



Edition 1.0

URYU SEISAKU, LTD.

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1. Safety Instructions

Do peruse this instruction manual before installation, operation, maintenance and inspection of this system, and the use this system properly. Use this system only after you master knowledge of this equipment, safety instruction and all instructions given in the safety instructions of this system.

Take note that this operation manual classifies the safety instructions into two signs; "DANGER" and "WARNING", according to the degree of seriousness and urgency.



: A fatality and/or heavy personal injury is highly possible by improper operation. Urgent warning is essential in the event of an accident.



: A dangerous situation accompanying mid-slight personal injury and/or property damage is possible by improper operation.

WARNING sign also warns the risk of serious consequences depending on the situation. So, always follow the instructions given in this Manual

Installation & Surroundings



- Place on a metal or other incombustible component to prevent a fire.
- Keep away from the combustibles to prevent a fire.
- Avoid foreign material intrusion to prevent a fire.
- Set up controller on a site that can bear its weight to avoid personal injury from accidental falling.
- Keep the workplace well lighted and clean to avoid personal injury.
- Never wear loose-fitting clothes or dangling jewelry when using this system, and always wear the proper clothes for your job. In addition, be careful not to get your hair caught in tools, and tie long hair with a rubber ribbon or the like and wear a protective helmet to prevent personal injury.
- Securely install and fix this system to avoid personal injury in case of an emergency like an earthquake.





- Be sure to turn off the power switch prior to wiring to avoid an electric shock or a fire.
- Make sure that the cords and outlets are properly grounded to avoid an electric shock or a fire.
- Carry out wiring after you installed controller to avoid an electric shock or a fire.
- Wiring must be carried out by an expert electrician to avoid an electric shock or a fire.
- Always use Y-shape crimp contact or round-shape crimp contact when wiring terminal block to avoid an electric shock or fire.

- Be sure that controller rated voltage agrees with AC power source to avoid personal injury and a possible fire.
- Wires must be routed and fixed properly as securely to avoid personal injury and a fire.
- Always use a original power cord.
- Handling and operation



- Assurance of work-site safety by operators themselves prior to power switching operation is essential to prevent personal injury.
- Never touch switching devices with wet hands to avoid an electric shock.
- Never touch the current-carrying controllers' terminals even if the tool is not in operation to avoid electric shock.
- Never damage, excessively stress, load the cords, and never tuck them between objects to avoid electric shock.
- Never replace a tool or cable while the controller is powered on to avoid electric shock.
- Be sure to turn off the controllers after each use.



- Make settings within the instructed setting range to avoid personal injury and burns.
- Do operations in safe surroundings while keeping proper footing. Avoid poor postures to prevent danger.
- Do operations with extra care. Never do any operation and long time continuous job due to careless and inappropriate manner to avoid personal injury or work-related diseases.
- Use the system as specified in this instruction manual. Otherwise, the protection provided by the system can be damaged.

Maintenance and Inspection



- Turn off and unplug the power cords prior to inspection/replacement to avoid an electric shock.
- Maintenance/servicing works only by an expert is allowed. Be sure to take off metal articles (wristwatch or ring) prior to operation. Inspect cords periodically for damage, and have an expert make repairs or exchange if signs of wear or damage are noticed. Always use insulating tools at the time of servicing to avoid an electric shock and personal injury.
- Always order us or our agent for overhaul to avoid electric shock, personal injury and fire.
- Disposal



• Dispose your system as your industrial waste.





- Never add modifications to your system to avoid an electric shock, injury or fire.
- Stop your system right away and cut off the power whenever something unusual occurs.

General precautions

- Some illustrations and diagrams in this Manual are shown without the safety shield materials in order to explain details. Put back the safety shield materials to the original place and operate this System in accordance to this Manual.
- Keep persons irrelevant to System operation away from work-site.
- This system is not the waterproof structure. Keep liquids away from the system. Any liquids can cause the short-out resulting in the fire or the electric shock.
- The magnet-strictive sensor is built into the MC tool. Never place any magnet near the tool to avoid any magnetic field effect. Otherwise, the tool may malfunction.



Disclaimer

• Contents of this manual may change without notice.

- 2. Outline
- 2.1. Configuration







2.3. Dimensions







9

2.4. Features

①Self-Diagnosis Function

When UEC is switched on, it performs self-diagnosis by checking ROM \rightarrow RAM \rightarrow A/D \rightarrow ZERO / CAL in a row for 10 seconds

②Various tightening abnormality detection and tightening number control functions are provided.

(3)You can set and change the tightening torque value, number of tightening bolts, etc. of 16 types (workpieces 1 to 16). When program No. switching is used, the tightening torque value can be changed within the same workpiece.

W Work 1 to 8 can be used when Ver3.80 is less than that.

(4)It can be used with torque sensors/tools such as MC wrenches, EC wrenches, open wrenches, angle nutrunners, UDBP-AFZ, air nut runners, etc.

(5) Total number of tightening and total number of tightening pulses can be used to manage the tool.

(6)I/O check and abnormal display can be checked with the display and sound of the PC or the front panel.

⑦Various control values can be set and monitored by operation from a PC or front panel.

(8) Various torque sensors can be supported.

SG (strain gage type sensor)

350Ω

480Ω

700Ω

MS (URYU Magnetostrictive type sensor)

(9)Up to 4550 pieces (up to 1800 pieces depending on the stored contents) of tightening data can be memorized.(10)The polarity of the inputterminal can be switched between NPN and PNP (UEC-4801 only).

(I)Functions of the dedicated PC software

Transmission and reception of set values

Reception and storage of statistical data

Reading SD Card Data

% If you are using a UDBP-AFZ, to connect the setup software with a RS232C, disconnect ZigBee communication cable. Then restart UEC and connect PC. After use, reconnect Uzig01 and turn on the power again.

(D)This unit is compatible with Ethernet (TCP/IP).

Connect to the software for setting, send and receive set values, and transmit tightening results/waveform
data

· Connecting to the data management system made by URYU and send the tightening result/waveform data

Connecting to the server, receiving the tightening instruction data and sending the tightening result data

• To support each user's own network system, it is necessary to modify the software according to the specifications.

① Valve Check

This is to check the wiring of solenoid valve. Necessary to change the parameter on MODE setting.

(1) SD Card

- Save fastening data and wave form data

Save setting values/read

* use SD card capacity of 32GB in maximum.

2GB is maximum for UEC version less than V3.80.

•The firmware is subject to be changed for improvement without prior notice.

•The firmware version can be seen on the sticker which is put next to power switch or start screen upon booting the UEC.

2.5. Installation

Install and fix controller firmly by paying attentions to the following points.

2.5.1 Place

1) Within a building where no water or direct rays of the sun enters because UEC-4800 is not the waterproof structure.

- 2) A place free from corrosive gas, flammable gas, grinding fluid, oil mist, iron powder, and cutting chips.
- 3) Well-ventilated place with less moisture, dust or waste.
- 4) Less vibration place
- 5) Location where the power cable can be unplugged immediately if a controller malfunction occurs.
- 6) Set in a dust-free box in case of use under environment of contamination degree 3.

Item	Conditions
Place	Indoors only
Operation temperature	0 – 45 degree (no freeze)
Humidity	90% RH or less (no dew)
Preservation Temperature	0 – 45 degree (no freeze)
Preservation Humidity	90% RH or less (no dew)
Vibration	5.6 m/s² or less (10 – 60 Hz)
Altitude	Less than 1,000 m above sea level
Over voltage Category	Category III *1
Contamination Degree	Degree 2

*··· The installation category (I,II,III) and contamination degree (1, 2, 3) are classified according to IEC60664. This installation is classified as Installation Category III and Pollution Degree Level 2 as described above. (NOTE)IEC··· International Electrotechnical Commission

3. Specification

Itom	1	Contents		
Power source AC 100-240V ±10%		AC 100-240V +10%		
Frequency		50/60 Hz		
Insulation resistance		DC500V 10 MΩ or more		
Power consumption		30VA		
Weight		LCD type: 3.4kg (touch panel type: 3.6kg)		
Dimen	sions	265(D) × 222(W) × 120(H)		
Dimensions Main function		Torque Control/Monitoring, Angle Monitoring, Tightening Control		
Setting method		 Operation from the front panel Settings using the dedicated software from a PC 		
Display		Torque resolution ± 2048(12Bit A/D used) LCD(20 digit × 4 lines) Display Contents: Work No. Bolt count number, tightening time, number of pulses, angle, free-run angle 1-digit Digital Display (DPM) Work number displayed 4-digit Digital Display (DPM) Torque reading and Error message displayed		
Clock f	unction	Full-automatic calendar, 24-hour meter, accuracy: ±1 minute/month		
		Total Lamp (for Count Judgement) : OK (green) / NOK (red)		
Lamp	(LED)	Torque Lamp (for Torque Judgement) : LOW (yellow) / OK(green) /HIGH(red		
Termi bloc	Input signal	Operating voltage/current: DC24V/Approx. 10mA 6 points (free format) * Note: Contact input necessary		
hal	Output signal	Contact rating: DC30V, 1A 6 points (free format), VALVE		
Oscilloscope output		(Plug size: JIS C6560 small single head plug φ3.5×15) Torque waveform after filter is output by jack terminal Connecting cable: UK-PULG (Part code: 909-483-0)		
Key		Display on the LCD type front panel : TTI , RES (RESET), ST (ENTER) Display on the touch panel screen ENT (ENTER), RES . (RESET) & 10 key		
Option		Front-Panel (LCD)Part Name: UEC-LCD Panel. CP Part Code: 910-072-0Front panel (touch panel type)Part Name: Touch Panel CP Part Code: 910-073-0Part name: Setting PC cable Part code: 910-219-0Specifi cations: Straight cable D-sub9 pin female-D-sub9 pin female for RS232CTorque sensor cablePart name: Sensor cable CP 3F5(Ro10) ==== Part code: 911-068-0Part name: Sensor cable CP 3F10(Ro10) == Part code: 911-069-0Part name: Encoder cable CP(Ro10) = = Part code: 911-074-0ANGLE boardPart code for UEC-4801/4800(SD)000: 910-082-0Part code for UEC-4800(SD unsupported version) 0: 910-080-0Part name: ZigBee Base Unit UZig01Part code: 910-391-0Part name: UZig01 Power Supply Cable 1mPart code: 910-102-0Part Name: UZig01 Power Supply Cable 3mPart code: 910-103-0• Power can be supplied to UZig01 from the torque sensor connector without usingAC adaptor		

- 4. Name and Function of Parts
- 4.1. Front Panel

2 UEC 4801	TORQUE CONTROLLER UEC-4801 (4) (5) COUNT TORQUE OK NOK OK HOM	TURQUE
URYU		

1Power Switch

Switch for power supply. Turn off when you do not use UEC.

②Buzzer

It sounds to announce for the confirmation of fastening, various errors, various NOK or key input. Press and the buzzer stops when an error is detected.

③1-digit 7 segment display (No.)

1-digit (No.) 00: The currently selected WORK No. is displayed. WORK 10 ~ 16 is displayed as A to G. 4-digit (TORQUE): Displays the measured torque/error code.

④COUNT light

OK : It lights when all the preset number of fasteners are tightened up.

NOK: It lights when the preset number of fasteners are not tightened up at the time of judgement.

⑤TORQUE light

OK : Lights up when the measured value is within the high/low limit setting during judgment.

LOW HIGH: Illuminates when the measured value is outside the high/low limit setting during judgment.

6 These are used to move the cursor in the menu screen and increase/or decrease the setting values.

⑦ ■ Selects the digit whose value is to be changed when entering the setting value in the write mode.

®Key switch

RES: Reset key **INT**: Stop the buzzer, confirm the set value, press and hold for more than 3 seconds to write mode, etc.

(9)PC Connector (D-sub9 Pin)

Connector cable between the PC for set up or set up for Uzig01. Both cannot be used simultaneously. Power off the controller when you switch from PC for set up to set up for Uzi01 or vice versa. Use the straight cable for PC for set up

(IDLCD display (20 digits × 4 lines)

Displays the tightening data (torque/angle/time/pulse count/judgment), displays the remaining counts, ID, date and time, displays various abnormalities, and displays the set values.

4.2. Rear Panel



①Power cord box

Connect the power cord.

Make sure to ground the grounding wire of the power receptacle.

2Fuse holder

Protective fuse. (T3.15A)

③PC connector (D-sub9 pin male)

Data-in/out RS232C port. Connect the Pokayoke, Sequencer, PC, Bar code reader, etc.



Wiring description		
Pin number	Signal description	
1	FG (frame ground)	
2	TXD (transmission line)	
3	RXD (data-receiving line)	
4	Short-circuit with pin 6	
5	SG (signal ground)	
6	Pin 4 and short circuit	
7	Short-circuit with pin 8	
8	Pin 7 and short circuit	
9		

%Pin 2 and 3 signals can be interchanged.

Refer to Section 11.4 DATA OUT (Data Output Setting) for the last * Rear-Panel PC Connector.

(Connector CN-1 for sensor cable)

Connect the sensor cable from the tool.

Turn OFF the power before attaching or detaching the sensor cable.

(5)SENSOR selector

Select switch of either MS (URYU original magnetstrictive type sensor) or SG (strain gauge type sensor). Use on the "M.S." side when using a MC/AMC wrench or on the "S.G." side when using an EC wrench. Turn OFF the power before switching the unit.

(6) ANALOG OUTPUT terminal

Terminal for torque waveform output.

(For more information, see section 14, How to Measure Torque Wave, 15.ANALOG OUTPUT Terminals.)

⑦Space for the optional board

Space for the optional board.

⑧Network connector

Connector for Ethernet. Connect PC or server via this port.

(9)Input and Output terminals (free format)



Terminal Number	Signal Allocations	Terminal Number	Signal Allocations
A1	Input COM when 0V(NPN is selected)	B1	COM : Common Terminal for the output terminals.
A2		B2	
A3		B3	
A4	IN 4 . O . In must Tampain also	B4	OUT 1 ~ 5 : Output Terminals
A5	IN I ~ 6 : Input reminais	B5	
A6		B6	
A7		B7	VALVE : Valve Output (0V)
A8	IN COM : Common Terminal for the	B8	VALVE COM : +24
A9	input terminals. (-)	B9	OUT 6 : Output Terminal
A10	OUT COM : Common Terminal for the output terminals.	B10	OUT COM : Common Terminal for the output terminals.

%The assignment of the terminal block signal contents is free format, so the signal contents of IN 1 to 6 and OUT 1 to 6 can be changed by the I/O assignment setting. Check the assignment of the terminal block I/O before wiring.

%Input to input terminals IN 1 to 6 should be performed by contact input.

%Output terminals OUT 1 to 6 are non-voltage output. Wiring should be conducted at DC24V level or lower.

%For wiring to the terminal block, use Y-shaped crimp terminals or round crimp terminals.

%Input pins are NPN connected by default. PNP can be switched by using a jumper socket on the main PC board. See 10.2 NPN/PNP Switching for details.

(DGrounding terminal

Terminal for grounding. Make sure to use this terminal if the power cord does not have a ground wire.

1 SD card slots

This is the slot for SD card. It is available for upto 32GB. Do not remove the card when the accessing lamp is on.

*Loading time will be longer corresponding to the capacity of SD card. When you use SD card in 32GB, loading time will be approx. 70 seconds.

* Slot size on UEC produced by 2015 is for miniSD.

5. Differences between UEC-4800 and UEC-4801

The following specifications have been added to UEC-4801.

Terminal block input method switching function

- The input-type (NPN/PNP) of the terminal block can be changed by switching the jumper socket on the main board inside the main board.
- Refer to 10.2NPN/PNP selection for more information.

6 Operation

6.1 Preparation for operation

①Connect Sensor Cable to CN-1 Connector of UEC, and connect sensor cable to a tool.

②Make sure that the controller is powered off and connect the power cable to the power supply.

③When UEC is turned on, self-diagnosis operation is performed for approximately 10 seconds. Visual check of LED should be done. (" " is displayed as <u>8888</u> **8** in 7-segment, and the buzzer is ON.)

%Make sure every cable is connected before booting the controller.

6.2 Key operation

1) Switch on UEC, and it makes the self-diagnosis check. After it is over, the screen changes to the measurement screen.

2) Press in the measurement screen to go to the menue screen (DISPLAY SELECT).

3) Press 📧 in the measurement screen to clear the fastening error or make the ZERO/CALcheck.

4) Move the cursor : \rightarrow up or down by

5) When the screen consists of two or more pages, the current page number and the total page numbers are shown in the upper right of the screen.

6) Press 🖬 in the measurement screen to move to the next page, and press 🗖 to move to the previous page.

7) Press and hold it more than 3 seconds to enter the writing mode, and setting values get changeable.

8) While in the writing mode, press **I** in the fourth line to move to the next page, and press **I** in the first line to move back to the previous page.

- 9) Press **I** or **I** in the first line of the first screen to move to the previous screen.
- 10) Point the cursor $[\rightarrow]$ to the screen name you want to move, and press \blacksquare to move to the screen you select.
- 11) Press 📧 in any screen to move back to the measurement screen.

6.3 Setting method

There are two ways available, either by PC or by key switch on the front panel of UEC-4800 to change the setting

values.

- (1)By PC (Please refer to the instruction manual of UEC-4800 setup software for details.)
 - 1) Connect the communication straight cable to [PC] connector in the front panel of UEC, and connect to PC through RS232C or Ethernet of NETWORK connector in the rear panel.
 - Change the setting values in the setup software.
 - 3) Transmit the setting values set up in the setup software to UEC.

(2)By Key Switch in the front panel

- 1) Move to the screen you want to change the setting value.
 - Press and hold more than 3 seconds to enter the writing mode.
- 2) Tool gets inoperable, and COUNT NOK lamp lights while in the writing mode.
- 3) By using \square , point the cursor $[\rightarrow]$ to the setup item you want to change the setting value and press
- 4) By using **I**, point the cursor to the unit of value to be changed.
- 5) By using **[]**, increase the value. By using **[]**, decreases the value.
- 6) After changing the setting values, press **an** to determine the values. Setting values are overwritten in the controller.
- 7) Escape from the writing mode by pressing s and move back to the measurement screen. The change of setting values is ended.

6.4 Self-diagnosis function

When the power is turned on, all checks, such as $ROM \rightarrow RAM \rightarrow A/D \rightarrow ZERO/CAL$ checking, are performed for approximately 10 seconds, and there is a function to check and detect abnormalities in the components used in this equipment.

[Details of self-diagnosis]

[Self-disgnosis check]

1) LED lamp and Buzzer

7 segment of the front panel displays [8.8.8.8.] [8.], and LCD display becomes as per the following. LED lamps light and buzzer sounds. Visually check every LED lamp lights and buzzer sounds in order.



2)Checking ROM IC operation

Check if the memory IC (ROM), which memorizes the UEC control program, function normally.

3) Checking RAM IC operation

Check that UEC setting and IC(RAM memorizing the measured values operate normally.

4) A/D IC performance check

It checks if the analog-digital converter IC (A/D), which measures the torque data in analog value by CPU, operates properly or not.

5) Setting value storage data check (SUM check)

It checks if there is no error in the setup data memorized in RAM IC

7 IN/OUT CHECK

7.1 KEY CHECK (key input diagnosis)

It is possible to check if the key switch functions in order. [How to use]

- 1) Press in the measurement screen to move to the DISPLAY SELECT screen.
- 2) Point [\rightarrow] to [CHECK SELECT] and press are to move to the IN/OUT CHECK screen.
- 3) Point [\rightarrow] to [KEY CHECK] and press $\mathbf{\overline{sm}}$.



IN/OUT	CHECK SELECT
→KEY	CHECK
INPUT	CHECK
OUTPUT	СНКСК

4) Move to the KEY & LCD CHECK screen.



5) Select the key and press it, and the pressed key name is displayed in the LCD screen. Key operation Display

	KEY&LCD CHECK ******** * UP * *******
	KEY&LCD CHECK ******* * DOWN * *******
	KEY&LCD CHECK ******** * RIGHT * *******
	KEY&LCD CHECK ******** * LEFT * *******
RES	KEY&LCD CHECK ******** * RESET * *******
ENT	KEY&LCD CHECK ******** * ENTER * *****

6) Press stwice in a row to finish KEY CHECK (key input diagnosis), and move back to the IN/OUT CHECK SELECT screen.

7.2 IN/OUT CHECK

By monitoring the input condition to the terminal block and making the compulsory signal output to either the terminal block or the tool, UEC checks the incoming wirings of the terminals of UEC, the tool and the sensor cable connected.

[How to use]

Either by the key switch or through the PC

- (1) Input wiring diagnosis by the key switch
- 1) Press in the MEASURING screen to enter the DISPLAY SELECT screen.
- 2) Point $[\rightarrow]$ to [CHECK SELECT] and press [m] to move to the IN/OUT CHECK screen.

IN/OUT	CHECK SELECT
KEY	CHECK
→INPUT	CHECK
OUTPUT	СНКСК

- 3) Point [→] to [INPUT CHECK] and press we to move to the INPUT CHECK screen. UEC gets inoperable and TOTAL NOK lamp lights. 7 segment display shows [-][---].
- 4) When there is no signal being input externally, LCD displays becomes as follows;

INPUT CHECK	
INPUT1	INPUT4
INPUT2	INPUT5
INPUT3	INPUT6

5) When there are any input signals to the terminals, [•] is shown in the right of the terminal name which receives the input signal.

Example : When there are input signals coming to the terminal IN2 and IN5,

INPUT CH	ECK
INPUT1	INPUT4
INPUT2	INPUT5
INPUT3	INPUT6

2 Press res to release after the key check.

- (2) Output wiring diagnosis by the key switch
- 1) Press in the measurement screen to move to the DISPLAY SELECT screen.
- 2) Point [\rightarrow] to [CHECK SELECT] and press \mathbf{III} to move to the IN/OUT CHECK screen.

IN/OUT	CHECK SELECT
KEY	CHECK
INPUT	CHECK
→OUTPUT	СНКСК

3) Point [\rightarrow] to [OUTPUT CHECK] and press \boxed{ss} to move to the OUTPUT CHECK screen. [-][---] are displayed in the 7 segment display. UEC gets inoperable, and TOTAL NOK lamp lights.

OUTPUT CHE	CK
>0UTPUT1	OUTPUT4
OUTPUT2	OUTPUT5
OUTPUT3	OUTPUT6

4) Point [\rightarrow] by using \square to the terminal name you want to output and press \square Selected terminal is switched on and [\blacksquare] is displayed right next to the terminal name. Point [\rightarrow] to the terminal name now being switched on and press \square , and the output of selected terminal gets off.

nitpit che	СK
. SUTEUT	
91111121111	1000000
10002002	
0011 010	0011 010

5) Point [\rightarrow] to OUTPUT 6 and press \square to move to the output wiring (to the tool) diagnosis screen.

NITDIT CUECV	
→OK LED	
NOK LED	
VALVE	

6) Press res to release after the key check.

(3) Input/Output check by PC

1) Connect the PC to UEC, and launch the setup software.

2) Enter the inout/output check. UEC gets inoperable.

3)Check the wiring by monitoring the input condition, making the comparsory output.

4)Escape from the input/output check after finishing. Please refer to the instruction manual of the setup software for details.

While the input/output wiring diagnosis, the 7 segment display displays [-][----]. UEC gets inoperable and TOTAL NOK lamp lights.

8 ZERO SET (zero point display)

UEC displays the values of the torque sensor's zero point and the CAL number confirmed by the zero check and CAL check. Displayed values are of the absolute values. Minus (-) code is not displayed.

[Key operation]

1) Press in the MEASUREMENT screen to move to the DISPLAY SELECT screen.



2) Point the arrow $[\rightarrow]$ to [ZERO SET] and press \overline{IM} to move to the ZERO SET screen.

ZERO SET	(WORK NO.1)
ZERO	0
CHL	1000

3) Right of [ZERO] shows the zero point value, and [CAL] shows the CAL check value. Displayed values are of the absolute values. Minus (-) code is not displayed.

9 WORK No. change

UEC makes the work number change by short-circuiting the input signal terminals and the common terminal. In accordance to the setting value of WORK SIG. SEL. of the MODE SETTING screen, the input signals to the terminals become different.

Input signal to the terminal		Work number to be	
When 0 is set to WORK SIG. SEL.	When 1 is set to WORK SIG. SEL.	selected	
No signal input	WORK 1	WORK 1	
WORK A	WORK 2	WORK 2	
WORK B	WORK 3	WORK 3	
WORK A B	WORK 4	WORK 4	
WORK C	WORK 5	WORK 5	
WORK A C		WORK 6	
WORK B C		WORK 7	
WORK A B C		WORK 8	
WORK D		WORK 9	
WORK A D		WORK 10	
WORK B D		WORK 11	
WORK A B D		WORK 12	
WORK C D		WORK 13	
WORKA CD		WORK 14	
WORK B C D		WORK 15	
WORKABCD		WORK 16	

Note : When 1 is set to WORK SIG. SEL., you can use the work number from 1 up to 5.

Following setups are necessary to activate the work number change.

(1) Determine the work number change method

When you want to change the work number by the combination of terminal WORK A, B, C and D, set 0 to WORK SIG. SEL. of the MODE SETTING screen. When you use the signal input of WORK 1, 2, 3, 4 and 5, set 1 to WORK SIG. SEL.

When 1 is set to WORK SIG. SEL., the work number can be changed maximum five only. When you use six or more work numbers, set 0 to WORK SIG. SEL.

(2) Allocate the input signal to the terminal block

Enter INPUT 1 screen of the IN/OUT SETTING screen.

1) When 0 is set to WORK SIG. SEL.

When the work number to be used is two or less, assign WORK A to any of the input terminal from A1 to A6.

When the work number to be used is four or less, assign WORK A and WORK B to any of the input terminals from A1 to A6.

When the work number to be used is eight or less, assign WORK A, WORK B and WORK C to any of the input terminals from A1 to A6.

When the work number to be used is nine or more, assign WORK A, WORK B, WORK C and WORK D to any of the input terminals from A1 to A6.

2) When 1 is set to WORK SIG. SEL.

Assign WORK 1, 2, 3, 4 and 5 to any of the input terminals A1, A2, A3, A4, A5 and A6 in accordance to the work number to be used.

Ex.) When the work number to be used is three, assign [Input terminal A3 : WORK 1], [Input terminal A4 : WORK 2] and [Input terminal A5 : WORK 3]. You may assign with the input terminal A1, A2 and A3 to WORK 1, WORK 2 and WORK 3.

Note: Make sure to activate the work number in order to tighten the designated fastener.

10. Torque Polarity Change

10.1 Torque Polality Change

When tightening the bolt of the left-hand screw, or when using a tool that applies a load in the direction of the left-hand screw to the torque sensor due to the gear, the torque signal input from the tool will be input in the negative direction, making it impossible to perform torque measurement. To perform torque measurement, it is necessary to change the polarity of the torque measurement on the controller.

The polarity can be changed by setting the DIP switch on the board inside the controller.

%If the tool is UDBP-AFZ, the polarity-switching function is not applied.



- By changing the DIP switch "SW4" on the main board, you can change the polarity of input from the torque sensor.
- With the right-hand screw, set 1 and 3 of SW4 to ON and 2 and 4 to OFF.
- With the left-hand screw, set 1 and 3 of SW4 to OFF and 2 and 4 to ON.
- When using a EC/MC wrench with a built-in valve for the right-hand thread, the tool cannot be shut off by turning it counterclockwise. Use an external valve or use a tool for the left-hand thread.

10.2 NPN/PNP switching

UEC-4801 terminals are NPN by default. It is possible to switch to PNP method by short-circuiting the jumper sockets on the main unit PCB as follows.

When using PNP method, use 24V terminal of the terminal block as IN COM terminal.



Front panel side

11. Setting

Setting

The setting screens are divided into the following 10 types according to the contents.

BASIC (basic setting): Make basic settings related to tightening, such as CUT (aimed value), LOW (lower limit value), HIGH (upper limit value), etc.

MODE(MODE setting): Set the line-management method, usage selection of various functions, etc. TIMER (Timer setting): Set the duration of various timers.

DATA OUT (Data Out Setting): Settings related to communication using the rear-panel PC and NETWORK connectors.

TOOL CONTROL (Tool Management): Set the maintenance time of the tool according to the total number of tightening bolts/pulses.

IN/OUT PUT (Terminal Block Assignment Setting): Set the I/O content to be assigned to the terminal block. LAN(LAN setting: Set the Ethernet-related settings such as IP address.

MEMORY DATA (memory data): Sets the memory data and displays the statistical data.

PROGRAM SEL (program No. switching): Set the program No. switching.

MOTOR SET (motor setting): Set UDBP rotational speed/current, etc.

(1) Press \square in the MEASURING SCREEN to enter the DISPLAY SELECT screen. Point the arrow $[\rightarrow]$ to [SETTING] and press \square

DISPLAY	SELECT
→SETTING	
CHECK S	ELECT
ZERO SE	T

(2) The screen goes to the SETTING WORK NO. screen. Select the work number you want to set up parameters.



SETTING #1 (1/4)	SETTING #1 (2/4)
→BASIC	*DATA OUT
MODE	TOOL CONTROL
TIMER	IN/OUT PUT
SETTING #1 (3/4) →LAN MEMORY DATA PROGRAM SEL	SETTING #1 (4/4) →MOTOR SET

(4) Press \mathbf{m} for 3 seconds or longer to enter write mode. Place the cursor " \rightarrow " on the item to change and press \mathbf{m} . Move the cursor to the digit to be changed, and increase and decrease the value with \mathbf{n} \mathbf{n} . After the set value is changed, the set value is confirmed with \mathbf{n} written to the controller. The unit exits Write mode with \mathbf{n} are eturns to the measurement screen.

BASIC #1	(1/4)
⇒Ւտշ LOW	080.0
トルク HIGH	060.0
ኑルク CUT	019.6



℁Initialization of settings

UEC-4801 can be reset to factory settings by following the steps below.

- (1) Make sure that the controller power is OFF, and turn on the controller power while pressing the x key and x key.
- (2) By holding down the m key and the key, LCD window changes in the order of Controller Info → Initialization Check. Check that the initialization confirmation is displayed, and then release the m key and the key. When the initialization confirmation is displayed, press the key to restore the controller settings to the factory default settings.

SUPER :	INTELEC	SYSTEM
CONTOL	LER UE	C-4801
Ue	er. 5.0)0
URYU	SEISAK	J LTD.



Initialization?

Press and hold until screen changes

11.1 BASIC (basic setting)

BASIC #1 →TORQUE LOW TORQUE HIGH TORQUE CUT	(1/4) 080.0 060.0 019.6	BASIC #1 →TORQUE CAL TORQ.SENS. 1 TORQ.SENS. 2	(2/4) 1000	BASIC #1 →START TORQUE COUNT PROOF. RATIO	(3/4) 009.8 99 01.00
BASIC #1 →TOOL RATIO PROOF. VALUE	(4/4) 01.00 1000]			
TORQUE LOW (Tor	que low lim	it value)			
Default: 80.0 [Nm]				
Setting range: 0.0	-999.7				
Setting condition:	Torque low	limit value < Torq	ue CUT value		
[Function]					
Value for the meas	sured torque	e low limit judgmei	nt		

TORQUE HIGH (Torque high limit value)

Default: 60.0 [Nm]

Setting range: 0.4 -999.9

Setting condition: Torque CUT value < Torque high limit value

[Function]

Value for the measured torque upper limit judgment

TORQUE CUT (Torque CUT value)

Default: 19.6 [Nm] Setting range: 0.3 – 999.8 Setting condition: Torque LOW < Torque CUT < Torque High Start Torque < Snug Torque < Torque Cut

[Function]

- \cdot This is the set value of the tightening stop torque for torque control.
- If the CUT torque is set to a value less than or equal to the snug torque, the value of the snug torque is automatically set to the value of the torque CUT by "-0.1Nm".

CAL (CAL value) Default: 1000 Setting range: 100 - 9999 [Function] • Set the CAL value stamped on the tool TORQUE SENSOR 1 (Torque sensor resistance value $[\Omega]$)

Default: 700

[Function]

- · Resistance value consisting of torque sensor circuit
- Choose from 480, 700 or 350, which agrees to the specifications of torque sensor connected.
- Set [700] for EC wrenches
- Do not enter any value for MC wrenches. [- - -] is displayed in the screen.

TORQUE SENSOR 2 (Torque sensor rated strain value)

Default: 750

Setting range: 100 - 4400

[Function]

- This is the total strain value of four pieces integrated strain gauges in the torque sensor when it is stressed by rated load.
- · UEC calculates torque sensor output voltage by the applied stress from preset rated strain.
- The ratio is output voltage 0.5[mV/V] by applied strain 1,000.
 - Example: Output voltage under strain 2,000 will be 1[mV/V].
- Set to "750" when using a EC wrench. Set to "1500" when using an angle nut runner NR.
 - When using a UDBP/MC wrench, there is no need to set it. (When SENSOR selector is set to MS position, the setting is displayed as blank.)

START TORQUE (Start torque value)

Default: 9.8

Setting range: 0.1 - 999.6

Setting condition: Start Torque < Snug Torque < Torque CUT

[Function]

What Start torque value is;

- a. Start point of the judgment delay timer
- b. Start point of the initial error detection timer
- c. Start point of the cycle error detection timer
- d. Start point of the torque measurement start delay timer
- e. Start point of the fastening time measurement
- f. Finish point of Free Run measurement

Enter 1/100 or greater value of the proofreading value (CAL value X proofreading ratio X tool ratio). Too low start torque value can make impossible both OK/NOK judgments and process to next cycle.

Example)

CAL: 200 x Proofreading ratio: 1.00 x Tool ratio: 1.00 = Proofreading Value: 200

200 x 1/100 = Start torque : more than 2.0 Nm

When start torque value is set over snug torque value, snug torque value will automatically set by "+0.1Nm" of start torque value.

COUNT (Fastening number count / former name : COUNT)

Default: 99

Setting value: 1 - 99

[Function]

- Fastening number per work when using the fastener count down function.
- Not necessary to set up if you do not use the fastener number count control function.
- · UEC provides COUNT OK/NOK judgments by the setting value of COUNT.

PROOFREADING RATIO (Calibration Ratio)

Initial value: 1.00

Setting range: 0.01 to 9.99

[Function]

• This is a correlation value to be used when the displayed torque and the breakaway torque are to be matched. %Calculate the value to be input when matching the displayed torque with the breakaway torque using the following formula.

Breakaway torque ÷ Display torque = Proofreading ratio

*Depending on the workpiece to be tightened, there may be a large difference between the displayed torque and the breakaway torque. When using the product, perform a tightening test with the workpiece to be tightened, and adjust the value indicated on UEC-4801 to the value of the breakaway torque.

TOOL RATIO Default: 1.00 Setting range: 0.01 – 9.99

[Function]

• Reduction ratio of the reducer.

Input the gear ratio when the tool that has the geared section in front of the torque sensor, like the greared type pulse wrench etc., is used.

Proofratio Value (Calibration Value)

Initial value :1000

[Function]

Proofreading value = Calibration ratio x Tool ratio x CAL value

• Torque is displayed based on the ratio of this value and the torque signal voltage from the sensor rating.

INEFFECTIVE PULSE

Default: 3

[Function]

When a measured torque value exceeds START torque value and input of fastening torque is interrupted before the fastening torque reaches CUT torque value, the fastening operation becomes ineffective when fastening pulse numbers is lower than a number of pulse set on this function

Use controller without change of the number of pulse set on this function.

% This function becomes ineffective when you select setting parameter of " $1 \cdot 7 \cdot 9$ " on CONTROL METHOD of MODE setting.

%This setting item does not show on the display.

AD TORQUE (AD torque)

Default: 0

Setting : 0 Use AD torque sensor

Setting : 1 Not use AD torque sensor

Not use this function.

11.2 MODE(MODE setting)

MODE #1	(1/14)≪	MODE #1	(2/14)	MODE #1	(3/14)∢
→INITIAL TORQUE	0←	→UP/LOWER ERROR	4	→EXTERNAL START	04
CYCLE ERROR	0←	INCOMPLETE JOB	1	BUZZER VOLUME	5∢
FASTENING ERRO	1	TIME CONT. ST.	0	TIGHTENING MOD	3←
MODE #1	(4/14)≪	MODE #1	(5/14)∢	MODE #1	(6/14)∢
→JAPAN・ニホンコ`	0↔	→ST. TORQUE ERRO	0∉	→PULSE LOW	0002∢
LINE CNT.SELEC	0≪	CYCLE OVER	0⇔	PULSE HIGH	0100√
ALARM BUZZER	1→	TIGHTING(TSS)	00000↔	TORQ. CUT CONP.	0↔
MODE #1 → ADDTION PULSE UNIT CHANGE LAN OUT SEL.	(7/14)≪ 01↔ 0↔	MODE #1 →ANG LOW LMT ANG UPP LMT SNUG TRQ	(8/14)↔ 0000∢ 0100↔ 015.0↔	MODE #1 →ANG CUT SNUG TORQ. ERR SNUG ANG. JUDG	(9/14)↔ 0999↔ 0↔ 0↔
MODE #1	(10/14)↔	MODE #1	(11/14)↔	MODE #1	(12/14)⇔
→SNUG ANG. LOW	0000↔	→ANG JUDG SEL	0↔	→PC COMM. SPEED	3∉
SNUG ANG. UPP	0999↔	FREE ANGLOW LM	9999	WAVE MEM FUNG	4
FREE RUN ANG JUD	G 0↔	WAVE CNTNT SLT	2∻	ROTAT STOP	0∢
MODE #1 →VALVE CHECK JUDG.DELAY BEF DETECT. +TR	(13/14)↩ 0↩ 20↩ 20↩	MODE #1 →ETECTTR PULSE/STALL PASS WORD	(14/14)⇔ 20⇔ 4⇔ FUNC		

INITIAL TORQUE (Initial error detection)

Default : 0

Setting 0: Not detect the initial error

Setting 1: Detect the initial error

[Function]

Use to detect the double-fitting or cross thread.

UEC detects the initial error if the consumed time from torque start level to torque cut value is less than time of the initial error detection timer.

[When UEC detects the error]

• DPM display : [LO.E.] and [Torque measurement value] are displayed by turns.

Front panel TORQUE lamp does not light

Buzzer sounds.

Terminal: TORQUE NOK is switched on.

[How to reset error]

• When 1 is set to FASTENING ERROR, next operation will reset the last error.

• Press **RES** in the screen, or switch on reset terminal.

CYCLE ERROR (Cycle error detection)

Default:0

Setting : 0 Note detect cycle error

Setting : 1 Detect cycle error

[Function]

Use to regulate fastening time

UEC provides cycle error judgment if measured torque passes torque start level, but does not reach torque cut level when the cycle error detect timer comes up.

[When UEC detects the error]

DPM display : [CYL.E.] and [Torque measurement value] are displayed by turns.

Front panel TORQUE lamp does not light.

Buzzer sounds.

Terminal : TORWUE NOK terminal is switched on.

[How to reset the error]

• When 1 is set to FASTENING ERROR, next operation will reset the last error.

Press as in the screen, or switch on reset terminal.

FASTENING ERROR (After post error detections LO.E/CYL.E/F.E)

- Default : 1
- Setting : 0 UEC gets non-operative status unless **mession** is pressed or reset terminal is switched on. Valve remains switched on.
- Setting : 1 The following tightening procedures can be performed even when an error is detected. The error is cleared by starting the tightening.

Torque measurement starts after clearing the error by the next torque input (starting torque setting value or more) after detecting the error.

UP/LOWER ERROR (After of post low or high limit errors TORQUE/PULSE number/ANGLE)

Default : 1

- Setting : 0 UEC gets non-operative status unless respective or reset terminal is switched on. Valve remains switched on.
- Setting : 1 The following tightening procedures can be performed even when a low and high error is detected. The error is cleared by starting the tightening. Torque measurement starts after clearing the error by the next torque input (starting torque setting value or more) after detecting the error.

INCOMPLETE JOB (Incomplete job error detection)

Default : 0

Setting : 0 Not detect incomplete job error

Setting : 1 Detect incomplete job error

[Function]

- Detect a tightening interruption abnormality when the torque is interrupted after the tightening torque reaches the start torque and prior to CUT setpoint. (e.g. when the tool's start lever is released)
- This function is valid when the control method is set to 3, 5, or 7.
- *Even if the final torque is greater than or equal to the torque LOW setting and falls within OK, a tightening interruption error will occur if the torque is interrupted before the torque CUT setting is reached.

[Output status when abnormal tightening interruption is detected]

- DPM display : [F.E.] and [Torque measurement value] are displayed by turns.
- The front-panel TORQUE light does not illuminate.
- Buzzer sounds.
- Terminal: TORQUE NOK terminal is switched on.

[How to reset]

• When 1 is set to FASTENING ERROR, next operation resets the last error.

• Enter RESET terminal or press RES.

TIME CONT. ST. (Compulsory judgment)

Default : 0

Setting : 0 This function is not used.

Setting : 1 TIME UP of the cycle error detection timer is used to stop the system and make a judgment. [Function]

- Use this function when you want to regulate the tightening time without detecting a cycle error.
- When the measured tightening torque has not reached the torque CUT setting even if the time has elapsed beyond the setting of the cycle error detection timer from the time when the measured tightening torque has reached the setting of the start torque, VALVE is outputted, the tool stops, and the judgment is made.
- Control method: When 1 or 3 is set, the judgment delay timer starts when the torque falls below the start torque after the cycle error detection timer TIME UP.
- Control method: When set to 2, the tightening judgment delay timer starts from TIME UP of the cycle error detection timer.

• This function gets activated when 0 is set to CYCLE ERROR.

When setting of CONTROL METHOD is 7, this function is not available.

EXTERNAL START.

Initial value :0

Setting : 0 The external start is not used, and the start of measurement is performed by the torque start.

Setting : 1 VALVE is switched on to start measurement, after ZERO/CAL check.

Setting : 2 VALVE is switched off to start measurement, after ZERO/CAL check.

Setting : 3 VALVE is switched on to start measurement without doing ZERO/CAL check.

[Function]

· Selects the operation when START is inputted.

• Settings 1, 2, or 3 starts operation when an external start (START terminal) is inputted.

%This function is not available when the control method is set to 7. Set it to 0.

BUZZER VOLUME

Default : 5 Setting range : 1 ~ 5

[Function]

Determine the sound volume of buzzer

• The greater the number grows, the louder the buzzer sounds. 5 is the top volume, and 1 is the lowest volume.

CONTROL METHOD

Default : 3

- Setting : 1 Torque monitor
 - Provide the judgment to the measured torque, but does not control the torque. Use to monitor the torque of the mechanical clutch type nutrunners etc.
- Setting : 2 Torque control Control and provide the judgment to the measured torque Use mainly for the pneumatic nutrunners
- Setting : 3 Torque control for MC wrenches and EC wrenches Use mainly for the MC wrenches and EC wrenches. Control and provide the judgment to the measured torque.

Setting : 5 Torque control and Angle monitoring for AMC Wrenches. Use for the AMC Wrenches (The tool equips Angle sensor). Control fastening torque and provide the judgment to measured torque and monitored angle.

- Setting : 6 Angle control and Torque monitoring for AMC Wrenches.
 Use the method to control angle for AMC Wrenches (The tool equips Angle sensor) .
 * Use this method only for good conditions on work piece and supply of puressured air.
- Setting : 7 Torque control and Angle monitoring for UDBP-AFZ Wrenches.

Use for UDBP-AFZ Wrenches (The tool equips ZigBee transmitter).

* This setting 7 can not be selected with UEC software version of less than V3.80.

Setting : 9 Torque monitor of T type wrenches

Use for T type wrench test on UFT (Uryu joint simulator)

* The settings in each Work No are needed.

* Clear all the memorized data of the specified work number when CONTROL METHOD has been changed.

ENGLISH (Selection of language)

Default: 0

Setting: 0 Japanese indication

Setting : 1 English indication

[Function]

• Determine the indication language for touch panel.

・When 0 is set, setup item name becomes [ENGLISH], and when set to 1, becomes [日本語].

LINE CNT. SELECT (Line control method select) (former name : MODE 14)

Default:0

Setting: 0

UEC is always ready to count down the fasteners, and provides the judgment at the time of limit switch is switched on. UEC provides COUNT OK judgment if the preset number of fasteners is fastened up. When the LS (limit switch) 1 terminal is switched on, UEC is reset and ready for next operation. UEC provides COUNT NOK if any fasteners are left unfastened when LS1 is switched on. Tighten the unfastened fasteners, and UEC provides COUNT OK.

Note: When COUNT NOK is corrected to COUNT OK, the COUNT OK output becomes 1 pulse (1 sec).



Setting: 1

Determine the work section. Switching on LS1 terminal becomes the start of the operation. Operation is over if the preset fasteners are fastened up until LS2 terminal is switched on. UEC provides COUNT NOK if any fasteners left unfastened when LS2 terminal is switched on. If the unfastened fasteners are fastened up in NOK treatment zone, UEC provides COUNT OK and the operation is over. Even if the unfastened fasteners are fasteners.

Note: When COUNT NOK is corrected to COUNT OK, the COUNT OK output becomes 1 pulse (1 sec).



Setting : 2

Switch on the limit switch, and the operation starts and UEC provides the judgment when the timer comes up. Operation starts by switching on LS1 terminal, and the line control timer starts functioning. UEC provides COUNT NOK if the line control timer comes up before the preset number of fasteners is fastened up. Note: When COUNT NOK is corrected to COUNT OK, the COUNT OK output becomes 1 pulse (1 sec).



Setting: 3

Limit switch is not used, but the line control timer starts functioning by the first fastening operation. Line control timer gets started by either the judgment input of the first fastening or the signal input of QL wrench. UEC provides COUNT OK if the preset fasteners are fastened up, and gets ready for next operation when COUNT OK output signal is switched off. COUNT OK signal output duration time is set up by COUNT OK of TIMER SETTING. UEC provides COUNT NOK if the line control timer comes up before the preset fasteners are fastened up.

Note: When 3 is set to LINE CNT. SELECT, you cannot set up the COUNT OK signal output duration time (COUNT OK : 0).

When 3 is set to LINE CNT. SELECT and when you use MC wrench, set over 5,000 [msec] on COUNT OK timer. Otherwise, zero point of torque measurement might not be adjusted when time of the timer is short.

When COUNT NOK is corrected to COUNT OK, the COUNT OK output becomes 1 pulse (2 sec).



Setting 4

By any of WORK 1 – 5 signal input, UEC gets ready to start fastening of the selected work number. Set 1 to WORK SIG. SEL.

When the preset fasteners are fastened up, COUNT OK signal terminal is switched on corresponding to the selected work number. [WORK 2 COUNT OK] output terminal is switched on when UEC provides COUNT OK of work No. 2.

Set up the COUNT OK signal output duration time per work number in COUNT OK of TIMER SETTING.

UEC provides COUNT OK signal output for 1 second, when COUNT NOK is corrected in NOK treatment zone by fastening the unfastened fasteners or switching on pass terminal.

Make sure to switch off WORK SELECT signal input when COUNT OK signal output is switched on. Switch off WORK SELECT signal input, and COUNT OK signal output is switched off.

UEC provides COUNT NOK when any input signal of WORK 1 - 5 is switched off before the preset fasteners are fastened up.



Setting 5:

Line control by using socket changer. The ZERO/CAL checking is made and operation starts when UEC receives the input WORK1~5 from socket changer. Select 1 for work number change.

COUNK OK output terminal is on when all the fastenings are done according to each work number. (When UEC provides COUNT OK at WORK No.2, "WORK 2 COUNT OK" will be output)

Output time for COUNT OK can be set at TIMER SETTING and should be set for each WORK No.

COUNT OK OUTPUT is kept for 1 sec. if COUNT NOK is cleared to get COUNT OK by PASS INPUT, fastening remaining numbers of bolts, or such other way.

Disable the WORK SELECT after COUNT OK OUTPUT is on. Then, COUNT OK OUTPUT will be off. UEC provides COUNT NOK if WORK 1~5 input is off before the all fasteners is fastened. Press s or input RESET via terminal to clear the error.

Tool cannot be operated unless working command is sent to the controller.


ALARM BUZZER (Buzzer for checking tightening)

Initial value :1

Setting : 0 Buzzer does not sound.

Setting : 1 Buzzer sounds for every OK fastener.

[Function]

- Buzzer gives 1 pulse sound for every OK fastener, and 2 pulses sound for fastener COUNT UP.

ST. TORQUE ERROR (Start torque error detection)

Default : 0

Setting : 0 Not detect the start torque error

Setting : 1 Detect the start torque error

Note: Set to 0.

Not used now

CYCLE OVER (Cycle over time error detection)

Default:0

Setting : 0 Not detect the cycle over time error

Setting : 1 Detect the cycle over time error

Note: Set to 0.

Not used now

TIGHTENING (Fastening time display (TSS)

[Function]

• UEC displays the time consumed from the external start signal input to the torque start level.

℁This is not a setting.

☆This setting is not used when set to 7.

PULSE LOW (Pulse blow number low limit value [pulse])

Default : 2 Setting range : 0 – 9998 (pulse number low limit value, maximum 9998, < pulse number upper limit value, maximum 9999)

[Function]

[Function]

• Lower limit value of the pulse blow number that UEC provides pulse number LOW NOK judgment. UEC provides pulse number LOW NOK when the total pulse number generated from the start torque until the cut torque is less than the pulse number low limit value.

[When UEC detects the error]

- DPM display : [PLS.L.] and [Torque measurement value] are displayed by turns.
- Buzzer sounds.
- Terminal : TORQUE NOK is switched on.

[How to reset the alarm]

- \cdot When 1 is set to UP/LOWER LIMIT ERROR, next operation performs the start-reset.
- Press es or, enter RESET terminal.
- \cdot This function is valid when the control method is set to 3, 5, 6, or 7.

PULSE HIGH (Pulse number upper limit value [pulse])

Initial value :100

Setting range : 1 – 9999 (Pulse number low limit value, maximum 9998<pulse number upper limit value, maximum 9999)

[Function]

• Pulse numbers that UEC provides pulse number HIGH NOK judgment. UEC counts total pulse numbers generated from torque start level to cut level, and provides pulse number HIGH NOK judgment with solenoid valve closed to stop the tool and the error display when the total pulse number is more than the pulse number upper limit value.

[When UEC detects the error]

• DPM display : [PLS.H.] and [Torque measurement value] are displayed by turns.

- Buzzer sounds.
- Terminal : TORWUE NOK is switched on.

[How to reset]

- When 1 is set to UP/LOWER LIMIT ERROR, next operation performs the start-reset.
 - Press res in the screen, or switch on reset terminal.
 - Note: This function gets activated if 3 is entered to TIGHTENING MODE.
 - \cdot This function is valid when the control method is set to 3, 5, 6, or 7.

TORQUE CUT CONP. (Torque measurement during compensation pulsing post CUT level)

Default: 0

- Setting : 0 UEC measures, controls and provides final judgment with the highest peak torque display of compensation pulsing under the pulse number counting.
- Setting : 1 UEC gives judgment due to torque measurement of pulsing until torque cut level, but does not measure torque of pulsing post torque cut level.

ADDITION PULSE (Compensation pulse numbers post CUT level)

Initial value :1

Value: 1 to 99 (when control method 3 or 5 is set), 1 to 5 (when control method 7 is set) [Function]

- After the tightening torque reaches the torque CUT set value, if the set number of tightening pulses exceeding the torque CUT value is measured, the valve is outputted and the tool is stopped.
 - This function is valid only when the control method is set to 3, 5, or 7.
 - When using a stall fastening tool such as an angle nut runner, set it to "1".

Set to "1" when this function is not used.

WORK SIG. SEL. (Work signal combination)

Initial value :0

Setting 0: Up to 16 WORK numbers can be selected by combining WORK A ~ WORK D.

Setting 1: Up to 5 WORK numbers can be selected by entering WORK 1 ~ WORK 5.

[Function]

%For more information on how to select WORK, refer to WORK No. selection method.

• Set value 1 is used when line management operation is selected: 4 or 5.

LAN OUT SEL. (LAN OUTPUT SELECT)

Default: 0

Setting 0: Connecting to the Uryu Setup Software.

Setting 1: Connecting to Quality Server.

[Function]

- This is to select a connection destination with LAN. When 1 is set, a serial number (an assembling car number) displays on measurement screen.
- Set 0 when you use Uryu standard (Ethernet data communications protocol) or Uryu data management software. When connection of Uryu standard is completed, the setting number automatically changes to "2"

ANG LOW LMT (Angle low limit value [degree])

Initial value :0

Setting range :0 ~ 9999[deg]

[Function]

This is angle low limit judgment value

• If the angle measured from the snug torque to the torque CUT until 10msec reaches the lower limit of the angle, the angle LOW NOK is obtained.

• When 0 is set, UEC does not provide the angle low judgment.

*Control method: Enabled when 5 or 7 is set.

Set Angle LOW < Angle HIGH, when CONTROL METHOD is set to 7.</p>

[Outputting status when detecting angular LOW NOK]

DPM display: [ANGLE LOW]

• Front-panel TORQUE LOW light blinks. Buzzer sounds.

[How to reset]

When 1 is set to UP/LOWER LIMIT ERROR, next operation performs the start-reset.

Press es in the screen, or switch on reset terminal.

ANG UPP LMT (Angle upper limit value [degree])

Initial value :100

Setting range :0 ~ 9999[deg]

[Function]

This is an angle high limit judgment value.

• If the angle measured from the snug torque to the torque CUT until 10msec exceeds the upper limit of the angle, the angle HIGH NOK is obtained.

• If 0 is set, UEC does not provide the angle upper judgment.

Control method: Enabled when 5 or 7 is set.

*Control method: When CONTROL METHOD is set to 7, set the angle LOW < angle HIGH.

[When UEC detects the error]

DPM display : [ANGLE HIGH]

Front-panel TORQUE HIGH light blinks.

•Buzzer: ON.

[How to reset]

When 1 is set to UP/LOWER LIMIT ERROR, next operation performs the start-reset.

Press **RES** in the screen, or switch on reset terminal.

SNUG TRQ (Snug torque)

Default: 15.0

Setting range: 0.2 – 999.7

Setting condition: Start torque value < snug torque value < CUT torque value

[Function]

This is the torque from when UEC starts measuring the angle.

• When Start torque value is set over snug torque value, the snug torque value is automatically set to [+0.1Nm] of the start torque value.

• When torque CUT value is set less snug torque value, the sung torque value is automatically set to [-0.1Nm] of the torque CUT value.

%This function is available when setting of control method is 5 or 7.

ANG CUT (Angle CUT value)

Default : 999

Setting range: 0 - 9999

[Function]

This is the fastening stop angle judgment value when the angle control is effective.

*Control method: Enabled when it is set to 5.

SNUG TORQ. ERR (Snug Torque Error Select)

Default: 0

Setting 0: Not detect snug torque error.

Setting 1: Detect snug torque error.

[Function]

• UEC provides snug torque error if the torque does not reach snug torque until the the snug toque error timer ends.

• If this is set to 1 and angle judgement select is set to 1, UEC provides fastening NOK when it detects an error. %Control method: Enabled when it is set to 5.

[When UEC detects the error]

• Buzzer: ON.

 $\boldsymbol{\cdot}$ Terminal: Output TORQUE NOK when detecting snug torque error.

[How to clear the error]

• If any action other than the upper/lower limit error is set to 1, the error is cleared by the following tightening operation.

• RES or enter RESET terminal.

SNUG ANG. JUDG (Snug Angle Judgement)

Default: 0

Setting 0: Not detect snug anlge error.

Setting 1: Detect snug angle error.

[Function]

- Select whether to perform low / high limit judgment for the snug angle measurement value (the angle measurement value until the torque measurement value reaches the snug torque from start torque).
- When Snug Angle Judgment Selection is set to 1 and Angle Judgment Selection is set to 1, an error is detected if the Snug Angle is not within the range of the low and high limits.

*Control method: Enabled when it is set to 5.

[Operation when abnormality is detected]

- TORQUE light does not turn on.
- Buzzer: ON.
- Terminal block: TORQUE NOK is outputted.

[How to reset the error]

When setting "1" on the UP/LOWER ERROR, press RES. or input reset signal.

• RES or enter RESET terminal.

SNUG ANG. LOW (Snug Angle lower limit [deg])

Default: 0

Setting range: 0~9998

[Function]

• The low limit for snug angle judgement.

• "0" means that the snug judgement for low limit is not detected.

 \cdot "Snug Angle Low Error" is detected when the snug torque is under the value on this setting.

 \mathcal{C} Control method: Enabled when it is set to 5.

SNUG ANG. UPP (Snug Angle higher limit [deg])

Default: 999

Setting range: 0~9999

[Function]

- The high limit for snug angle judgement.
- "0" means that the snug judgement for high limit is not detected.
- "Snug Angle High Error" is detected when the snug torque is over the value on this setting.

*Control method: Enabled when set to 5.

FREE RUN ANG (Free Running Angle Detection)

Default : 0

Setting 0 : Not detect free running angle.

Setting 1 : Detect free running angle.

[Function]

- Choose if the detection for low limit value for free running angle (from trigger on to start torque) is made or not.

• Make sure to set "1" for free running angle detection and UEC provides free running error if the free running anlge is under the low limit for free running anlge.

• Set "2" or "3" on the Angle Display Select to use this function.

*Control method: Enabled when 5 or 7 is set.

[Motion output when Free Running Angle error is detected]

- Display : [FrE.E.] and [a measured Torque Value] turn on alternatively.
- TORQUE Lamp on the front panel does not turn on.
- Buzzer : It turns on
- Rear terminal : TORQUE NOK outputs.

[How to clear the error]

- When setting "1" on the UP/LOWER ERROR, press RES. or input reset signal.
- Enter a 🔤 key or RESET terminal.

ANG JUDG SEL (Angle judgment select)

Default : 0

- Setting : 0 Not provide the angle judgment.
- Setting : 1 Provides the angle judgment and detects the error.

[Function]

- This is to select if UEC provides the angle low and high judgment and the snug angle low and highlimit error judgment (or low and high limit warning).
- When 1 is set, UEC provides fastening NOK when detecting the error. %Control method: Enabled when 5 or 7 is set.

FREE ANGLOW LM (Free Running Angle Lower Limit)

Initial value :9999

Setting Range : 0~9999

[Function]

• Low limit of free-run angle (angle from 400msec prior to start torque detection to start torque detection).

• An error is displayed when the free-run angle falls below the set value when the free-run angle detection selection is 1.

*Control method: Enabled when 5 or 7 is set.

WAVE CNTNT SLT (Waveform data contents select)

Default : 2

Setting : 0 100µsec

Setting : 1 1 msec Setting : 2 2 msec

Setting : 3 5 msec

[Function]

- When 0 is set, UEC output the measured torque waveform to the outside (UEC programming software) (100µsec sampling). The buffer of the waveform becomes 5.
- When either 1, 2 or 3 is set, the measured torque waveform is converted to the peak hold waveform per 1msec/2msec/5msec on the screen and UEC outputs the date to outside. The buffer becomes 50.
- When setting of CONTROL METHOD is 7, choose the setting of 2. Torque waveform data of UDBP-AFZ is saved with torque and angle data only. When AMC is used, 1msec is sampled.

PC COMM. SPEED (PC communication speed)

Initial value :3 Default : 3 Setting : 1 9600 bps Setting : 2 19200 bps Setting : 3 38400 bps Setting : 4 115200 bps

[Function]

- This is to determine the communication speed between UEC and PC. This is not the communication speed of the data output port in rear of UEC.
- When setting of CONTROL METHOD is 7, the setting should be 3 of the default.

WAVE MEM FUNC (Waveform memory function select)

Default: 4

- Setting: 1 Not memorize
- Setting: 2 Memorize and notice both with the display message and buzzer sound
- Setting: 3 Memorize and notice with the display message, but not sound the buzzer
- Setting : 4 Memorize the wave data, but not notice with neither the display message nor the buzzer sound.

[Function]

- When the buffer for waveform data output becomes full, a warning is displayed and a buzzer sounds. b u F.E.
- The number of buffer is different according to setting of WAVE CNTNT SLT (Waveform data contents select).

ROTAT STOP

Default : 0

Setting 0: Not use this function. You can operate the tool anytime.

Setting 1: Fastening is available only in the working process.

[Function]

 \cdot Tool does not operate unless the UEC receives the fastening command.

• After fastening is finished and UEC provides the count OK, tool does not operate until the next command is received.

• When the ROTATE STOP is set to "1" and a keep-alive timer is used, the tool is disabled until reset input is performed if a keep-alive time error occurs,

VALVE CHECK (Valve Disconnection)

Default : 0

Setting 0: Not use this function.

Setting Value 1: Valve check of the terminal block.

Setting value 2: Not used in this specification.

[Function]

Detects disconnection of solenoid valve wired to terminal block.

- When disconnection is detected, the screen shows {VLV.E.} and the buzzer is on.
- Control method: Set to "0" when setting 7.

DETECT. +TR (Plus Level Fluctation)

Default : 20

Setting Range: 0~20% (against rated torque)

[Function]

• This is the threshold value for detecting the + side fluctuation in disconnection.

• UEC provides disconnection error when it continues measuring a set % and more torque value against rated torque over a set time with TIMER setting.

• The measuring time can be set by 「DETECT. JUDG+」 on TIMER setting.

 \cdot When disconnection error is detected, the screen shows [Udn.E.] , and the buzzer is on.

(It does not output TORQUE NOK via terminal.)

[How to reset the error]

"0" or "2" on "Pulse/Stall" : Reboot the controller.

"1" or "3" on "Pulse/Stall" : Press es or input RESET signal via terima.

DETECT. -TR (Minus Level Fluctation)

Default : 20

Setting Range: 0~20% (against rated torque)

[Function]

This is the threshold level for detection of fluctuation for + side fluctuation in disconnection.

• UEC provides disconnection error when it continues measuring a set % and more torque value against rated torque over a set time with TIMER setting.

 \cdot The measuring time can be set by <code>「DETECT. JUDG-」</code> on TIMER setting.

 \cdot When disconnection error is detected, the screen shows $\ensuremath{\left[\text{Udn.E.}
ight]}$, and the buzzer is on.

(It does not output TORQUE NOK via terminal.)

【How to reset the error】

"0" or "2" on "Pulse/Stall" : Reboot the controller.

"1" or "3" on "Pulse/Stall" : Press 📾 or input RESET signal via terminal.

JUDG.DELAY BEF (Judgment ± Fluctuation)

Default : 20

Setting Range: 0~20% (against rated torque)

Function]

• This is the threshold level for detection of fluctuation right before fastening judgment.

• UEC provides disconnection error when it detects a set % and more torque value within a set time before judgement delay timer comes up.

• The measuring time before judgment delay timer comes up can be set by 「JUDG.DELAY BEF」 on TIMER setting.

• When disconnection error is detected, the screen shows [Udn.E.], and the buzzer is on.

(It does not output TORQUE NOK via terminal.)

[How to reset the error]

"0" or "2" on "Pulse/Stall" : Reboot the controller.

"1" or "3" on "Pulse/Stall" : Press
or input RESET signal via terminal.

PULS/STALL (Tool type selection for disconnection detection)

Default: 4

• Set value 0: Pulse tool. Cannot recover from RESET when a disconnection error is detected. Negative CUT error is detected.

• Set value 1: Pulse tool. Can be recovered from RESET when a disconnection error is detected. Negative CUT error is detected.

- Set value 2: Stall tool. Cannot recover from RESET when a disconnection error is detected. Negative CUT error is not detected.
- Set value 3: Stall tool. Can be recovered from RESET when a disconnection error is detected. Negative CUT error is not detected.
- Setting value 4: Disconnection detection is not made

[Function]

• Choose to use or not to use the disconnection error detection function of the torque sensor wiring in the tool or tool cable, to select the tool type to be used, and to select the recovery method when a disconnection error is detected.

*Control method: Set to 4, as it cannot be used when 7 is set.

Password function (password/history use selection)

- Default: 0 Avoid the use of password function.
- Setup: 1 Use password fuction.
- Setup: 2 Clear all user's name, password, and setup history.

[Function]

- This function requests the registered password when changing the set value.
- For more information, see section 12.6, Password Function.
- XIf you forget the registered password, initialize the controller once, enter the setting value: 2, and delete the registered password. For the initialization procedure, refer to P.25 setting initialization.

11.3 TIMER(TIMER Settings)

TIMER #1	(1/8)↩	TIMER #1	(2/8)↔	TIMER #1	(3/8)↩
→JUDGMENT DELAY	0300↩	→FASTENING OK	9999∢	→ST. TORQUE ERRO	0500↩
INITIAL ERROR	0500∊	COUNT OK	9999¢	CYCLE OVER ERR	9999↩
CYCLE ERROR	5000⋴	TORQ.MEAS.DELA	0020∻	SNUG TRQUE ERR	0001﴿
TIMER #1	(4/8)↩	TIMER #1	(5/8)↔	TIMER #1	(6/8)↔
→VALVE RETURN	0300↩	→LINE CONTROL	0100∢	→MONTHS	0010∢
REVERSE ROTATE	0300∊	JUDG.DELAY BEF	0000∢	DAYS	0026↔
PIN ADJUSTMENT	0000∊	YEAR	0020↔	HOURS	0015↔
TIMER #1 →MINUTS SECONDS DETECT. JUDG +	(7/8)↩ 0042↩ 0037↩ 99↩	TIMER #1 →DETECT. JUDG - WR-RETRO.CHECK Lifecheck Time	(8/8)↔ 99↔ 000↔ 00↔		

JUDGMENT DELAY (Judgment delay timer)

Default : 300 [msec]

Setting range : 100 - 9999 [msec]

[Function]

- Delay timer from completion of tightening (after reaching CUT) to judgment power.
- · Used as the torque measurement end point during control operation.

• Set the value considering the torque measurement based on the residual air pressure after the cutting operation.

*Before the torque CUT value is reached, the "CUT Pre-judgment Delay Timer" functions.

[Approximate Setting Value]

- 100[msec when using UDBP-AFZ]
- 100~300[msec when using a MC/EC wrench]
- · 500 [msec] for continuous tool like angle nutrunners

INITIAL ERROR (Initial error detection timer)

Default : 500 [msec]

Setting range : 1 - 9999 [msec]

[Function]

• This is to determine the minimum time from start torque to cut torque. UEC provides NOK if the torque reaches cut torque earlier than this timer comes up.

• This timer starts functioning when measured torque reaches the start torque level.

• It is necessary to set this timer when 1 is set to INITIAL TORQUE on MODE screen.

CYCLE ERROR (Cycle error detection timer)

Initial value :5000

Setting range :1 ~ 9999[msec]

[Function]

- This is to determine the maximum time from start torque to cut torque. UEC provides NOK if the torque does not reach cut torque even after this timer comes up.
- This timer starts functioning when measured torque reaches start torque level.
- It is necessary to set this timer when 1 is set to CYCLE ERROR or when 1 is set to TIME CONT. ST on MODE screen.

FASTENING OK (Fastening OK signal output timer)

Initial value :9999

Setting range :0~9999[msec]

- This is to determine the fastening OK signal output duration time from output terminal TORQUE OK.
- TORQUE OK will turn OFF when the next-torque measurement starts even within the timer's set period.
- · Set up this timer only when duration of output signal affects external PLC or circuit.
- Set 0, and UEC maintains signal output until next cycle starts.

COUNT OK (COUNT OK signal output timer)

Default : 9999

Setting range : 0 – 9999[msec]

[Function]

- This is to determine the fastening OK signal output duration time from output terminal COUNT OK.
- Set 0, and UEC maintains signal output until next cycle starts.
- The settings of COUNT OK are used to all WORK numbers (1 16).

%It is impossible to set "0" on CONNT OK signal output timer when you set "3" on Line Control Select.

TORQ. MEAS. DELAY (Torque measurement start delay timer)

Default : 20

Setting range : 0 – 9999 [msec]

[Function]

- Timer starts functioning when the torque reaches torque start level. (When the external start is used, the timer starts functioning when start terminal is switched on.)
- Use this timer when the torque spike can happen at the bolt or nut seating point.

ST. TORQUE ERROR (Start torque error detection timer)

Default : 500

Setting range : 1 - 9999 [msec]

[Function]

- This timer starts functioning when START terminal is switched on.
- Set when Start Torque Error is 1 on MODE screen.

CYCLE OVER ERROR (Cycle over error detection timer)

Default : 9999

Setting range : 1 – 9999 [msec] [Function]

• This timer starts functioning when START terminal is switched on.

· Set when CYCLE OVER ERROR is 1 on MODE screen.

SNUG TRQUE ERR (Snug Torque Error Detection)

Default: 1 Setting range : 1~9999

[Function]

• The timers start from the point when the measured value of the torque reaches the start torque, and if the measured value of the torque does not reach the snug torque setting value by TIME UP, the snug torque error is detected.

%This function is enabled when control method: 5 is set.

VALVE RETURN (Valve return timer)

Default : 300

Setting range : 1 - 9999 [msec]

[Function]

• This timer starts functioning when the judgment delay timer comes up, and UEC switch off the valve (valve on) when this timer comes up.

[Approximate Setting Value]

· 300 [msec] for the valve integrated type tools like MC wrenches

• 500 [msec] for the valve external type tools like UAMC series (When a long cable is used between tool and valve, set up the larger value to this timer.)

• When the external valve is used, and when UEC switches off VALVE terminal after UEC switches on VALVE terminal to stop a tool and before a tool's lever is released, set the bigger value to this timer.

When 7 is set to CONTROL METHOD, OFF DELAY TIMER replaces this timer.

%Time setting for OFF DELAY TIMER (Valve OFF delay timer) and VALVE RETURN (Vavle ON timer) is the same.

OFF DELAY TIMER (Valve OFF delay timer)

Default: 300 msec

Range: 1~9999 msec

[Function]

• When UDBP-AFZ is in use, release (Grip Switch OFF) and hold the power ON status.

• The cooling-fan may continue to operate to protect the tool even if OFF delay timer reaches the time.

%OFF delay timer disappears and valve output timer is displayed when the value is not set to "7".

 $\ensuremath{\textup{K}}\xspace$ Valve-output timer and OFF delay timer settings are the same.

REVERSE ROTATION (Reverse rotation complete delay timer)

Default : 300

Setting range : 0 – 9999 [msec]

[Function]

[Function]

This timer is to control tool's reserve operation complete.

• Use this timer when 9 is set to TIGHTENING MODE.

PIN ADJUSTMENT (Pin hole alignment timer)

Initial value :0

Setting range :0~9999[msec]

[Function]

• Use to align bolt pins, etc.

• When torque is judged, the timer starts, and torque is not measured until TIME UP, so tighten it after that to adjust the position of the pin.

Note: Set 0 if you do not do pin hole alignment.

LINE CONTROL (Line control timer)

Default : 100

Setting range : 1 – 9999 [sec]

[Function]

• Use this timer when either 2 or 3 is set to LINE CNT. SELECT. This timer is to make line control by time.

JUDG.DELAY BEF (Judgment Delay Timer before CUT torque)

Initial value :1000

Setting range :100~9999[msec]

[Function]

• If the tightening is interrupted prior to reaching CUT torque, the judgment is outputted after the set period has elapsed from the point when the torque inputting is finished.

%After the torque CUT is reached, the "judgment delay timer" functions.

YEAR

Default : 0 Setting range : 0 – 99 [Year] [Function] This is to set the year of calendar timer Entering "0" sets the year to "2000" and entering "13" sets the year to "2013".

MONTH

Default : 0 Setting range : 1 – 12 [Month] [Function] • Set the month of the calendar timer.

DAY

Default : 0 Setting range : 1 – 31 [Day] [Function] • Set the calendar timer date.

HOUR

Default : 0 Setting range : 0 – 24 [Hour] [Function] • Set the time of calendar timer.

MINUTE Default : 0 Setting range : 0 – 59 [Minutes] [Function] • Set the calendar timer minute.

SECONDS

Default : 0 Setting range : 0 – 59 [Seconds] [Function] • Set the second of the calendar timer. DETECT. JUDG + (range of + side fluctuation)

Default : 99

Setting Range : 0~99msec

[Function]

• This is the time-to-detect Torque Variation when breakage is detected by " DETECT. +TR" in MODE setting.

• If the fluctuation of torque is continuously detected for the set time or longer, it will be judged as disconnection.

DETECT. JUDG - (range of - side fluctuation)
Default : 99
Setting Range : 0~99msec
[Function]
This is the time setting for detecting the torque fluctuation when the disconnection is detected in the "

DETECT. -TR" setting in MODE setting.

• If the fluctuation of torque is continuously detected for the set time or longer, it will be judged as disconnection.

WR-RETRO. CHECK (judgment delay time up)

Default:0

Setting Range : 0~999msec

[Function]

 This is to set the time to detect the fluctuation of torque when UEC detects disconnection by 「JUDG.DELAY BEF」 on MODE setting.

• Detects disconnection by detecting fluctuation of torque back by time set by this timer from time up of judgment delay timer.

Lifecheck Time (sevival confirmation interval) Default : 0 Setting Range : 0~99sec [Function]

This is to set a receiving interval of living confirmation command when Uryu communication protocol is used.
After receiving a living confirmation, UEC provides living confirmation error when next living confirmation does not come to UEC within the time set by this timer.

• Living confirmation error happens when the setting number $\lceil 1 \rfloor$ is set on ROTAT STOP of MODE setting, tool stays stop until reset is inputted.

11.4 DATA OUTPUT SETTING

It is possible to set the output of tightening data using the PC connector (RS232C port for data output) of rear panel and set the communication of the data management system (hereunder "Data Management") and Uryu communication protocol (hereafter Uryu Standard) using NETWORK connector (LAN port). For more information on the various communication functions of the controllers and the items that need to be set, see section 12.5, Fastening Data Output.

0							
DATA OUT →UEC NO. OUT.MOVEMENT OUTPUT OF FORM	(1/7) 01 0 0	DATA OUT →COMM.SPEED BIT STOP	(2/7) 1 1 0	DATA OUT →PARITY TORQ.VAL.TRANS PULSE NUMB.	(3/7) 0 1 1	DATA OUT →FASTENED TIME DECISION WAVE DATA OUT	(4/7) 1 1 1
DATA OUT →ANG DATA TRANSM FREE RUN TRNSM SUNG DATA TRNSM	(5/7) 0 0 0	DATA OUT →WAVE DATA FORM ID DATA OUT ID DATA FORM	(6/7) 00 0 48	DATA OUT →DATA COMM. FO INIT. SPLICING DATA CLR	(7/7) 1 0 0		

UEC NO.

Default : 1

Setting : 1 - 25

[Function]

• Set the number to be assigned to UEC when connecting two or more UEC in the Uryu Standard and Data Management.

OUT. MOVEMENT

Default : 0

- Setting : 0 Outputting RS232C of all tightening data regardless of the tightening OK or NOK.
- Setting : 1 Output only the following errors through RS232C Torque/Pulse blow number [PLS.L.PLS.H.]/High & Low angle errors Fastening errors [LO.E./CYL.E./F.E.]
- Setting : 2 RS232C is not outputted.

[Function]

· Select the output operation from the PC connector of rear panel.

OUTPUT OF FORM (Data system select for RS232C output)

Default:0

Setting: 0 # - CR

Setting : 1 # - LF

Setting : 2 ENQ, No ACK/NAK - ET

Setting: 3 Global

Setting: 4 UEC-4500 type

Setting : 5 UEC-4100 type

[Function]

· Select the format of the output from the PC connector rear panel.

COMM. SPEED

Default:1

- Setting: 0 4800 bps
- Setting: 1 9600 bps
- Setting: 2 19200 bps

[Function]

Select the communication speed of the output from the PC connector rear panel.

XThis is not the communication speed setting with the programming PC software.

BIT

Default : 1 Setting : 0 7 bit Setting : 1 8 bit

[Function]

Select the bit length of the output data from the PC connector of rear panel.

STOP

Default : 0 Setting : 0 1 bit Setting : 1 2 bit

[Function]

 \cdot These bits select the stop bit for outputting data from the PC connector of rear panel.

PARITY

Default : 0

Setting : 0 No parity

Setting : 1 Even number parity

Setting : 2 Odd number parity

[Function]

 \cdot Select the parity check of the outgoing data from the PC connector of rear panel.

TORQ. VAL. TRANS

Default:1

Setting : 0 Not output

Setting : 1 Output (5 byte including the decimal point)

[Function]

• Determine whether the torque value is included in the output data from the PC connector of rear panel.

PULSE NUMB.

Default : 1

Setting: 0 Not output

Setting : 1 Output (4 byte)

[Function]

• Determine whether the output data from the PC connector of rear panel contains the pulse count.

FASTENED TIME

Default:1

Setting: 0 Not output

Setting : 1 Output (4 byte)

[Function]

• Determine whether the output data from the PC connector of rear panel contains the tightening time (elapsed time from the start torque value to the torque CUT value).

DECISION

Initial value :1

Setting: 0 Do not send

Setting: 1 Send

[Function]

• Determine whether the output data from the PC connector of rear panel contains tightening judgment.

WAVE DATA OUT

Default: 1

Setting : 0 Not output

Setting : 1 Output

Setting: 2 Output when NOK

[Function]

- Determine whether the output data contains waveform data when the tightening data is outputted to the data management system,
- · It does not affect the power from the PC connectors of rear panel.
- ANG DATA TRANSM SLCT

Default : 1

Setting : 0 Not output

Setting : 1 Output

[Function]

• Determine whether the output data from the PC connector of rear panel contains the tightening angle.

FREE RUN TRNSM

Default: 0

Setting : 1 UEC outputs no free angle data.

Setting : 1 UEC outputs free run angle data.

[Function]

• Determine whether the output data from the PC connector of rear panel contains the free-run angle.

SNUG DATA TRNSM

Initial value :0

Setting : 0 Do not send.

Setting : 1 Send

[Function]

• Determine whether the output data from the PC connector of rear-panel contains a snug angle.

WAVE DATA FORM

Initial value :0

Setting : 0 Transmit waveform data in binary (2 byte per data).

Setting : 1 Transmit waveform data in ASCII (4 byte per data).

[Function]

Select the data format of the waveform data to be sent to the Data Management system.

O: Used in binary.

ID DATA SLCT

Default : 0

Setting: 0 Not output

Setting : 1 Output

[Function]

· Determine whether the tightening data sent to the Data Management system contains ID data.

ID DATA NUMB.

Default:0

Setting: 1 - 48

[Function]

• Set the length of ID data to be sent to the Data Management system.

• The unused digits are filled with "0".

DATA COMM. FOR

Default : 1

Setting : 0 Not receive a setting and command from a host computer

Setting : 1 Receive a setting and command from a host computer

[Function]

This is to deremine whether receive or not a setting and command from a host computer, when you make communication between controller and a host computer with Uryu Standard.

%When [0] is set, controller does not receive any change of setting. When you want to change Work No, input the signal to change Work No. through I/O rear terminals.

%When [1] is set, I/O of rear terminals can not accept any signal, controller changes the settings and Work No. sent from a host computer through LAN cable

INIT. SPLICING

Default : 0

Setting: 0 Initial-connection starts from UEC-4801.

Setting: 1 Initial connection starts from a host computer

[Function]

• Determine whether to send the initial-connection command from UEC-4801 (controller) side or the host side when performing communication using the Uryu Standard.

TRANSMMISION PATTERN

Default:0

Setting : 0 Not to send waveform data (send only fastening result)

Setting : 1 In case of Fastening OK, send fastening result and waveform data

Setting : 2 In case of Fastening OK, send fastening result, waveform data and angle waveform data

Setting : 3 In case of Fastening OK, send fastening result only and store waveform data in controller. Then, when Count OK is generated, all stored waveform data will be sent by batch.

Setting : 4 Only fastening data is sent when Fastening OK, memory torque and angle waveform data. The memorized torque and angle waveform data are sent by batch when Count OK is generated.

Setting : 5 In case of Fastening OK, send fastening result, torque and angle waveform data.

[Function]

• When UDBP-AFZ is used, select the data to be sent from the tool to UEC-4801.

• The time from the completion of tightening until the next tightening can be started varies depending on the setting.

• When you select setting parameter 3 or 4, a waveform data stored in tool is sent by batch in case of Count OK. You cannot operate tool when waveform data is being sent.

• When you select setting parameter 5, waveform data within 50 pulse can be stored. The time from completion of the last fastening to start of next fastening operation is shorter than you select "setting parameter 2". So, select setting parameter 2 when pulse number exceeds 50 pulses.

** Appears when Control Method "7" is set.

DATA CLR (Data clear with Uryu Standard)

Default:0

Setting : 0 Accumulate tightening data during TCP/IP cutting

Setting : 1 Do not accumulate tightening data during TCP/IP cutting

[Function]

• This is to determine whether you make clear or not fastening data stored in buffer of controller when connection of TCP/IP is interrupted in using Uryu Standard.

• If the setting is not cleared, all the tightening data stored in the buffer will be sent when the connection with the Uryu Standard is completed again.

• When clearing is set, the tightening data stored in the buffer is not transmitted and all data are deleted when the connection with the Uryu Standard is completed again.

%Rear-Panel PC Connectors

PC connectors on the rear panel can be switched between straight and crossing cables by switching the DIP switches [SW5] 1 to 4 on the controller board.

% Pin no. 1 and 2 on dip switch on [SW5] are ON and no. 3 and 4 are OFF before shipment.

%This function is effective for only controller equipped SD CARD throttle, not miniSD CARD throttle.



11.5 Tool Control

UEC-4801 can store the cumulative number of tightening and the cumulative number of pulses. "The number of times for which the tool is used" and "maintenance of the tool" can be controlled by "Warning/number of pcs./number of pulses" to know when it is time to carry out simple maintenance of the tool such as oil change, "Repair/number of pcs./number of pulses", replacement of parts, overhaul, and so on.

	(1/3)		(2/3)	TOOL CONTROL	(3/3)
TIGHTING COUNT TIGHTING PULSE TOOL DAT. CLEAR	00000	WARNING COUNT WARNING PULSE REPAIR COUNT	0000 0000 0000	- REPAIR PULSE	0000

TIGHTENING COUNT (Total tightening count number)

Default : 0

Setting range : 0 - 99999 [1 unit : 10,000 fasteners]

• This is total fastening number of the tool now in use since the start of use.

· Fastening numbers of NOK fasteners are included.

TIGHTENING PULSE (Total fastening pulse blow number)

Default: 0

Display range : 0 – 99999 [1 unit : 10,000 pulses]

- This is the total pulse blow number of the tool now in use since the start of use.
- Pulse blow numbers of NOK fasteners are included.

TOOL DAT. CLEAR (Tool data clear)

• Write 1 to clear the total number of tightening pulses and the total number of tightening pulses.

WARNING COUNT (Warning count number)

Initial value :0

Setting range : 0 – 9998 [1 unit : 10,000 fasteners]

[Function]

- When the total number of tightening bolts reaches the number of warnings, a warning is displayed.
- Set the number of pulse blow that you are going to repair like oil change a tool next time.

[Display status when number of pulse blow reaches warning pulse]

- Buzzer sounds. Press ENT to stop.
- 7 segment displays [kcH.E.]

Note: Set [0] when not use.

WARNING PULSE (Warning pulse blow number)

Initial value :0

Setting range : 0 - 9998 [1 unit : 10,000 fasteners]

[Function]

· UEC displays a warning message when the total fastening number reaches preset cycles.

• Set the fastening number that you are going to repair a tool next time.

[Display status when fastening number reaches warning cycle]

• Buzzer sounds. Press ENT to stop.

• 7 segment displays [kcP.E.]

Note: Set [0] when not use.

REPAIR COUNT (Repair count number)

Initial value :0

Setting range : 0 – 9999 [1 unit : 10,000 fasteners]

[Function]

 \cdot UEC will let you know by a message when the total fastening number reaches preset cycle.

[Contents of Repair Time Display]

- Buzzer sounds.
- CAUTION terminal is switched on.
- 7 segment displays [rPH.E.]
- You can continue with the operation even if this warning message is displayed.

Note : Set 0 when not use.

REPAIR PULSE (Repair pulse blow number)

Initial value :0

Setting range : 0 – 9999 [1 unit : 10,000 pulses]

[Function]

• UEC lets you know by a message when the total pulse blow number reaches the preset pulses.

- [Contents of Repair Time Display]
 - Buzzer sounds.

CAUTION terminal is switched on.

• 7 segment displays [rPP.E.]

• You can continue with the operation even if this warning message is displayed.

Note : Set 0 when not use.

11.6 IN/OUT PUT (Setting of signal allocations of input/output terminal board)

Signal allocations of input and output terminal board is programmable. You can change signal allocations as required by setting.

IN/OUT PUT	(1/4)	IN/OUT PUT	(2/4)
→IN TERMINAL 1	01	→IN TERMINAL 4	07
IN TERMINAL 2	02	IN TERMINAL 5	08
IN TERMINAL 3	03	IN TERMINAL6	09
IN/OUT PUT	(3/4)	IN/OUT PUT	(4/4)
→OUT TERMINAL 1	01	→OUT TERMINAL 4	04
OUT TERMINAL 2	02	OUT TERMINAL 5	05
OUT TERMINAL 3	03	OUT TERMINAL 6	19

Setting of input terminals

Set the signal allocations of input terminals by IN TERMINAL 1 to IN TERMINAL 6.

Default and name of terminal

Setting items	Default value (Content)	Name of the terminal board
IN TERMINAL 1	1 (LS 1)	IN1
IN TERMINAL 2	2 (START)	IN2
IN TERMINAL 3	3 (RESET)	IN3
IN TERMINAL 4	7 (WORK A)	IN4
IN TERMINAL 5	8 (WORK B)	IN5
IN TERMINAL 6	9 (WORK C)	IN6

Setting contents

Set value	Signal name	Contents
	101	Judgment is made when line management operation selection is 0
		In the case of 1 or 2, the tightening process starts.
2	START	External start
3	RESET	Clearing NOK, counting, and line-management
4	LS 2	Judgment (use when 1 is set to LINE CNT. SELECT)
5	DASS	Compulsory completion
5	FA33	Provide COUNT OK compulsory even if there are unfastened fasters.
6	QL	Signal for QL wrench. Count down the fasteners.
7	WORK A	Input for workpiece selection
8	WORK B	The combination of WORK A and D selects WORK No. 1 to 16.
9	WORK C	Used when the workpiece selection combination is 0.
20	WORK D	Note: WORK D is added to the version 3.80 or later.
10	WORK 1	Signal for WORK select
2	2	Select WORK No. $1 - 5$ by the input signal combination of WORK $1 - 5$.
14	WORK 5	Use when 1 is set to WORK SIG. SEL.
15	CUT	Disable a tool externally.
16	VALVE	Connection check for solenoid valve.
17	TOOL SWITCH	Torque reading is not available when it is on.
18	AD TORQUE	XNo use.

Set up the signal allocations of output terminals by OUT TERMINAL 1 – OUT TERMINAL 5.

Setting items	Default value (Content)	Name of the terminal board
OUT TERMINAL 1	1 (COUNT OK)	OUT1
OUT TERMINAL 2	2 (COUNT NOK)	OUT2
OUT TERMINAL 3	3 (TORQUE OK)	OUT3
OUT TERMINAL 4	4 (TORQUE NOK)	OUT4
OUT TERMINAL 5	5 (SV)	OUT5
OUT TERMINAL 6	19 (SV2)	OUT6

Initial value and terminal block name

Setting contents

Setting	Signal name	Contents
		Count OK signal
1	COUNT OK	Signal output duration time is set by COUNT OK of TIMER
		SETTING.
2	COUNT NOK	Count NOK signal
		Provide COUNT NOK signal output until COUNT NOK is cleared.
3	TORQUE OK	Tightening OK
		TORQUE OK of TIMER is used to set the output-time.
1		Tightening NOK
4	TORQUE NOR	Outputting until NOK indication is cleared
5	SV	Provide the signal output when torque reaches the start torque.
6	TORQUE LOW NOK	Output when torque judgment is LOW NOK.
7	TORQUE HIGH NOK	Output when torque judgment is HIGH NOK.
0		Provide the signal output when the torque high NOK judgment is
0	OPERATION RANGE	provided.
		Provide the signal output when UEC is in operation.
9	CPU RUN	Switch off when UEC gets inoperable status while the setting is
		Caution signal
		Provide this signal output when the cumulative fastening number
10	CAUTION	or pulse blow number reaches the preset repair fastener number
		or pulse blow number.
11	WORK A answer	
12	WORK B answer	Output the answer signal of the currently selected
13	WORK C answer	WUNDER D ANSWER is added from Var2 90
20	WORK D answer	WORK DANSWER IS added from vers.ou.
14	WORK 1 COUNT OK	
15	WORK 2 COUNT OK	
16	WORK 3 COUNT OK	COUNT OK per WORK NO.
17	WORK 4 COUNT OK	
18	WORK 5 COUNT OK	
19	SV2	Output when torque reaches snug torque value.

%The same signal cannot be assigned to two or more pins.

11.7 LAN (LAN setting)

Configure the settings for the Ethernet connection. The settings are required when using LAN and datamanagement. The set value is not updated when the set value is entered in LAN setting window or LAN set value is sent from the setting software. The changed settings are applied by restarting the controller after changing the settings.

If the controller does not support the controller with SD card, the setting will be displayed as [LRn] when the setting is entered in LAN setting window. During this time, do not press for about 30 seconds until the [LRn] message disappears, because the setting is written to IC.

LAN1 #1 (1/6) → IP ADDRESS 1 0120 IP ADDRESS 2 0000 IP ADDRESS 3 0100	LAN #1 →IP ADDRESS 4 SUBNET MASK DEFULT GATWAY	(2/6) 0001 0024 0000	LAN #1 (3/6) →DEFAULT GATWAY DEFAULT GATWAY DEFAULT GATWAY	0000 0000 0000
LAN #1 (4/6) →TCP PORT 02101 CONNECT MODE 0001 HOST IP ADDR 1 0120	LAN #1 →HOST IP ADDR 2 HOST IP ADDR 3 HOST IP ADDR 4	(5/6) 0000 0100 0000	LAN#1 →REMOTE TCP POR MAC ADDRESS	(6/6) 02101 09754

IP ADDRESS 1 - 4 Default : 120.0.100.1 Setting range : 0 - 255

[Function] This is to determine the IP address of UEC.

SUBNET MASK

Default : 0024 Setting range : 1 - 31

	Subnet Mask Setting List							
1	255. 255. 255. 254	11	255. 255. 248. 0	21	255. 224. 0. 0			
2	255. 255. 255. 252	12	255. 255. 240. 0	22	255. 192. 0. 0			
3	255. 255. 255. 248	13	255. 255. 224. 0	23	255. 128. 0. 0			
4	255. 255. 255. 240	14	255. 255. 192. 0	24	255. 0. 0. 0			
5	255. 255. 255. 224	15	255. 255. 128. 0	25	254. 0. 0. 0			
6	255. 255. 255. 192	16	255. 255. 0. 0	26	252. 0. 0. 0			
7	255. 255. 255. 128	17	255. 254. 0. 0	27	248. 0. 0. 0			
8	255. 255. 255. 0	18	255. 252. 0. 0	28	240. 0. 0. 0			
9	255. 255. 254. 0	19	255. 248. 0. 0	29	224. 0. 0. 0			
10	255. 255. 252. 0	20	255. 240. 0. 0	30	192. 0. 0. 0			
				31	128. 0. 0. 0			

[Function]

This is to set up Subnet mask.

Setting range of Subnet mask is changed depending on IP address. Use the following Subnet mask within the range. When you use Subnet mask without the range, you might have problem on operation of controller. [Setting range]

[IP Address]	[Subnet Mask]
$[0. \ 0. \ 0. \ 0] \sim [127. \ 255. \ 255. \ 255]$	$17\sim24$
[128. 0. 0. 0] ~ [191. 255. 255. 255]	$9\sim 16$
[192. 0. 0. 0] ~ [223. 255. 255. 255]	$3 \sim 8$

DEFAULT GATEWAY

Default : 0. 0. 0. 0. Setting range : 0 – 255 [Function] This is to set the default gateway. Set up when connecting to PC via router. TCP PORT Default : 2101 Setting range : 0 – 9999 [Function] This is to set up the TCP port of UEC.

CONNECT MODE (Connection mode)

Default : 1 Setting : 0 Set UEC as host

Setting : 1 Set UEC as client

[Function]

• Set to "1" (client side) when using the setting software.

HOST IP ADDR 1 – 4 (HOST IP address) Default : 120.0.100.0 Setting range : 0 - 255 [Function] Enter the IP address of the PC which is used for the setup.

REMOTE TCP POR (Remote TCP port)

Default : 2101

[Function]

• Set TCP of the access point (software for setting, etc.).

MAC ADDRESS Default : Assign unique address Setting range: 0 to 9999

[Function]

- Mac address of UEC.
- A different value is set in all controllers.

· Impossible to change the setting value.

If all MAC are set to 0 (not set), an "MAC fault" will be displayed on LCD.
 ※You can operate fastening, though 「MAC error」 is showing.

Ver4.30	MACIラ-	
COUNT	99	
PULSE	0	
TIME	0	

11.8 MEMORY DATA

This is to set up the setting of memory data and the display or the clear of the calculated value from the memory data.



AVR (Average value)

[Function]

• Displays average value of memorized data Note: This is not a setting value.

$$\frac{-}{x} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

 \mathbf{x} : Average

n : Data number

🖸 (σ value)

[Function]

· Displays the σ value (standard deviation) of data in memory contents.

%This is not a setting.

$$\boldsymbol{\sigma} = \sqrt{\left[\frac{1}{n-1}\sum(\mathbf{x}_n - \mathbf{x})^2\right]}$$

σ: Standard deviation

 3σ +/- (3σ value / Average value plus-minus 3% value Function

• Displays the 3σ / Average value (deviation value) of the memorized data **%This is not a setting.**

$$3\sigma$$
 value $=\frac{3\sigma}{\overline{X}} \times 100\%$

3σ value : Rate of variability

CP (CP value) Function

Displays CP value of memorized data

• Displayed value is calculated from the selected work number setting value (torque high and low limit value) Note: This is not a setting value.

$$CP = \frac{Upper limit - Lower limit}{6\sigma}$$

Cp :process capability factor

CPK (CPK value)

[Function]

Display of CPK value of memorized data

It is calculated according to the set point (torque LOW and torque HIGH) of the selected WORK No..
 WThis is not a setting.

$$\mathsf{CPK} = \frac{\mathsf{B}}{3\,\sigma}$$

B1 : Upper limit – Average

B2 : Average - Lower limit

B : Smaller value between B1 and B2

CPK: Process capability index (including mean bias)

MEMORY BLOCK (Memory data block)

Default : 1

Setting: 1 No ID is included in the memory (without angle measurement, Maximum 4,550 pcs.) (with angle measurement, Maximum 3,900 pcs.)

Setting: 2 ID is included in memory data (without angle measurement, Maximum 1,900 pcs.) (with angle measurement, Maximum 1,800 pcs.)

[Function]

• This is to determine whether include ID number or not when UEC store the measured data as the memorized data.

• The stored tightening data can be checked by receiving it with the setting software.

*The storable maximum munber will be changed when angle data is stored additionally. Memorized data quantity will be changed by control method of Tightening Mode. When you select a control method of Tightening Mode which can measure angle, the maximum memorized data number will be changed to the memorized quantity with angle data.

%Clear all memorized data when you switch the measurement with or without angle.

 \times UEC Setup software with verion 4.0 and before can not receive a memorized data correctly. Please change the UEC Setup software to the latest version.

MEM. CONTENTS (memory content)

Default : 2

Setting : 0 Not memorize the fastening data

Setting : 1 Memorize all fastening data

UEC provides warning by the buzzer and the warning display [COUP] when the data storage comes to the last 10 pieces to maximum memory. Switch on RESET terminal, or press the reset key, and the display will go off. But UEC provides warning with same way, if you continue fastening.

Setting : 2 Same as the setting 1, but not provide the warning of the maximumn memory.

Setting : 3 Memorize only OK data and provide the warning of the maximumn memory (A warning is output during MAX.)

Setting : 4 Same as the setting 4, but not provide the warning of the maximumn memory

[Function]

- From the contents of memory and the maximum number of data that can be stored in memory, you can select whether or not to display a warning when the number of data reaches "-10."
- All memorized data is cleared when the setting value is changed.

MEMORY CLEAR (clear of the memorized data)

Function

• When it is set to [1], UEC clears all the memorized data of the specified work number.

• [-CLE] is displayed on the display and press again to execute the data clear.

• Same can be done through PC by pressing **KENCLR** in the statistic screen of the setup software.

%Clear memory data when you change setting of control method.

UNUS. HIST. CL (clear the unusual history)

[Function]

• Writing "1" to the setting value clears the alarm history stored in the controller.

SD SETUP VALUE (Save setting value with SD card) [Function]

• Set to [1], save each setting value stored in controller into SD card.

• The saved name is saved with the date and time you saved it. (It will be like "SD_Y_M_D")

• If you try to save the setting with the same file name, such as when saving again on the same day, the 10th digit of the date part is changed to $3\rightarrow 4\rightarrow 5$.

Ex.) When the values are saved on June 10, 2011, folder "SD110610" is made in root folder of SD and file of "SD110610.SDT" is saved in the folder.

"110610" displays on the screen of "SD READ VALUE"

SD FORMAT (Format SD card)

[Function]

- After inserting SD and set to [1], the SD is formatted
- $\boldsymbol{\cdot}$ When using SD card for the first time in UEC, it must be formatted before use.
- Format SD after confirming disappear of [SD read] showed on LCD display when SD card was inserted.
- Time showing [SD read] on LCD display changes, depending on amount of SD card. It takes approx. 70 seconds when you format 32GB SD card.
- XXAII data and setting values are cleared when SD card is formatted and new folder will be made to save new data. SD card error occurs when the new folder can not be read on inserting SD card.

SD WAVE REC. SE (SD waveform data memory) Default : 0 Setting: 0 Not memorize to SD Setting: 1 Memorize to SD

[Function]

• After inserting SD card and set to [1], memorize waveform data into SD card.

• SD card up to 32GB is available.

• Change [0] to [1], save waveform data of fastening after the Setting number changed to [1]. Another data before the Setting number changed to [1] is not saved.

• The number of saved waveform data that can be saved in SD card is approximately 0.6 million (when the tightening time is 0.5 seconds).

%The data of tightening performed when "SD read" is displayed on the screen is not saved. Confirm that the "SD Read" message has disappeared before tightening.

SD DATA REC. SE (SD fastening data memory)

Default: 0

Setting : 0 Not memorize to SD

Setting : 1 Memorize to SD

[Function]

- When SD card is inserted and the setting is set to "1", the tightening data can be stored in SD card.
- SD cards up to 32GB can be used.
- When the setting value is changed from "0" to "1", the data of tightening performed after the change to "1" is stored. The data before the change to "1" is not saved.
- The contents of the fastening data to be stored in SD card are saved as "Work No", "Year/Month/Day/Hour/Minute/Second", "ID", "Number of counts", "Torque", "Number of pulses", "Tightening time", "Judgment", "Angle", "Free run angle" and "Snug angle".
- The number of fastening data that can be stored in SD card is 15 million (approx. 0.6 million when the wave data is also stored).
- %The data of tightening performed when "SD read" is displayed on the screen is not saved. Confirm that the "SD Read" message has disappeared before tightening.

SD READ VALUE (SD setting value read)

Default: 0

Setting : 1 to 4 Read setting values saved in SD card.

[Function]

Select "SD READ VALUE" in writing mode, a file name saved in the SD displays.





When a number on the left of file name is inputed, the setting values are read. In case of the above, when [3] is inputted, the file of "110606" is read

When creating a setting file by PC and reading it by UEC, set the file name to "SD + (6-digit number)". (Not displayed if there are not enough characters in the file name.)

11.9 Programmed Number Change

This is to set the program number choice. Maximum 16 kinds (fastening torque, judgment values of torque and angle etc.) of program can be set up within same work number by using the program number change function. It is possible to set up maximum 20 fasteners under same work number. 16 kinds of work number (from program 1 to 16) can be set up for first fastener up to 20th fastener.

Note: Maximum 8 kinds of program is available in work number and and program number of UEC-4800 under version 3.80.

PROGRAM →PROGRAM PROGRAM FIRST	SEL 1 I NO SEL I NO SW	. (1/8)← - 0 0← 00	PROGRAM →SECOND THIRD FOURTH	SEL	1	(2/8) 00 00 00 €	PROGRAM →FIFTH SIXTH SEVENTH	SEL	1	(3/8)↔ 00 00 00∻
PROGRAM →EIGHTH NINTH 10 TH	SEL 1	. (4/8)⊹ 00∢ 00⊱ 00	PROGRAM →11 TH 12 TH 13 TH	SEL	1	(5/8)← 00 00 00	PROGRAM →14 TH 15 TH 16 TH	SEL	1	(6/8) 00 00 00
PROGRAM →17 TH 18 TH 19 TH	SEL 1	. (7/8)⊹ 00 00 00	PROGRAM →20 TH	SEL	1	(8/8)⊹ 00				

PROGRAM NO SEL (Program number change select)

Default: 0

- Setting : 0 Not use
- Setting : 1 Select the program No. by inputting from the terminal block.
- Setting : 2 Select the program No. to be used by receiving data (32Byte) from the rear-panel PC connector. Set ID data output selection in the data output setting window to 1: Set ID data length to 32 digits.
- Setting :3 Receives the workpiece No. to be used by receiving data (48Byte) from the rear-panel PC connector. Set ID data output selection in the data output setting window to 1: Set ID data length to 48 digits.
- [Function]
 - This is to determine whether use or not the program number choice, and how to change program number.
 - When setting value is changed from 0 to any of 1 3 or vise versa, UEC clears memory data. It is because UEC memorizes program number when program number choice is used.

PRGRAM NO SW (Program number change switch)

Default: 0

Setting : 0 Only the tightening OK is switched to the next set workpiece.

- Setting : 1 Switch to the next set workpiece regardless of the tightening OK/NOK.
- Setting : 2 For OK or Torque HIGH NOK, it will switch to the next set workpiece.

[Function]

• This is to determine the condition to have UEC switched to next work number when program number choice is used.

FIRST – 20TH FASTENER

Default:0

Setting range : 0 - 16

Setting : 0 Fastening is ended.

1 – 16 : Fastening is performed per setting of selected work number.

[Function]

• Set the N-th tightening by which work number is set.

XOnly 1 to 8 can be set when Ver3.80 is smaller than that.

[Setting example]

Set either 1 or 2 to PRGRAM NO SEL, and set 1 to First, Second and Third fastener, and 2 to Fourth fastener. First, second and third fastener is fastened up to CUT values of WORK 1 setting, and judged in accordance to WORK 1 setting. Fourth fastener is fastened in accordance to WORK 2 setting. Set 0 to fifth fastener if the fastening is ended with fourth fastener.

When either 1 or 2 is set to PROGRAM NO SEL, it is possible to fasten up to 20 fasteners. It is possible to set up work number to each fastener from first up to 20th.

Work number combination is settable with maximumn 16 kinds from program 1 to 16.

When 3 is set to PROGRAM NO SEL, work number combination and fastening number are decided and received from the serial port on the rear panel.



Displays the program number to be set. Programs 1 to 16 can be selected. The selection method is the same as that of the work No. in both the setting and actual tightening of the work.

11.10 Motor setting

Set tools' revolution speed and current value. Pull the trigger, and UDBP-AFZ will run at INITIAL speed by INITIAL current until torque reaches START. After START, the speed and the current will shift to SPEED (fixed) and CURRENT (fixed)

Control method: Displayed only when set to 7.



Init. Speed (Initial speed setup) Default : 25 (2500 rpm) Range : 10~48 (1000~4800 rpm) [Function]

Init. curr (Initial current setup)

·Set revolution speed from triggering to START torque.

Default: 3 Range : 1~4 (low ~ high) Setup: 1 (35%) Setup: 2 (55%) Setup: 3 (75%) Setup: 4 (100%) [Function] Set motor current from triggering to START torque. Speed (Fixed speed setup) Default : 35 (3500 rpm) [Function] ·Set motor speed after START. [Adjustable speed range, how-to, and relations with Motor MODE] Motor MODE setup 2 serves: Adjustable speed range Setting range Current 1:13 to 48 Current 2 : 17 to 48 Current 3 : 21 to 48 Current 4 : 25 to 48 Current (Fixed current setup) Default: 4 Setup: 1 (35%) Setup: 2 (55%) Setup: 3 (75%) Setup: 4 (100%) [Function]

•Set motor current from triggering to START torque.

TOOL buzzer %Not available %Tool buzzer is not adjustable when UDBP-AFZ is used.

REV. Speed (Reverse speed)

%Reverse speed and the current for UDBP-AFZ are determined by Speed (Regular speed setup after START torque) and Current (Regular current setup) of clockwise rotation.

MOTOR MODE Default : 2 [Function] ※Not available

MOTOR Angle LOW (Motor angle low limit) Default : 0 [Function] ※Not available

ZigBee Pairing

Initial value :0

[Function]

- Write 1 to begin pairing UDBP-AFZ with Uzig01.
- Check the pairing Ch, PANID and perform pairing.
- When pairing is performed after changing the setting, channels are written to ZigBee Base Unit (Uzig01) and Tool (UDBP-AFZ).

• For further information on the pairing procedure, please refer to the separate UDBP-AFZ series operating instructions."

Pairing Ch (Pairing channel)

Default : 04

Range : 1~16

[Function]

Choose channel for ZigBee out of 1~16 channels.

• Carry out pairing after setup change, and UEC will write PAIRING Ch in Uzig01 and UDBP-AFZ.

PAN ID (PAN ID) Default : FE01 Range : FE00~FE7F (0~127) [Function]

• Set PANID to be set for UDBP-AFZ and Uzig01.

- Decimal display is used for input. Ex.) FE01→001, FE7F→127
- When pairing is performed after changing the setting, channels are written to ZigBee Base Unit (Uzig01) and Tool (UDBP-AFZ).

COUNT RESET (Count reset)

Default:0

Setting: 1 Clear only the number of units after repair.

Setting: 2 Total number of units and number of units after repair are cleared.

[Function]

• UEC clears COUNT numbers retained by the tool.

This function is used when the tool is repaired, etc.

%This setting item is displayed when Control Method: 7 is set.

SCAN COUNT

Default : 20

Range : 10~999

[Function]

· Set the frequency when you scan unused channels for pairing.

Rev. COUNT (Reverse count)

Default : 0 Do not use this function.

Setting : 0 Do not use this function.

Setting : 1 Cancel last fastener to reverse the fastener count.

[Function]

• When loosening is performed after tightening, the reverse torque is detected and the tightening count is returned one by one.

• A serial reverse is not possible.

• While the tightening NOK is displayed, the number of times of tightening cannot be rewound by counting in reverse.

 \cdot When program No switching is used, the work No also returns to the previous one.

%Cannot be used when control method 7 is set.

12. Functions

12.1. Fastening control

Fastening control method is selectable from 5 options.

Control method 1 Torque monitor : :

- 2 Torque control
- 3 MC/EC wrenches Torque control 2
- 5 AMC wrenches Torque control / Angle monitoring :
- 7 UDBP-AFZ (Battery Tool equipped ZigBee)
- 9 T type wrenches Torque monitor ÷

1) Torque monitor Control method : 1

:

This is used mainly for torque monitoring of the angle nurtunner UAN series, which shuts off by mechanical clutch. When 1 is set to EXTERNAL START, UEC starts torque measuring by the external start signal input. When 0 is set to EXTERNAL START, UEC starts torque measurement when detecting the start torque and provides the judgment when the judgment delay timer comes up after the torque gets lower than the start torque.



2) Torque control Control method : 2

This is mainly used for torgue control of nutrunner. UEC switches on VALVE terminal to have nutrunner operated and controls its torque. Switching on external start signal, nutrunner operates and UEC starts torque measurement. Nutrunner continues operating until torque reaches CUT torque. UEC provides judgment when judgment delay timer comes up after the torque gets lower than start torque.



3) MC/EC wrenches Torque control Control method : 3

This is to control torque of either MC or EC wrenches. UEC starts torque measurement when detecting the start torque or greater torque, and switches on valve terminal to stop the tool when reaching torque cut level. UEC provides judgment when judgment delay timer comes up after torque gets lower than start torque.

When torque measurement delay timer is set up, it starts functioning when detecting start torque or greater torque. UEC cancels torque spike at the bolt seating point by suspending torque measurement until torque measurement start delay timer comes up, and then starts torque measurement.



4) AMC Wrench Torque Control and Angle Monitoring Control Method: 5

Torque Control and Angle monitoring is made for AMC wrenches. UEC starts torque measurement when detecting the start torque or greater torque, and switches on valve terminal to stop the tool when reaching torque cut level. UEC provides judgment when judgment delay timer comes up after torque gets lower than start torque. Angle measurement continues even if the judgment delay timer is on.

%The vertical axis range of the free-run angle part is displayed in 1/10 on the software setting waveform data screen.



Free run angle: Angle is measured from 400msec prior to start torque detection to start torque detection. Snug Angle: The angle from the start torque to the snug torque. Final angle: Angle is measured from snug to 10msec after CUT.

When snug torque is detected during torque measurement start delay timer due to torque spike in bolt seating, etc., the snug torque is re-detected after the time is up.
5)UDBP-AFZ torque control angle monitoring control method: 7

UEC serves torque control and angle monitor of ZigBee built-in battery pulse UDBP-AFZ.

Torque measurement starts when a torque equal to or greater than the start torque is input. Tool stops when the torque CUT setting is reached. Judgment output is made when judgment delay timer is up after torque goes below START.



Free run angle: Angle is measured from 400msec prior to start torque detection to start torque detection. Final angle: Final angle is measured from snug to 10msec after CUT.

When snug torque is detected during torque measurement start delay timer due to torque spike in bolt seating, etc., the snug torque is re-detected after the time is up.

6) T type wrenches Torque and fastening time monitor Control method : 9 UEC monitors torque and fastening time of shut off tools.



Torque measurement is started from the point when a torque equal to or greater than the start torque is detected, and when the measurement time (x) between peak and peak torque exceeds the judgment delay timer setting time, it is determined that the tool has shut off, and judgment output is performed.

After the judgment output, the reverse rotation completion delay timer starts from when the residual loading torque falls below the start torque due to the tool reverse operation, and it is judged by TIME UP that the tool reverse operation is completed, and then VALVE output is turned OFF to release the tool operation starting status.

Fastening time

- (1) Fastening time measurement start point
 - · When torque reaches start torque
- (2) Fastening time measurement end point
 - A point is determined by deducting the judgment delay timer off time from the time required until judgment output.

12.2 Upper and Lower limit judgment

UEC can be used to determine whether the measured torque/pulse count is within the upper and lower limits.

The upper/lower limit judgment is based on the measured values of torque, angle, and number of pulses until the end of tightening.

The upper and lower limits of the measured torque are set by [TORQUE LOW] and [TORQUE HIGH] in the BASIC SETTING screen.

Upper and low limit of pulse number is set in [PULSE LOW (pulse blow number lower limit)] and [PULSE HIGH (pulse blow number higher limit)] in the MODE SETTING screen.

[Judgment]

- (1) OK judgment when the measurement value is within upper and low limit. (OK)
 - Front panel OK LED lamp lights in green.
 - Tool's LED lamp will light in green.
 - UEC output TORQUE OK.
 - When 1 is set to ALARM BUZZER, UEC gives single sounding "Pi" for each fastener OK result, and double sounding "Pi-Pi" for COUNT OK.
- (2) HIGH NOK judgment when the measurement is confirmed higher than upper limit. (TORQUE HIGH NOK)
 - Front panel HIGH LED lamp lights in red.
 - Tool's LED lamp lights in red.
 - Buzzer sounds.
 - UEC outputs TORQUE NOK.
 - UEC outputs TORQUE HIGH.
- (3) Judgment when the measured pulse count value is equal to or greater than the upper limit
 - · Displays DPM"PLS.H. value/torque value mutually.
 - The tooling LED lights in red.
 - The buzzer turns ON.
 - TORQUE NOK terminal outputs.
- (4) LOW NOK judgment when the measurement is confirmed lower than low limit. (TORQUE LOW NOK)
 - The front-panel LOW LED (yellow) lights.
 - The tooling LED lights up yellow.
 - The buzzer turns ON.
 - TORQUE NOK terminal outputs.
 - TORQUE LOW NOK terminal outputs.
- (5) Judgment when pulse number is less than pulse number low limit. (PULSE LOW NOK)
 - Front panel displays [PLS.L.] and [Torque measurement value] by turns.
 - Tool's LED lamp lights in yellow.
 - Buzzer sounds.
 - UEC outputs TORQUE NOK.

12.3 Angle measurement upper and low limit judgement

UEC provides judgement of upper and low limit of angle measurement by using AMC wrenches, when the angle interface board as option is installed on main board of UEC.

Upper and low limits are judged with angle measurement values between snug torque value and cut value plus 10msec, start torque value and snug torque value, tool lever ON and start torque value.

The range of upper and lower limit of angle measurement is set with "FREE RUN ANGLOW LM", "SNUG ANG. LOW", "SNUG ANG. UPP", "ANGLE LOW LMT", "ANGLE UPPER LMT" on Mode setting.

The vertical axis for free running angle measurement value showing on the waveform display is 1/10 of range of vertical axis of angle measurement value.

UDBP-AF tool does not have the judgement function by Snug Angle.



[Judgment]

- (1) UEC provides free running angle error when a free running angle measurement value is lower than the set value of free running angle lower limit . (Set "1" on Free running angle detection to use the function)
- (2) UEC provides sung angle HIGH error when a measured angle from start torque to sung torque exceeds the set snug angle upper limit value. (Set "1" on Sung angle judgement and Angle judgement to use the function.)
- (3) UEC provides sung angle LOW error when a measured angle from start torque to sung torque is lower than the set snug angle lower limit value. (Set "1" on Sung angle judgement and Angle judgement to use the function.)
- (4) UEC provides fastenning angle HIGH when a measured angle exceeds the set upper limit value. (Set "1" on Angle judgement select to use the function)
- (5) UEC provides fastening angle LOW when a measured angle is lower than the set lower limit value after snug torque limit is achieved. (Set "1" Angle judgement select to use the fuction.)



Note) Above is an example of linear torque change curve.

1)Start torque error [SL.E.]

The time until the torque reaches the start torque value is detected from the start of inputting the external START, and an error is detected when the detection time is shorter than the specified time (start torque error detection timer setting value).

[Note]

• UEC could not detect the error if the preliminary fastening condition varies much per bolt or nut.

• UEC could not detect the error when it takes long to fit the nutrunner socket to work piece.

[Setting value]

ST. TORQUE ERROR detection : 1

• ST. TORQUE ERROR detection timer : 1 – 9999 [msec]

[How to set]

• Determine the set value by referring to the elapsed time between the external START input for normal tightening and the torque start torque value passing. On MODE display (5/15), "TSS" is displayed.

```
2) Initial error [LO.E.]
```

UEC provides the error when the time from start torque to cut torque is shorter than the time of initial error detect timer.

[Setting value]

- Initial error detect select: 1
- Initial error detect timer : 1 9999 [msec]

[How to set]

[Setting method]

• Determine the set value by referring to the elapsed time between the start torque value of the torque value for normal tightening and the torque CUT value passing.

3) Cycle error [CYL.E.]

UEC provides the error when the time from start torque to cut torque is longer than the time of cycle error detect timer.

[Setting value]

- Cycle error detect select : 1
- Cycle error detect timer : 1 9999 [msec]

[How to set]

• Determine the setting value by monitoring the time from start torque to cut torque of the correct fastening.

4) Cycle over error [CYO.E.]

UEC provides the error when judgment is not made from START terminal input till the cycle over error detect timer comes up.

This is used for detecting the idling of nutrunner when a socket is not fit into a work piece.

[Set value]

- Cycle over error detection: 1
- Cycle over error detect timer: 1 to 9999[msec]

[Setting method]

• Determine the setting value with enough time by monitoring the time from START terminal input to judgment output of the normal proper fastening.

12.5 Fastening data output

The purpose of this function is to communicate with server by a variety of communication ports. UEC carries out fastening data output, parameter and ID setup by communication with the server. Some setup value change is necessary according to the functions.

1) Data output (RS232C)

UEC outputs fastening data at PC connector in the rear panel. Adjust setup of DATA OUT, and the output data contents will change. UEC outputs the fastening data at every fastening. For more details of data output format or communication, refer to the manual "UEC-4800 RS232C OUTPUT".



[Necessary setups]

[DATA OUT] (7-page)

Serial OUT mode, data method select (0, 1, or 2)	• • •	1/7
Communication speed, BIT length, STOP bit select	•••	2/7
Parity, Torque value and Pulse number send select	•••	3/7
 Fastening time, judgment send select 	•••	4/7
Angle data, free run angle, snug angle send select	•••	5/7

2) URYU Standards (TCP/IP)

This function communicates with the host PC or PLC...etc via the NETWORK connector in the rear panel. The server sends some of the changed setup values, ID or Bypass (tool stop) signal to UEC, which outputs fastening data in return. Refer to an "URYU Standard communication protocol" for the details.



(3) Data management (TCP/IP)

UEC outputs fastening data at NETWORK connector in the rear panel. Various measured data and fastening waveform data are sent to the server. To hook up with multiple UEC and serve data management, use URYU data management software for data receipt. Receiving barcode reader's ID data at PC connector in the rear panel allows UEC to have fastening data associated with the ID data. Use crossing RS232C cable or change DIP switch SW5 setting as mentioned in 11.4 Data output settings. UEC outputs fastening data without the association of ID data if the provision is not available.



[Necessary setups]

[MODE] (14-page)

LAN OUT SEL. Data out destination select (default is 0) · · · 7/14

[DATA OUT] (7-page)

- UEC No. • 1/7
- WAVE DATA OUT • 4/7
- ID DATA OUT & ID DATA FORM
 · · · 6/7

[LAN] (6-page)

- IP address 1~4 • 1/6 SUB NET MASK (1~31) • 2/6
- TCP port / Connect mode · · · 3/6
 HOST IP address 1~4 · · · 4/6
- REMOTE TCP POR (Remote TCP port)
 · · · 6/6

12.6 Password

Use this function, and UEC will ask for the password when you change setup values.

Register user's name and password as a pair, and UEC will memorize the new setup value and the pair information associated.

Use numbers 0000~9999 for user's name and password. The maximum registration is 16 pairs.

1) Registration

%The below explains how to register 1234 as user's name and password.

Set the "PASSWORD" setting on the 15th page of MODE setting to 1, press the 🔤 key to confirm the change, and then press the 🖼 key to exit from the setting mode.



Press onger than 3 seconds, and UEC will shift to PASSWORD WRITING MODE with the following display asking for the password.



Change 0 of USER SET to 1 and press



UEC asks for the password. Enter password if it is already set up. Press if password is unregistered, and UEC will display password registration LCD shown at the right.



Enter 4-digit user's name in USER, and 4-digit password in PASS. If you want to use 0 as a part of the 4-digit code, press ☐ to make the digit to 1 first and ☐ next to have 0 displayed on LCD. UEC will get back to PASSWORD WRITING MODE after right side LCD display if you fail to enter 4-digit in USER and PASS both.



Press after successful code entry to get out of writing mode, and the password will be usable shifting to writing mode. Enter wrong password, and UEC will have error message displayed on LCD.



2) Confirmation of setup change history

Hook up UEC (front PC connector) to your PC. Select F10 (setup history) from statistics menu, and the PC will have setup history screen displayed.

Receive the configuration change history by clicking Receive F8.

(DUECF	SYSTEM - [CONFIGURA	TION LOG]			-					
1	FILE N/	AME :uryu			PL/	ANT/APPLICATI	ON :				.::
	No.	DATE	REGISTRANT	WORK NO C	CONFIGURATION N	iO.				OLD VALUE	NEW VALUE
	1	2018/03/08 14:30:11	1234	1 T	ORQUE LOW VAL	UE (BASIC)				80.0	10.0
	2	2018/03/08 14:30:14	1234	1 T	ORQUE HIGH VAL	UE (BASIC)				60.0	20.0
	3	2018/03/08 14:31:59	1234	1 T	ORQUE CUT VALU	JE (BASIC)				19.6	15.0
	4	2018/03/08 14:32:02	1234	1 R	ATED TORQUE SE	ENSOR (BASIC)				1000	400
	5	2018/03/08 14:32:04	1234	1 IN	NITIAL ERROR(LO.	E.) (MODE)				0	1
1											
	۶.		7.8 6.9	F.J	F., 6		네 F.비	F.IU	F.II #		
ľ	DO-1/1				SAVE	READ NO.	,			2/0/2010 /7	14.22
	PC:VI.	.82 MAIN:V4.0 FINISH	ED RECEIVING CO	NEIGURATION	1 LOG					3/8/2018 (1)	HU) 14:32

13 Torque sensor wiring diagnosis

This function detects a failure of the torque sensor, wiring in the tool, or a disconnection or short circuit in the sensor cable. An error is detected by ZERO/CAL checking function.

13.1 Error Detection

1) ZERO checking

This function checks the fluctuation value from torque sensor output voltage 0 [V] when torque is not applied to the torque sensor. The error is detected when ZERO point variation is out of $\pm 6\%$ of the rated torque.

2) CAL checking

UEC checks whether sensor setting value in UEC is appropriate to the connected torque sensor's wiring and the specifications.

UEC is simulated to check if the torque sensor is within $100 \pm 6\%$ of CAL setting when the torque sensor is in the same condition as the rated load.

Depending on sensor setting, select the sensor type to apply the rated load to the virtual torque sensor.

If the torque sensor is not correctly connected to UEC by the above operation, it is possible to detect an error when the sensor spec is incorrectly matched with the sensor setting.

13.2 ZERO/CAL checking timing

- \cdot Self-diagnosis function performed when UEC power supply is turned on
- res or when inputting RESET terminal
- When inputting START terminal (when external start type is selected: 0/1)
- When "F6 ZERO CAL" is entered in the "ZERO Point Adjust" window of the setting software
- Workpiece input from socket changer

When error is detected

• 4-digit 7-segment display unit (at ZERO error): Mutual lighting of [$\pounds \xi$] [Measured torque] is displayed.

• 4-digit 7-segment display unit (when CAL failed): Mutual lighting of " *LRLE*. " and [Measured torque] is displayed.

- Buzzer sounds.
- TORQUE NOK terminal is switched on.

14 Auto ZERO

This is a function to accurately measure the torque, and automatically corrects the torque measurement error caused by ZERO point variation of the torque sensor. By storing ZERO point variation value when checking ZERO and correcting (adding or subtracting) ZERO point variation value when converting the torque from the torque sensor output signal, it is possible to measure the torque variation only during tightening control. In the event of a ZERO/CAL failure, the above function will not operate.



1) When ZERO/CAL check detects plus (+) side deviation.



2) When ZERO/CAL check detects (-) side deviation



Auto ZERO execute timing

- Self-diagnosis is executed when UEC power is turned on.
- RES or when inputting RESET terminal
- When inputting START terminal
- When work instruction is received from POKAYOKE (data method selection: 3 setting)

15. Torque Waveform Measuring Procedure

Following explains how to measure the torque waveform by using the memory hicrder or memory scoop.

- (1) Check if the setting value is set correctly.
- (In particular, check that the torque sensor spec and torque sensor setting values connected to UEC are matched and CAL values are set correctly.)
- (2) Connect the wave measuring equipment to UEC-4801.



- Note) UK-PLUG's red wire : torque signal UK-PLUG's black wire : 0V (GND)
- 3) Press at to measure CAL wave height (voltageunder rated torqueapplied). (CAL is checked.)
- 4) Confirm CAL waveform height, and then set and adjust waveform measurement equipment.
- 5) Perform torque waveform measurement.

%It can not be used when you select setting parameter "7" on TIGHTENING MODE.

16 ANALOG OUTPUT Terminal

UEC outputs the analog torque signal voltage in real time by having the torque sensor output signal voltage amplified by 1000 times, filtered and attenuated.

1) Torque sensor output voltage specification table

Following is output voltage (x V) when rated load torque is applied to torque sensors. Output voltage changes per sensor specifications.

Torque sensor specifications	ANALOG OUTPUT pin output-voltage (xV)
480Ω 2000x10 ⁻⁶	DC 1. 0V
700Ω 750x10 ⁻⁶	DC 0. 5V
700Ω 1500x10 ⁻⁶	DC 1. 0V
700Ω 1600x10 ⁻⁶	DC 1. 0V
350Ω 2000x10 ⁻⁶	DC 1. 0V
350Ω 4000x10 ⁻⁶	DC 1. 0V
Magnetostrictive sensor	DC 1. 0V

%When UDBP-AFZ is used, Analog output is not available.

2) How to convert analog output voltage to torque value

Torque value =	Output voltage when strained by fastening $(\angle V)$		
	Output voltage when applied rated load (χV)	- ×	Rated torque value

3) Analog output terminal specifications



4)ANALOG OUTOUT terminal

Plug size : JIS C6560 small single head plug $\phi 3.5{\times}15$

17 Error

17.1 Error Message and Contents

\odot ZERO Error: [$\frac{\partial}{\partial E}$] and [NG measurements] are displayed alternately.

• When more that $\pm 6\%$ deviation off from rated value is detected.

©CAL Error: [$\begin{bmatrix} R \\ L \end{bmatrix}$ and [NG measurements] are displayed alternately.

* When more than 100±6% deviation off from rated value is detected

©Angle I/F Error [β∩ίμξ.]

* Angle Encoding Cable is not connected or disconnected. Angle Borad Interface is broken. Rosolver is broken. \bigcirc Angle Board disconnected [$\Re bnE$]

• Angle Board Interface is broken. The connector is not connected firmly between the main board on controller and Angle Board Interface.

OBuffer Full Error: [$b \mu F E$] and [Torque measurements] are displayed alternately.

• This error is fired when more angle data to a buffer than the memory unit can accommodate is flowed into it (buffer overflow). The memory capacity is programmable on mode settings of "WAVEFORM MEMORY FUNCTION SELECT". If it is set to either 1 or 4, this message does not come up.

Setting Error: [$5.\xi$] is displayed.

• When not settable setting value is input. When the setting value is out of the setting range or the input of interlock value is wrong.

◎Torque LOW [Yellow Lamp]

Torque value is under the lower limit.

◎Torque HIGH [Red Lamp]

Torque value is over the higher limit.

OPulse Number LOW NOK: [P_{L} 5].] and [Torque measurements] are displayed alternately. When the pulse number is less than pulse number low limit.

OPulse Number HIGH NOK: [$P_L SH$] and [Torque measurements] are displayed alternately.

• When the pulse number is over than pulse number high limit.

⊚Angle LOW [ମି<u>ଲର୍ଯ</u>ା]

• Angle value is under the angle lower limit.

©Angle HIGH [Я∩<u>Б</u>Я]

• The measured value of angle has exceeded the upper limit of angle.

\odot Initial error [102.] and "NG detected value" are displayed together.]

* When the tightening torque reaches the torque CUT by TIME UP of the initial-error detecting timer.

©Cycle Error: [$[\underline{U}, \underline{E},]$ and [NG measurements] are displayed alternately.

• When fastening torque does not reach CUT torque before cycle error detection timer comes up. **©Fastening interrupt error** [$F_{\underline{f}}$]

• When tightening is interrupted until the measured tightening torque reaches the torque CUT.

Start Torque Error: [<u>5↓ £</u>.]

• Start torque error detect timer starts functioning when start terminal is switched on when the torque does not reach start torque before this timer comes up.

◎Cycle Over Error: [[\u02762.] .

• Cycle over error detect timer starts functioning when start terminal is switched on when the fastening operation (judgment) is not completed before this timer comes up.

Snug Torque Error [5∩Ł.£.]

• Torque does not reach snug torque until the snug toque error timer ends.

©Snug Angle Low Error [5∩ົມໄ.]

Angle value from Start Torque to Snug Torque is under the Snug lower limit.

Snug Angle High Error [5∩6∦]

Angle value from Start Torque to Snug Torque is over the Snug higher limit.

©Free angle error (Free angle WRN) [$Fr \xi \xi$.]

• The Free Running angle was lower than the Free Running angle lower limit. **(a) Warning Count Number Error** $\begin{bmatrix} \frac{1}{2} \frac{1}{2} \frac{1}{2} \end{bmatrix}$

• The total number of fastenings reached the number set as the number of warnings.

OWarning Pulse Number Error: [c P E]

• When the total fastening pulse number reaches the warning pulse number setting value. **(a)** Repair Count Number Error: [$r r_{RL}^{pul}$]

• When the total fastening cycle reached the repair number setting value.

◎Warning Memory Error [*[[] || P*]

• The maximum number of memory data items that can be memorized has become "-10" or less.

OURYU standard communication error $\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix}$

• UEC fails to communicate to Server under URYU-standard communication.

• Keep-alive check from the upper side cannot be received within the interval set in TIMER setting Keep Alive check interval.

◎GP Error: [,P<u>と</u>.[]

•UEC fails to communicate with Global Pokayoke.

©Server Error:<u><u>Σ</u>ρ<u>U</u>[]</u>

·UEC fails to communicate with Server.

◎Pokayoke Error [[] Ph.E.]

• A completion notice from GP was received even though the tightening for the specified number of bolts was not completed.

◎Program Number Error: [^[]₀p^p.[[]₂.]

Pokayoke or server gave UEC an out-of-range number.

◎ROM Error: [*[r.[]* /]

• When ROM of board is broken down or causes malfunction for some reasons.

◎RAM Error: [*{r.ឰ2*.]

• When RAM of board is broken down or causes malfunction for some reasons.

©A/D Error: [*[[ित्.ा]*]

• A/D in the board is causing a malfunction or abnormal operation for some reason.

©SUM Check Error: [*Er.Er.*]5]

• There is an error in the settings stored in RAM.

OSD Card Error [∩ [] 8]

•SD card or the slot is out of order. Card is not inserted correctly. Low memory (free memory is too low). UEC failed to download or upload data from SD card. SD card is larger than 32GB. Format form of SD card is not recognized. SD card is not formatted yet when you start to use SD card with UEC.

SD Card Full: 5ddF]

• SD Card runs short of memory space for data storage.

© Filter Error

• Filter IC on the main board is broken.

◎VALVE burnout abnormality [*!!! !![*]

• Malfunction or disconnection of solenoid valve. A setting 16:VALVE is assigned to an input even though it is not in use.

©DC24V error [d24.€]

Abnormality DC24V power supply inside the main unit.

If DC24V fuse (on the board inside the main unit) blows, the following problems will occur.

- It is impossible to accept the input of the terminal block.
- The terminal block "+24V" is no longer outputted.
- (Terminal block output is possible.)

% If AC fuse (2) on the 4.2 rear-panel is cut off, the power will not turn on.

©Disconnection Error ["udn.E.]

• Wiring disconnection on torque transducer. The wiring on sensor cable or cables inside tool may be disconnected or broken.

◎Reverse CUT error [--- *ξ*]

• The negative torque reaches the [-] torque CUT.

· Wiring on sensor cable or torque sensor may be disconnected.

ONet Mask Error: n [L. [] i

•Switch on UEC, but communication does not start with the ZigBee Coordinator Uzig01.

©CPU System Error: [₽ЦЕ]

•CPU in UDBP-AFZ control board produces heat.

OMotor System Error: *∐d*Ł. *E*

 \cdot Communication error between control-board in UDBP and motor.

◎ZigBee System Error: b22.E I

Error on control board in tool.

◎Battery System Error: 1686.

·Battery failure.

OAD Torque System Error: Adt.E.
AD torque sensor failed.
UDBP-AFZ internal wire short circuit.
OLOW Battery Error: L.BAL i
Battery level dropped to the limit.
ORotary Encorder Error: r DEE.
Encoder (angle sensor) failed.
OControl Task System Error: Stute.
OSUM check error [SUME.]
SUM checking error occurred in communication between Uzig01 and UDBP-AFZ.

Other errors

©The numerical value of the statistical data received by the setting software is invalid.

• The setting value of the memory data block input to the setting software and the controller does not match.

• The number of work in the setting software does not match the number of work in the controller.

©UEC can not communicate with a server.

•An Ethernet cable excepting 10BASE-T or 100BASE-T is used.

•UDBP-AFZ error

OTool does not rotate

-Setup value interlock error if UEC front panel displays S.E.

©Torque value appears on LCD despite no fastening, or LCD displays nothing for fastening.

•There exists other pair of ZigBee Coordinator (Uzig01) and UDBP-AFZ using the same PAN ID setup.

17.2 Measures against abnormalities

Alarm details	Measures against abnormalities
	• Be sure to set the select switch, [M.S] or [S.G], in UEC rear panel (refer s.g_M.s
ZERO error	to 4.2 Rear Panel 5)
	• Replace a tool and sensor cable due to the possible broken wire or tool.
CAL error	Check if the tool is running during the checking is being made.
	Power off the controller and replace tool and sensor cable with new ones.
Angle I/F Error	Check the angle board or replace it with new one.
-	Check the control method. Do not choose AMC tools when using MC/EC tools.
	 Check the connection between angle board and main board.
AngleBoard Disconnected	 Replace the angle board with new one.
	Check the tool model and control method.
Buffer Full error	Check the communicating cable.
Bullor i un onte.	 Set the setting of WAVEFORM MEMORY FUNCTION SELECT to 4.
Volvo Disconnection Error	Set the Valve Check of MODE to 0.
	Do not allocate #16 VALVE.
	· Check and correct the mode settings parameters to see they are logically correct like
Setting error	the formula START <cut.< td=""></cut.<>
	When the control method is set to 7, re-start UDBP-AF after the change in settings.
Initial/Cycle error	 Tighten twice, check for galling.
Pulse number 1 OW/HIGH	 Check the alignment of workpiece and bolt.
	Check start torque and cut torque values.
	Initial/cycle error detection timer setting value. ※1
Fastening angle	Pulse count upper/lower limit value check. ※1
LOW/HIGH	XInvestigate the tightening time (elapsed time from the start torque to the torque CUT),
	the number of pulses, and the tightening angle at the time of normal tightening, and
	refer to the set value.
	\cdot Is the start lever released prior to reaching CUT setpoint?
Incomplete Joh error	Check the tool performance and air pressure applied to tool.
Incomplete son error	Check the judgement delay timer is long enough.
	Make sure that the Start Torque value is good.
	Check the alignment of workpiece and bolt.
Start torque error	Check the tool capacity/supply air pressure.
	Check the cycle-over error detection timer setting.
Cycle over time error	 Check tool capacity/supply air pressure/workpiece and bolts.
	Check the setting value of cycle over error detect timer is correctly set.
Soua Torque Error	 Check tool performance, air pressure, and application.
	Check start torque and snug torque.
Snua Anale Low Error	Check if the bolt is double hit or cross threaded.
	Check the snug angle lower limit, start torque, and snug torque.
	Check tool performance, air pressure, and application.
Snug Angle High ⊨rror	Check if the bolt is cross threaded.
	Check the shug angle higher limit, start torque, and shug torque.
Free Running Angle Error	Check if the bolt is double hit, pre-fastened of cross threaded. Check start torque
	· Check server and LAN cable
URYU-standard	· Check Server and LAN cable.
Communication Error	Check "Lifecheck Time" setting
GP Error	Check if DATA OUT setup is correct
	Confirm Pokavoke side power communication cable etc.
	Check cotting of LAN OUT SEL on MODE softing
Server error	Check settings related LAN and LAN cable.
	Change setting to 0 by using UEC setup software to delete "Server error" when setting
D-liquelia arror	
Pokayoke error	Force-quit the cycle. Ur, press
	• Check the humber that Pokayoke or server gave UEC.
Warning count/puise	• Recondition the tool like oil change and set the count/pulse number for the next

Repair count/pulse number error	Repair or replace a tool, and clear the repair count / pulse number.
	Download and store the data in the UEC-4801 memory, and then clear the
Warning memory error	memorized data.
	Review the setting value of MEMORY DATA CONTENTS if this function is not needed.
ROM/RAM error	Replace the UEC-4801.
A/D error	Replace the tool, the cable. or the UEC-4801.
Filter Error	Replace the controller with new one.
Sum check error	 If UEC works in order again by switching on or pressing RES, memory can be overwritten by noise. Set all the setting values again as the previous setting values are initialized when UEC is recovered by switching on or pressing RES
	\cdot Format the card before use. Use SD card with format form <code>「FAT32」</code> .
SD card error	Reassure card insertion.
	Replace card/UEC with a new one.
	Use card with capacity up to 32GB.
Blown DC24V Fuse on the PC board	 Check the wiring and replace the fuse (model: MH10(1) code number: 909-814-0 maker: Daitoh tushinki). Make sure to switch off and disconnect the power cable from AC power receptacle when replacing the fuse.
Disconnection Error	 Check if the connector of sensor cable is firmly connected and locked. Replace the tool/cable with new one. Set 4 to Pulse / Stall of MODE when this is not utilized.
Reverse CUT Error	 Replace the tool/cable with new one. Check if the polarity switch on the main board is correct. Refer to 9 "Torque Polarity". Set 4 to Pulse / Stall of MODE when this is not utilized.
Rotate out of range speed	· Check tool and cable. Replace them if they are found damaged (make unplug & plug
or fastening is interrupted	with UEC switched off).
despite in progress.	
	 Make another try of Uzig01 physical connection and switch on UEC.
NET mask error	 Check Uzig01 adapter and communication cable connection.
	Confirm PC COMM.SPEED is setup 3.
	 Change TIGHTNING MOD to other than 7 if you do not use UDBP-AFZ.
CPU system error	Replace the tool with a new one.
Motor system error	Replace the tool with a new one.
ZigBee system error	Replace the tool with a new one.
Battery system error	Check if battery is successfully loaded.Replace the battery with a new one.
AD torque system error	Replace the tool with a new one.
Battery low error	 Recharge the battery and reload. Detach battery from tool when not in use.
Encoder error	Replace the tool with a new one.
TASK error	Replace the tool with a new one.
SUM check error	- Cive each Lizig01 a unique BAN ID
(Uzig01 and UEC com-	Confirm environmental radio wave condition and use the most suitable channel
munication error)	
Tool not run	 Reassure 7 is in TIGHTENING MOD. Reconfirm WORK change signal provision. Confirm fastening number set in Controller and another fastening number fastened actually. Confirm LED Lamp and Dip Switch on FL-NET board in Controller panel.

18 Other

18.1 Cleaning

When clearning the body of controller, use a soft cloth with a small amount of laundry detergent

18.2 How to replace a fuse

How to replace a fuse

•how to replace DC24V fuse

 $\textcircled{\sc l}$ There is DC24V fuse on the main circuit board.

O Switch OFF, pull out power cable.

- ③Take screws on side of body off.
- $\textcircled{\sc 4}$ Take fuse off, pull it out vertically from main circuit board.
- ⑤Insert new fuse to the end. (no polarity)

DC24V fuse

Do not use another thing without fuse.

Part name: HM10(1A) Part number : 909-814-0

When wiring of DC24V system like a wiring of terminals, sensor

cable and tool is shorted, new fuse may blow again. After confirming wiring and etc., replace fuse.

•how to replace AC fuse

①There is AC fuse in fuse holder above the power supply code terminal on the rear panel.

②When the AC fuse blows, power may not be supplied. Put off power cable when you replace AC fuse with new one.

③Pull fuse holder out with a minus driver, take AC fuse out from the fuse holder.

④Put spare AC fuse mounting behind the fuse holder in spite of another blown AC fuse and insert the fuse holder to the original position. (Which directions are acceptable because there is no polarity).

