque Wrenches

Manual Torque Wrench / Click Wrench / Cam-Over Wrench + TTAS/TTEB wireless Rotary Type Torque Transducer
→ RF2.4G / BT → DR-RF Dongle (RF2.4G only) + Tablet / Laptop (Android and Windows) → WIFI → Cloud Server

Continuous monitoring and torque accuracy must be within $\pm 5\%$ or less, with accuracy depending on the quality and stability of the tool used and how firmly the tool is gripped during operation.

Application System Architecture



Video Link ~ Manual Torque Wrench: <https://tinyurl.com/44njsbxbp>

Video Link ~ Click Torque Wrench: <https://tinyurl.com/474rn6ka>

Bolting Torque Control Application Embodiments

Monitoring bolting torque of clutch or Auto-shutoff Type Tool

Any Air or DC-driven torque tool with the clutch or auto-shutoff mechanism + TTES/TTEB wireless Rotary Torque Transducer
→ RF2.4G/BT → DR- RF Dongle (RF2.4G only) + Tablet/Laptop (Android/Windows) → WIFI → MES/Server

Continuous monitoring and Torque control accuracy should be within $\pm 5\%$ or better, depending on the quality and stability of the tool used

Application System Architecture

Cordless Auto-shutoff Pulse Wrenches or Clutch Tools



TTES/TTEH/TTEB
Wireless Torque Transducer



RF2.4G
BT

RF2.4G
BT
DR
RF Dongle

Tablet / Laptop



WIFI

Router

WIFI

Internet

Cloud Server

LAN

MES

Video Link ~ <https://youtu.be/kuxeFsh8XuA>

Video Link ~ <https://youtu.be/oZ5SyGbxnbl>

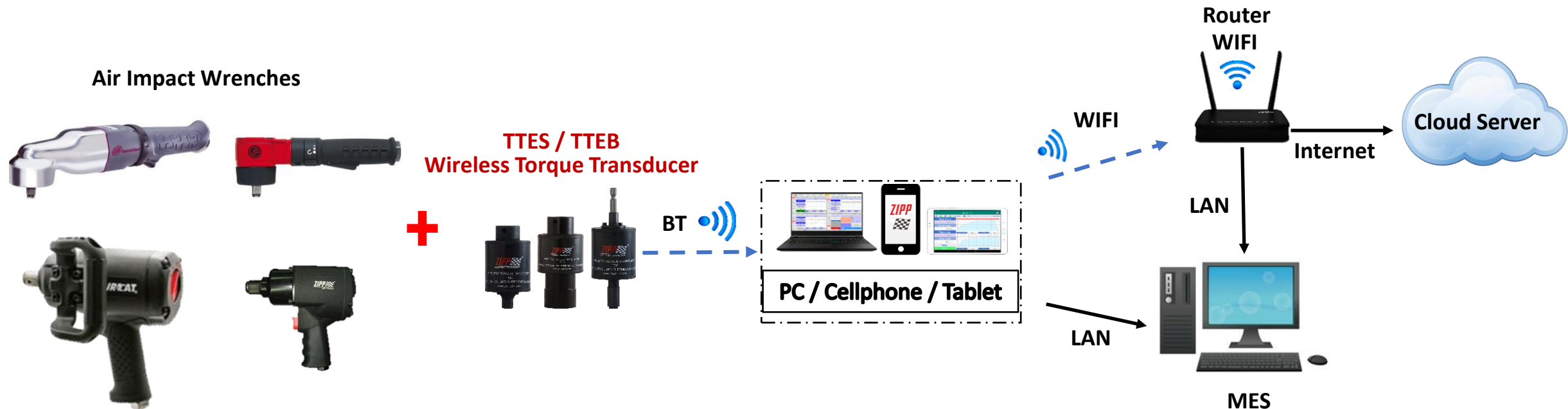
Bolting Torque Control Application Embodiments

Bolting Torque Control of Air Impact Wrenches

Air Impact Wrenches + TTES wireless Torque Transducer + TMS APP/Software, under Timer Mode → Wi-Fi → MES or Server

Torque control accuracy within $\pm 10\% \sim \pm 20\%$

Application System Architecture



Video Link ~ <https://tinyurl.com/hw3h4tn3>

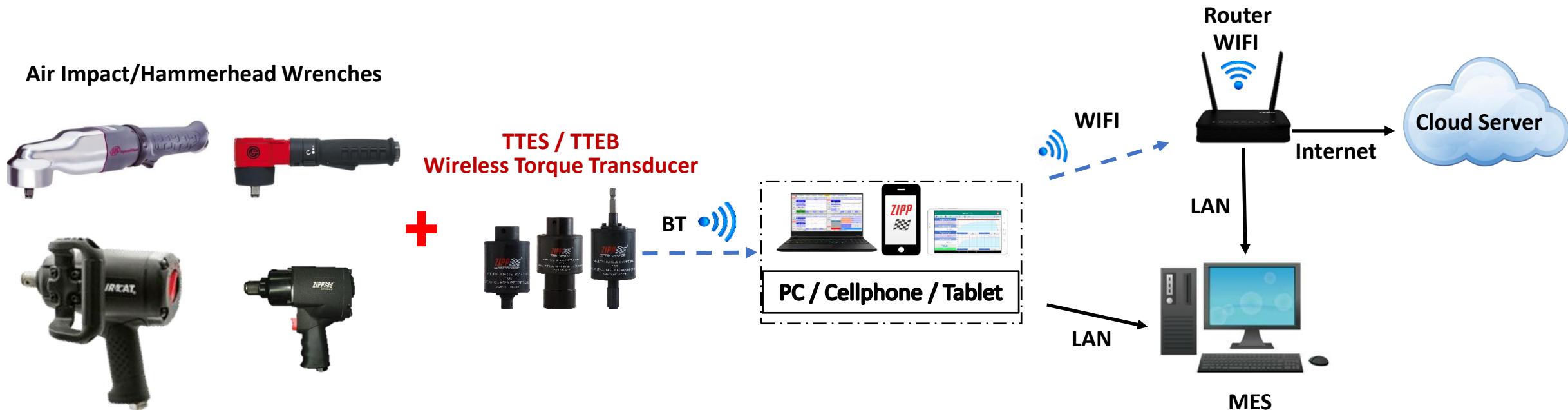
Bolting Torque Control Application Embodiments

Bolting Torque Control of Air Impact Wrenches

Air Impact Wrenches + TTES wireless Torque Transducer + TMS APP + Laptop, under Timer Mode → Wi-Fi → MES or cloud server

Torque control accuracy within $\pm 15\% \sim \pm 20\%$

Application System Architecture

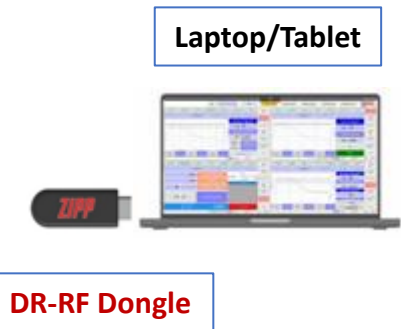


Video Link ~ <https://tinyurl.com/hw3h4tn3>

Wireless Rotary Torque Transducer Applications

Innovative design featuring patented anti-vibration technology and a wireless connection

Applies to all power torque tools featuring a clutch or auto-shutoff mechanism for torque monitoring and data collection



Cordless Clutch Type Tool/ Auto Shutoff Type Pulse Wrench



Air Clutch Type Tool / Auto Shutoff Type Pulse Wrench



Applicable to any brand of power torque tools that have an impact or pulse mechanism for torque control and data collection under various control modes, the Torque Controller is designed with a patented control algorithm and device.

Air Oil Pulse Wrench



Air Impact /Hammerhead-Angle Impact Wrench



Bolting Torque Control of Air Impact & Pulse Wrenches

Air Impact or Pulse Wrenches + Torque Controller + Wireless Torque Transducer + Laptop, under Transducer Mode → WIFI → MES or Server

Application System Architecture

Video Link ~ <https://tinyurl.com/bdctdc4t>

$\pm 5\% \sim \pm 10\%$

Torque control accuracy

Transducer Mode

TTES / TTEB
Wireless Torque Transducer



Video Link ~ <https://tinyurl.com/4yrvrufp>

$\pm 10\% \sim \pm 15\%$

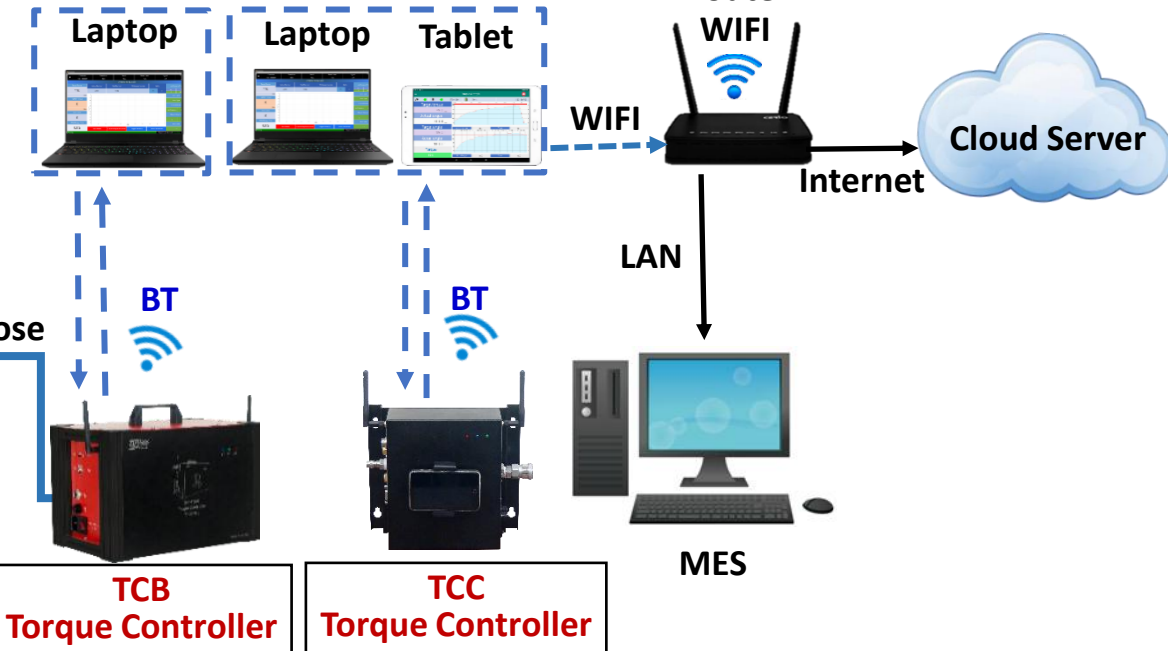
Torque control accuracy

Transducer Mode

Air Pulse Wrenches



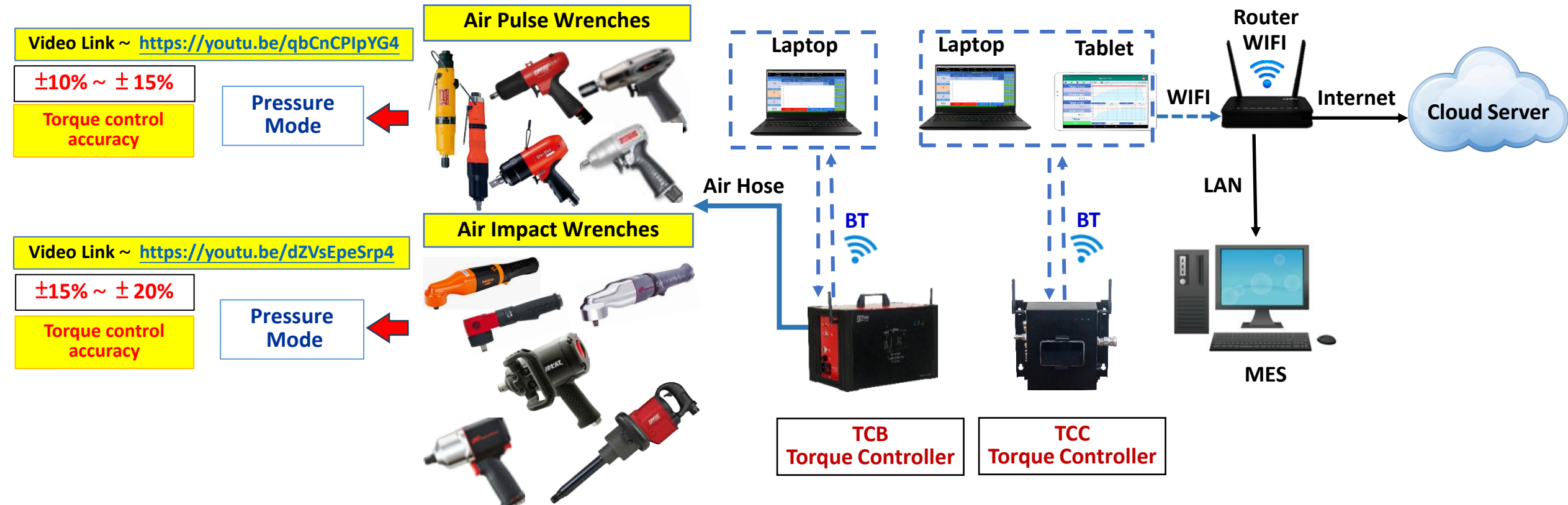
Air Impact Wrenches



Bolting Torque Control of Air Impact & Pulse Wrenches

Air Impact or Pulse Wrenches + Torque Controller + Laptop, under Pressure Mode → WIFI → peripheral devices or server

Application System Architecture



Bolting Torque Control Application Embodiments

Compatible with all air impact and pulse wrenches, regardless of brand or mechanism

Not recommended for clutch-type, ratchet-type & auto-shutoff-type torque tools

Air Pulse Wrench

Video Link ~ <https://tinyurl.com/v8jzk788>

$\pm 10 \% \sim \pm 15 \%$

Torque control
accuracy

Pressure
Mode

Video Link ~ <https://tinyurl.com/bdctdc4t>

$\pm 5 \% \sim \pm 10 \%$

Torque control
accuracy

Transducer
Mode



Wireless Torque Transducer



TCA / TCB / TCC
Torque Controller



Video Link ~ <https://tinyurl.com/bdfkew4z>



Pressure
Mode

$\pm 15 \% \sim \pm 20 \%$

Torque control
accuracy

Video Link ~ <https://tinyurl.com/4yrvrufp>

Transducer
Mode

$\pm 10 \% \sim 15 \%$

Torque control
accuracy



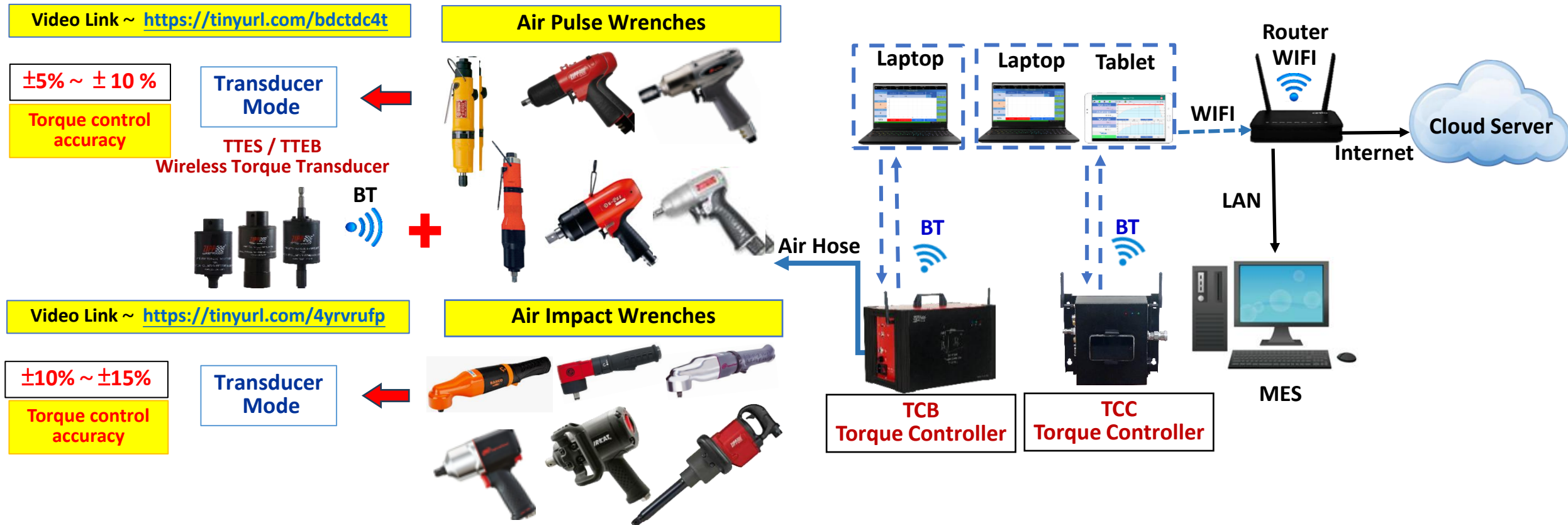
Wireless Torque Transducer



Bolting Torque Control of Air Impact Wrench & Pulse Wrenches

Air Impact or Pulse Wrenches + Torque Controller + Wireless Torque Transducer + Laptop, under Transducer Mode → WIFI → MES or cloud server

Application System Architecture





Intelligent Bolting Technology

Enhance the competitiveness of your impact, pulse, clutch-type, and auto-shutoff torque tools by incorporating intelligent features.

These include effective torque controllability, data collection, storage, and cloud uploading, which ensure job responsibility traceability and optimize management quality for your customers.

~Making Industry 4.0 A Reality~