



Edition 1.0

December 2017

URYU SEISAKU, LTD.

Table of Contents

| 1. (| Outline | 6 |
|--|--|----------------------------------|
| 1.1. | Configuration | 6 |
| 1.2. | LCD Screen diagram | 7 |
| 1.3. | Dimensions | 9 |
| 1.4. | Features | 10 |
| 1.5. | Installation | 11 |
| 1.5.1 | . Place | 11 |
| 1.5.2 | . Environmental condition | 11 |
| 2. 3 | Specifications | 12 |
| 3. F | · Parts names and functions | 13 |
| 3.1. | Front panel | 13 |
| 3.2 | Rear panel | 14 |
| 4 \ | What is different from LIECP-4800? | 16 |
| 5 (| Operation | 17 |
| 51 | Prenaration | 17 |
| 5.2 | Key operation | 17 |
| 53 | Setup | 17 |
| 5.5. E / | | 10 |
| 0.4. C | | 10 |
| 0. I | | 19 |
| 0.1. | KEY CHECK (Key entry diagnosis) | 19 |
| 6.2. | | 20 |
| 1. Z | ZERO set (Zero point display) | 22 |
| 8. \ | WORK No. change | 23 |
| 9. F | Polarity change | 24 |
| 9.1. | Change torque measurement polarity | 24 |
| 9.2. | Change NPN/PNP | 24 |
| 10. | SETUP (The most basic) | 25 |
| 10.1. | BASIC | 27 |
| 10.2. | MODE | 30 |
| 10.3. | TIMER | 44 |
| 10.4. | DATA OUT (Data out setup) from rear panel | 49 |
| 10.5. | TOOL CONTROL | 55 |
| 10.6. | INPUT & OUTPUT (Rear terminal signal allocation) | 57 |
| 10.7. | LAN | 59 |
| 10.8. | MEMORY DATA | 61 |
| 10.9. | PROGRAM SEL (Program select) | 65 |
| 10.10 |) MOTOR SET | 67 |
| 11 | FUNCTIONS | 71 |
| 11.1 | Fastening control specifications | 71 |
| 11.2 | | 73 |
| 11.2. | | 7/ |
| 11.0. | | 75 |
| 11.4. | Eastening data output | 76 |
| 11.0. | | 70 |
| 11.0. | | 00 |
| 12. | TURQUE SEINSUR WIRING DIAGNUSIS | 00 |
| 12.1. | | 80 |
| 12.2. | | 80 |
| 40 | | |
| 13. | | 81 |
| 13. 14. | Torque waveform measurement | 81 82 |
| 13. 14. 15. | Auto Zero Torque waveform measurement Analog Output | 81 82 83 |
| 13. 14. 15. 16. | Auto Zero Torque waveform measurement Analog Output Errors and the trouble shootings | 81 82 83 84 |
| 13. 14. 15. 16. 17. | Auto Zero Torque waveform measurement Analog Output Errors and the trouble shootings Others | 81 82 83 84 89 |
| 13. 14. 15. 16. 17. 17.1. | Auto Zero | 81 82 83 84 89 89 |

Read through UECP-4811 (hereafter referred to UECP) instruction manual before installation, operation, maintenance, inspection of its system, and do the operation right. Use this system only after you master knowledge of this system, safety information, and all precautions. Save this instruction manual for quick reference at the time of need. This instruction manual has classified cautions DANGER and WARNING for personal injuries and damages caused by operations in disregard of safety instructions.



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



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

CAUTION sign also warns the risk of serious consequences depending on the situation. So, follow all instructions given in this instruction manual always.

Installation and surroundings



- •Place on a metal or other incombustible component to prevent fire.
- •Keep away from the combustibles to prevent fire.
- •Avoid foreign material intrusion to prevent fire.
- •Set UECP 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 sytem, and always wear the proper clothes for your job. In addition, be careful not to get your hair caught in tools, tie long hair with a rubber ribbon or the similar, 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.



WARNING

- •Be sure to turn off UECP prior to wiring to avoid electric shock or fire.
- •Make sure the ground wire is properly grounded to avoid electric shock or fire.
- •Carry out wiring after you installed UECP to avoid electric shock or fire.
- •Expert electricians shall conduct wiring to avoid electric shock or fire.
- •Always use Y-shape crimp contact or round shape crimp contact when wiring UECP rear terminals to avoid electric shock or fire.

- •Make sure the rated voltage of UECP is the same as power supply from the socket to avoid electric shock or fire.
- •Make sure to carry out correct wiring to avoid electric shock or fire.

Handling and operation



- •Assurance of workplace safety by operators themselves before switching UECP is essential to prevent personal injury.
- •Never touch switching devices with wet hands to avoid electric shock.
- •Never touch current-carrying UECP rear terminals even if the tool is not in operation to avoid electric shock.
- •Neither damage, stress, load up, nor pinch power cord to avoid electric shock.
- •Never connect and disconnect UECP and tool while UECP is in operation to avoid electric shock and tool damages.
- •Keep UECP switched off when you do not use UECP.



- •Carry out the operation under setup within the instructed range to avoid personal injury and burn.
- •Operate UECP under good footing and environment. Operation by awkward posture is dangerous.
- •Carry out the operation with greatest care. Avoid careless and unreasonable action, operation under fatigued state and long time operation without break because doing so causes sick and personal injury.
- Maintenance and inspection



- •Never forget to switch off UECP first for check or the replacement. Disconnect power cord from the socket to prevent electric shock.
- •Only authorized persons do maintenance and inspection. Take off metal products first such as wristwatch, rings, and use insulated tools to prevent electric shock or personal injury. Inspect the cord periodically and repair it by authorized persons when damage is observed.
- •Only URYU or its authorized distributors repair UECP to avoid electric shock, personal injury or fire.

Disposal

•Dispose of UECP as an industrial waste.

The information described in this manual is solely the property of URYU SEISAKU, LTD. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording and sold for monetary figure without the express written permission of URYU SEISAKU, LTD.



•Never modify UECP to avoid electric shock, personal injury or fire.

•Immediately stop the operation, turn off UECP and disconnect power cord from the socket when facing emergencies or feeling abnormalities.

General Precautions

- Note that all graphic explanatios in this manual can show some components unmasked form to explain the interior details which are covered by safety masking always. Be sure to put the masking back to the original position as specified in this manual before operation and run it as intended.
- Keep any unauthorized persons away from UECP and its system.
- UECP and its system are not waterproof. Protect them from exposure to water to avoid short circuit creating causes of fire or electric shock.
- •Keep magnet away from MC tools controlled by UECP because magnet produces malfunction of magnetostrictive transducer built in MC tools.



Disclaimer

- •This instruction manual is subject to change without prior notice.
- •We warrant that UEC will conform to the specifications, but disclaim all implied warranties, including, without limitation, all implied warranties of merchantability and fitness for a particular purpose.

1. Outline

1.1. Configuration



1.2. LCD Screen diagram









Side panel

1.4. Features

1 Self-diagnosis function

Switch on UECP, and it will perform self-diagnosis in order of ROM, RAM, A/D, FILTER, ZERO/CAL check for 10 seconds.

②UECP has functions of various fastening error detections and fastener number count.

③UECP carries out tool control of UDP through IN and OUT terminals in the rear panel.

(4) UECP makes setup and change of torque and fastener number count for 16 kinds (work number 1 to 16).

Use program number change, and multiple torque setting will be possible per work number.

⑤UECP makes tool maintenance by total cycle numbers and pulse numbers.

(6)UECP front panel or PC screen displays IN/OUT check and error message with buzzer sounding on UECP.

O Set and monitor various control values either on UECP front panel or on PC screen.

⑧UECP memorizes up to 4,550 fastening data, which is 1,900 if associated with ID information.

(9) Changeable polarity (NPN • PNP) on input terminals.

(1) Use UECP dedicated software, and your PC will have the following functions (refer to UECP setup software for the details).

- Up and down of setup values
- Receive and save of fastening data
- Data reading of SD card

**They are not available while UECP works in association with Uzig01 (ZigBee Base unit). To use these functions, restart UEC with Uzig01 disconnected.

UECP front panel operation provides the following functions.

- · Fastening result display such as torque value
- Setup value change and monitor
- Various checkup
- Tool maintenance

12 Ethernet (TCP/IP) capable

- Hook up UECP to URYU setup software-installed PC for bidirectional communication of setup value, and upload of fastening result and waveform data.
- Hook up UECP to an optional URYU data control system for fastening result and waveform data upload.
- Hook up UECP to quality server to receive fastening instructions and upload fastening result data.
- URYU setup software requires modifications if UECP needs to work with users' network system.

③SD card usable

- Fastening data and waveform saving
- · Setup value writing and reading

SD card up to 32 GB usable

•URYU setup software is subject to upgrade for enhancement without prior notice.

•A label above power switch shows ROM version number. Turn on UECP, and the same number will appear on LCD screen.

1.5. Installation

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

1.5.1. Place

- 1) Within a building neither water nor direct sunlight enters bevause UECP is not waterproof.
- 2) Where UECP suffers no corrosives, flammable gas, grinding fluid, oil mist, metal powders, etc.
- 3) Well-ventilated, less moisture, and less dust or waste place.
- 4) Less vibration place.
- 5) Where you can disconnect power cord from socket immediately when anything unusual happens with UECP.
- 6) Operate UECP after placing in a housing if used under contamination level 3 environment.

1.5.2. Environmental condition

| Items | Conditions |
|--------------------------|--|
| Place | Indoors only |
| Ambient temperature | 0~45 deg (No freeze) |
| Ambient humidity | Below 90% RH (No dew) |
| Preservation temperature | 0~45 deg (No freeze) |
| Preservation humidity | Below 90% RH (No dew) |
| Vibration | Less than 5.6 m/s ² (10~60Hz) |
| Altitude | Lower than 1,000m |
| Over voltage capacity | Category 3* |
| Contamination level | Degree 2* |

*The above categorization is of the over voltage category (1, 2 and 3), and contamination level (1, 2 and 3) as per IEC664. UECP has been categorized as over voltage capacity 3, and contamination level 2 as above mentioned.

(IEC: International Electric Standard Committee)

2. Specifications

| Items | | Descriptions | | | |
|-----------------------|-----------|--|--|--|--|
| Power source | | 100VAC | | | |
| Frequency | | 50/60Hz | | | |
| Insulation resistance | | 500VAC greater than 10MΩ | | | |
| Weight | | About 4.4kg | | | |
| Cons | sumption | 30~1140VA It depends on usages and kind of a tool connecting. | | | |
| Dime | ensions | 265(D) x 222(W) x 145(H) | | | |
| Main | functions | Torque control or monitor, and fastener count. Angle monitor when UDBP-AF is used. | | | |
| Setu | р | Front panel | | | |
| | | Torque recelution 1/ 2018 (12 bit by A/D upp) | | | |
| Display | | LCD (20 letters x 4 lines) Display: Work No., unfinished number, fastening time, and pulse number, angles 1-digit (DPM) display Work No. 4-digit (DPM) display Torque value or error signs | | | |
| Cloc | k | 24-hour clock, automatic calendar, accurary +/-1minute a month | | | |
| Lam | D | COUNT lamp (Count judge): OK (green)/NOK (red) | | | |
| (LED |) | TORQUE lamp (Torque judge): LOW (yellow), OK (green), HIGH (red) | | | |
| Tern | IN | Operation voltage and current: DC24V/about 10mA 6 terminals (free format) *input by contact input | | | |
| ninals | OUT | Contact point capacity: DC30V, 1A 6 terminals (free format) plus VALVE terminal | | | |
| Oscillograph | | Plug size: JIS6560 small single head plug φ3.5x15 Output filter-processed torque waveform from analog jack. Use 909-483-0 Analog cable. | | | |
| Key | | LCD: Front panel 🔳 🗖 📕 🍡, 🛤 | | | |
| | | PC cable for setup: 910-219-0 PC cable RS232C Straight cable with female D-sub 9-pin and male D-sub 9-pin | | | |
| Option | | USB-RS232C Converter (male D-sub 9-pin to male USB A Connector) : 910-396-0 | | | |
| | | UDP Cable except for UDP-A120MC: 910-807-0Joint cable assembly (UDP Gray R) 5m UDP Cable except for UDP-A120MC: 910-808-0 Joint cable assembly (UDP Gray R) 10m UDP Cable except for UDP-A120MC: 910-809-0 Joint cable assembly (UDP Gray R) 15m | | | |
| | | Dedicated cable for UDP-A120MC: 910-567-0 Joint cable assembly (UDP Black) 5m Dedicated cable for UDP-A120MC: 910-568-0 Joint cable assembly (UDP Black) 10m Dedicated cable for UDP-A120MC: 910-569-0 Joint cable assembly (UDP Black) 15m | | | |
| | | ZigBee unit:910-391-0 Uzig01 ZigBee Base UnitZigBee cable:910-393-0 ZigBee Communication Cable (5m) | | | |

3. Parts names and functions

3.1. Front panel

| (2) (1) (1) (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | TORQUE CONTROLLER UECP-4811 COUNT TORQUE OK NOK CK HIGH | TORQUE |
|---|--|--------|
| Power | | |
| | 0 | |

1 Circuit-breaking switch

This is ground-fault breaker switch interrupting power supply when short circuit happens. Turn off while you do not use.

②Buzzer

This sounds to announce each OK fastening, errors, various NOK, key operation, etc.

Buzzer stops sounding on pressing in when an error happens.

③DPM: Digital panel meter (7-segment display)

```
1-digit (No.) : DPM displays Work number currently selected. Work 10~16 are replaced by A~G.
4-digit (TORQUE) : DPM displays torque or error sign.
```

④COUNT lamp

OK : Lighting when unfinished fastener number is zero.

NOK : Lighting if fasteners remain unfinished at the judgment.

5 TORQUE lamp

OK : Lighting when measured torque was within torque upper and low limit at the judgment.

LOW, HIGH : Lighting if measured torque was out of torque upper and low limit at the judgment.

6 Use **T** to move cursor, or to adjust setup value on menu picture.

⑦Use **I** to select digit of number you are going to change under writing mode.

8 Key switches

Reset INT :Stop buzzer sounding, or fix input value. Or, shift to writing mode by pressing INT longer than 3 sec.

⑨PC connector (D-sub 9-pin)

This connector hooks up UECP to PC or ZigBee Unit.But UECP does not work with them at the same time.Turn off UECP before PC and ZigBee Unit exchange.Use straight cable for PC communication.

①LCD Display (20 letters x 4 lines)

LCD displays fastening data (torque, angle, start to cut time, pulse numbers and judgment), controller version, unfinished numbers, ID, date and time, error messages and setup values.

3.2. Rear panel



①Power cord socket

Connect power cord.

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

2Fuse holder

Circuit protections fuse (10A)

③PC connector socket (D-sub male 9-pin)

This is RS232C data IN/OUT communication port that hooks up UECP to Pokayoke, PLC, PC, barcode reader, etc.



| Wiring contents | | |
|-----------------|---------------------------|--|
| Pin Nos. | Signal contents | |
| 1 | FG (Frame ground) | |
| 2 | TXD (Data output) | |
| 3 | RXD (Data input) | |
| 4 | DSR (Power ON confirm) | |
| 5 | SG (Signal ground) | |
| 6 | DTR (Data terminal ready) | |
| 7 | CTS (Clear to send) | |
| 8 | RTS (Request to send) | |
| 9 | Not used | |

*Signal contents swap is available between 2 and 3.

For more information, refer to PC connector of Rear Panel at <u>11.4 DATA OUT</u>.

(4)CN-1 connector for tool cable

CN-1 connects tool cable from tool to UECP.

Keep UECP switched off when connectitng and disconnecting tool cable.

X In using UDP-A120MC, dedicated Joint Cable Assemblies (UDP Black) at page 12 are necessary. Other cables will not allow you to drive UDP-A120MC with UECP.

⑤Analog output

UECP outputs torque waveform.

(For more information, refer to 15. Torque waveform measurement and 16. Analog Output.)

6Network connector

Hook up UECP to Ethernet for further connection with quality server.

⑦Terminal block (free format)



| Terminal | Signal contents | Terminal | Signal contents |
|----------|-------------------------------------|----------|---------------------------------------|
| A1 | 0V (When PNP: INPUT COM) | B1 | OUT COM: Common for output treminals |
| A2 | | B2 | |
| A3 | | B3 | |
| A4 | IN 4. Culture ut to main allo | B4 | OUT 1~5: Output terminals |
| A5 | N 1~6: Input terminals | B5 | |
| A6 | | | |
| A7 | | B7 | VALVE: Valve output (0V) |
| A8 | | B8 | VALVE COM: +24V (When PNP: INPUT COM) |
| A9 | | | OUT 6: Output terminal |
| A10 | OUT COM: Common terminal for output | B10 | OUT COM: Common terminal for output |

Terminals IN 1~6 and OUT 1~6 are free format allowing to change signal allocation. Confirm the allocation of what signal to what terminal first, and then make the wiring to rear terminals.

*Make signal allocation to IN 1~6 terminals by contact input.

*Terminals OUT 1~6 are no-voltage output. Make the wiring below DC 24V voltage.

XUse Y-shape or O-shape crimp terminals to make wire connections with terminal block.

*Default of input termial of UECP-4811 is NPN type. To change NPN to PNP type, short Jumper switch on main board according to the following drawing. For more details, refer to <u>10.2 Change NPN/PNP.</u>

⑧Ground termial

Be sure to use this terminal if the power cord does not have ground wire.

(9)SD card slot

This is slot for SD card.

UECP accepts SD card up to 32GB.

*Do not remove SD card while access lamp is lighting.

%Reading time is long in proportion to the SD card capacity. It takes about 70 seconds for UECP to read a SD card of 32GB.

%Keep SG/MS selector switch at MS position.

4. What is different from UECP-4800?

%Front switches and others remain the same except white characters of UECP-4811 standing out against the black panel.



1) UDP-A120MC-usable

To drive UDP-A120MC, use UECP-4810 and the dedicated cable having two more electric wires which are not used to UECP-4800 and non-dedicated cables. Using non-dedicated cable allows UECP-4810 to drive all other UDP-MC tools. Never forget to use appropriate cables as the tools demand. See these cables mentioned in Option of 3. Specifications at page 12.

2) Display of angles turned by UDP tools at fastening

Carry out fastening by UDP tools, and UECP will display angles turned by the built-in motor. To detect double hitting, make use of the turning angles. Refer to <u>11.10 MOTOR SET</u> for the details.

3) Duty cycle adjustment under MOTOR SET mode

To refine fastening performance, adjust Duty cycle in addition to current value and motor speed adjustment. For the adjustment, MOTOR MODE 4-usable UDP-MC tools are necessary. This function is not loaded with UECP-4800 because its MOTOR MODE is up to 2.

4) Change NPN/PNP

Default of input termial of UECP-4811 is NPN type. To change NPN to PNP type, short Jumper switch on main board according to the following drawing. For more details, refer to <u>10.2 Change NPN/PNP</u>.

5. Operation

5.1. Preparation

①Connect joint cable to CN-1 socket of UECP, and further connect the cable to the tool.

②Ensure UECP power switch is off, and then plug the power cord to wall socket.

③Switch on UECP, and it will perform self-diagnosis for 10 seconds with front panel 7-segment DPM lighting [<u>8888</u>] and [<u>8</u>] with buzzer sounding. Make visual check also.

(4) The DPM displays [*[4]*] if UECP works normally.

%Turn on UECP only after all cables are connected.

| γ. | | | |
|----|--------|--------|-------------------|
| , | Ver4.0 | | 17/01/01 00:00:00 |
| | CUUNI | аă | HNGLE Ø |
| | TIME | ы С | |
| | LTUE | Ø | |

5.2. Key operation

①Switch on UECP, and the LCD will shift to MEASUREMENT screen (as above) after self-diagnosis.

②Press in MEASUREMENT screen, and LCD will shift to DISPLAY SELECT of MENU screen.

③Press 📧 in MEASUREMENT screen, and UECP will reset fastening error, or make ZERO/CAL check.

④ Press \square , and the cursor [\rightarrow] will move up and down.

(5)LCD displays page number and total pages on the upper right when the display consists of multi pages.

⑥Press **I** or **I** in SETUP screen, and the page will move to next or to previous one.

⑦Keep pressing 💵 over 3 seconds, and UECP will shift to writing mode permitting setup change.

⑧Press at 4th line in writing mode, LCD will shift to next page. Press at 1st line in writing mode, LCD will shift to previous page.

⑨Press ▲ or ▲ at 1st line of a display, and LCD will shift to previous display (1 level up).

⁽¹⁾Set cursor [→] to desired display and press \mathbf{E} , and LCD will shift to next display (1 level down).

1 Press res in any screen, and LCD will return to MEASUREMENT screen.

5.3. Setup

Change setup value by PC or by LCD operation.

- (1) By PC (refer to exclusive setup software instruction manual for the details)
 - ①Hook up UECP to PC by straight PC cable with front PC connector for RS232C communication or by LAN cable with rear NETWORK socket for Ethernet communication.
 - **Select LAN cable connection if front PC connector is occupied by Uzig01. Otherwise disconnect Uzig01 from UECP, restart UECP, and then hook up UECP to PC.

②Change setup value by the setup software.

③Transmit changed setup value to UECP by the setup software.

(2) By LCD key switch operation

①Have desired setup displayed on LCD for adjustment as follows.

Keep pressing wor 3 seconds, and UECP will shift to writing mode.

②The tool is inoperative with COUNT NOK lamp flashing on UECP during writing mode.

- ③Press \blacksquare to place arrow [\rightarrow] at the desired item, then press \blacksquare
- ④Press Lo move the cursor [_] to the digit for setup value change.
- (5)Press \square to increase, or \square to reduce the setup value.
- 6 Press after changing the setup value, and UECP will rewrite the changed value.
- ⑦Press es, and UECP will leave the writing mode and return to MEASUREMENT screen (setup value change comes to an end).

5.4. Self-diagnosis

Switch on UECP, and it will perform self-diagnosis ROM, RAM, A/D, ZERO/CAL check and all others for 10 seconds to check and detect internal parts errors.

[Self-diagnosis contents]

①LED lamp and buzzer check

DPM displays [<u>8888]</u> and [<u>8</u>], with following message on LCD, buzzer sounding, and other LED lamps lighting. Carry out visual check that all LED lamps lighting and buzzer sounding when you switch on UECP.



2 ROM IC check

Check whether UECP control program retaining IC (ROM) works normally.

③RAM IC check

Check whether UECP setup values and data retaining IC (RAM) works normally.

④A/D IC check

Check whether analog converting IC (A/D) works normally. Computing from the digitalized data, CPU measures torque.

⑤SUM check

Check if all setup data in IC (RAM) are consistent each other.

6. IN/OUT check

6.1. KEY CHECK (Key entry diagnosis)

Check whether key switches work normally.

①Press IN IN MEASUREMENT to go to DISPLAY SELECT screen.

②Press I → CHECK SELECT point, and LCD will shift to IN/OUT CHECK SELECT.

③Press \blacksquare at \rightarrow KEY CHECK point.

4 LCD will shift to KEY & LCD CHECK screen.



⑤ Press sign keys, and LCD will display name of the sign.



| NICPLOV CELECT |
|----------------|
| |
| SETTING |
| →CHECK SELECT |
| ZERO SET |

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

6 Press at 2 times in a row, and LCD will shift to IN/OUT CHECK SELECT screen with ending KEY CHECK.

Monitor incoming signals to terminal block. Provide terminal block and tool with compulsory signal input, and UECP will perform wiring check of tool, tool cable, and external wire connection.

Operate key switch or use PC.

(1) Input signal check by key switch

①Press In MEASUREMENT, and LCD will shift to DISPLAY SELECT.

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

③Press at →INPUT CHECK, and LCD will shift to INPUT CHECK screen. UECP is inoperative with TOTAL NOK lamp blinking and 7-segment DPM display [][- - - - ④LCD screen is the following display when UECP has no input from outside.

| INPUT CHECK | |
|-------------|--------|
| INPUTI | INPUT4 |
| INPUT2 | INPUT5 |
| INPUT3 | INPUT6 |

(5)Switch on rear terminals, and the switched INPUT will have a black square [I] suffix in the right.

[Example]: Following LCD screen shows IN2 and IN5 switched on state.

| INPUT CHECK | |
|-------------|--------|
| INPUT1 | INPUT4 |
| INPUT2 | INPUT5 |
| INPUT3 | INPUT6 |

6 Press **RES** to end input terminal check.

(2) Output signal check by key switch

Press IN in MEASUREMENT, and LCD will shift to DISPLAY SELECT.
 Press IN at →CHECK SELECT, and LCD will shift to IN/OUT CHECK.

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

③Press INT at →OUTPUT CHECK, and LCD will shift to OUTPUT CHECK screen. UECP is inoperativ with 7-segment display [-][----].

| _ | |
|----------------|---------|
| OUTPUT CH | ECK |
| →OUTPUT1 | OUTPUT4 |
| OUTPUT2 | OUTPUT5 |
| OUTPUT3 | ŌŪŤPŪŤ6 |
| | |

④Operate I to fit [→] to necessary OUPUT terminal. Press I, and UECP will switch on the selected OUTPUT terminal with the suffix [] lighting. Move → to switched OUTPUT, press I, and the suffix [] will go out (switched off).

| OUTPUT CHE | СК |
|------------|-----------|
| →OUTPUT1 | OUTPUT4 |
| OUTPUT2 | OUTPUT5 🏾 |
| OUTPUT3 | OUTPUT6 |

 \bigcirc 5Press **□** at →OUTPUT6, and LCD will shift to tool's VALVE signal check screen.

| output →Valve | СНЕСК |
|------------------|-------|
| | |

6 Press not UECP will end OUTPUT check with LCD back to MEASUREMENT.

(4) Carry out INPUT and OUTPUT check by PC

(1) Hook up UECP to PC and start setup software.

②Go in INPUT/OUTPUT check, and UECP will be inoperative.

③Monitor input signals, and check wire connections by compulsory output signals.

(4) Leave INPUT/OUTPUT check after completing the check operation (refer to setup software manual for the details.).

DPM displays [-][- - -] during the terminal check and UECP is inoperative with TOTAL OK lamp flashing.

7. ZERO set (Zero point display)

Use ZERO set function, and UECP will display torque value of torque sensor under no load and CAL number. Minus (-) display is not available because UECP displays absolute value only.

[Key operation]

①Press in MEASUREMENT, and LCD will shift to DISPLAY SELECT screen. Fit \rightarrow to ZERO SET.



②Press at \rightarrow ZERO SET, and LCD will shift to ZERO SET screen.

| ZERO SET | (WORK NO.1) |
|----------|-------------|
| ZERO | 0 |
| CAL | 1000 |
| | |

③UECP displays torque value of torque sensor on ZERO, and Cal number on CAL as above mentioned.

8. WORK No. change

Change WORK number by switching on IN and COM terminals.

| Work number change metl | nod defers from a | combination to | combination of | work select setting |
|-------------------------|-------------------|----------------|----------------|---------------------|
| | | | | |

| Entry signal to | | |
|---|---|-----------------------|
| Under 0 entry WORK SELECT COMBINATION | Under 1 entry WORK SELECT COMBINATION | Work numbers selected |
| Nil | WORK 1 | WORK 1 |
| WORK A only | WORK 2 | WORK 2 |
| WORK B only | WORK 3 | WORK 3 |
| WORK A and B | WORK 4 | WORK 4 |
| WORK C only | WORK 5 | WORK 5 |
| WORK A and C | | WORK 6 |
| WORK B and C | | WORK 7 |
| WORK A, B and C | | WORK 8 |
| WORK D only | | WORK 9 |
| WORK A and D | | WORK 10 |
| WORK B and D | | WORK 11 |
| WORK A, B and D | | WORK 12 |
| WORK C and D | | WORK 13 |
| WORK A, C and D | | WORK 14 |
| WORK B, C and D | | WORK 15 |
| WORK A, B, C and D | | WORK 16 |

***** Enter 1 in WORK SIG.SEL of MODE, and WORK number option shall be from 1 to 5 only.

Necessary settings for WORK No. change

- (1) Select WORK No. change method (0 or 1 entry in WORK SIG.SEL) Selectable WORK number is limited to 5 maximum if 1 is entered in WORK SIG.SEL. Enter 0 in WORK SIG.SEL, and selectable WORK number will be 16 maximum. Enter 0 in WORK SIG.SEL if you need 6 or more WORK select.
- (2) Allocate work select signals to IN terminals. Go to IN/OUT screen via DISPLAY SELECT, SETTING WORK NO 1 (1~8 anyone is okay).

①Operation with 0 entry in WORK SIG.SEL

Allocate WORK A to any IN terminals out of 1~6 when WORK number is 1 or 2. Allocate WORK A and B to any IN terminals out of 1~6 when WORK number is 4 or less. Allocate WORK A, B and C to any IN terminals out of 1~6 when WORK number is 8 or less. Allocate WORK A, B, C and D to any IN terminals out of 1~6 when WORK number is 9 to 16.

2 Operation with 1 entry in WORK SIG.SEL

Allocate WORK 1~5 to arbitrary IN terminals 1~6 in accordance with number of work. The maximum number is 5 in this case.

Example: WORK 1 to 5 allocation is free allocation like [IN4 for WORK 1], [IN5 for WORK 2] and [IN6 for WORK 3], or [IN1 for WORK 1], [IN2 for WORK 2] and [IN3 for WORK 3] for 3 works diescriminations. %Use correct IN terminals that is selected by the setting for fastening operation.

9. Polarity change

9.1. Change torque measurement polarity

Change UECP torque measurement polarity when the tool fastens left-hand screw. Remove top cover of UECP, and the following DIP switch is visible. Set DIP switch either to left or right as mentioned below. UECP does not recognize minus signal as torque signal unless tool and UECP polarity agrees.

%Polarity change is not possible for UDBP-AFZ.



DIP switch setting

Input polarity sent from torque sensor changes by switching setting of 「SW4」 DIP switch on Main board. Right-hand screw : 1.3 ON 2.4 OFF

Left-hand screw : 1.3 OFF 2.4 ON

Attention for left-hand screw

Operate tool at loosening speed for left-hand screw fastening. For reverse operation (clockwise rotation) of left-hand screw, use tool by initial speed and current. Speed and current shift due to start torque are not available when the polarity is changed for left-hand screw.

9.2. Change NPN/PNP

Default of input termial of UECP-4811 is NPN type. To change NPN to PNP type, short Jumper socket on main board according to the following drawing. (No function in UECP-4800/4810)

%When you use UECP with NPN type, use 0V terminal as IN COM. When you use UECP with PNP type, use +24V termial as IN COM.



10. SETUP (The most basic)

UECP has the following 10 SETUP contents.

| BASIC: | CUT (target torque), LOW (low limit), HIGH (upper limit), etc. covering basic setup for fastening. |
|---------------|--|
| MODE: | Various functions of line control, judgment, etc. |
| TIMER: | Various timer setups |
| DATA OUT: | Setup DATA that UECP outputs from PC connector of rear panel. |
| TOOL CONTROL: | Setup tools' maintenance cycle by cumulative fastener and pulse numbers. |
| INPUT/OUTPUT: | Allocate input and output signals to terminal block of rear panel. |
| LAN: | Setup Ethernet-related IP address etc. |
| MEMORY DATA: | Memorized data-related process like computing, display, clear, SD card setup. |
| PROGRAM SEL: | Setup program number change. |
| MOTOR SET: | Setup motor speed, current, built-in buzzer and UDBP-AFZ tools' pairing. |

 (1) Press INT in MEASUREMENT to go to DISPLAY SELECT.
 Press INT at →SETTING, and the screen will shift to SETTING WORK screen.



(2) SETTING WORK screen will appear. Select your WORK number with $[\rightarrow]$, and press \blacksquare



| SETTING screen will appear. | |
|--|---|
| SETTING #1 (1∕4) →BASIC MODE TIMER | SETTING #1 (2/4) →DATA OUT TOOL CONTROL IN/OUT PUT |
| SETTING #1 (3/4) →LAN MEMORY DATA PROGRAM SEL | SETTING #1 (4/4) →MOTOR SET |

(4) Keep pressing I longer than 3 seconds, and UECP will shift to writing mode. Press I at [→] affixed item, and cursor (_ under bar) will appear under the values. Press I to increase, or I to decrease the values. Press I and the adjusted value will be written in UECP. Press I and UECP will shift back to MEASUREMENT screen from writing mode.





※Reset to factory default setup

To reset UECP to factory default, do the following processes.

- (1) UECP is alive as soon as the power switch is turned off. With complete turn off confirmation, keep pressing and stogether, and then turn on UECP.
- (2) Keep pressing and stogether, and LCD screen will be changing from left to right in sequence. If LCD displays [Initialization?], release fingers from and solution. Then press and, and UECP is reset to factory default setup.





Initialization?

Keep pressing these keys together until the display changes.

10.1. BASIC

| TORQUE COT 019.0 TORQUECTS FROOF. RHTTO 01.00 | BASIC #1 (1/4) →TORQUE LOW 080.0 TORQUE HIGH 060.0 TORQUE CUT 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 | (4/4) 01.00 |
|-------------------------|----------------|
| PROOF. VALVE | 01000 |
| AD TORQUE | 0 |

TORQUE LOW (Torque low limit)

| Default: | 80.0Nm |
|------------|--|
| Range: | 0.0~999.7 |
| Condition: | TORQUE LOW <torque cut<="" td=""></torque> |
| Function: | Provide torque LOW NOK judgment |

TORQUE HIGH (Torque high limit)

| Default: | 60.0Nm |
|------------|---|
| Range: | 0.4~999.9 |
| Condition: | TORQUE CUT <torque high<="" td=""></torque> |
| Function: | Provide torque HIGH NOK judgment |

TORQUE CUT (Torque cut value)

| Default: | 19.6Nm |
|------------|---|
| Range: | 0.3~999.8 |
| Condition: | TORQUE LOW <torque cut<torque="" high<="" td=""></torque> |
| | START TORQUE <snug cut<="" td="" torque<torque=""></snug> |
| Function: | UECP stops fastening as the torque reaches this torque. |
| | If you set TORQUE CUT lower than SNUG TORQUE, which will be automatically 0.1Nm |
| | smaller than TORQUE CUT. |

CAL (Calibration value)

| Default: | 1000 |
|-----------|--|
| Range: | 100~9999 |
| Function: | Enter numbers stamped on tool into UECP. |

START TORQUE

Default: 9.8

Range: 0.1~999.6

Condition: START TORQUE<SNUG TORQUE<TORQUE CUT

Functions and use

- Detecting torque signal greater than START TORQUE from torque sensor, UECP starts torque measurement.
- Intended use of setup value
- a. JUDG DELAY BEF (Pre-CUT judgment delay timer) start point
- b. INITIAL ERROR timer start point
- c. CYCLE error timer start point
- d. TORQ.MEAS.DELA (Torque measurement delay) timer start point
- e. Fastening time (\underline{TSC} data: \underline{T} ime from \underline{S} tart to \underline{C} ut) measurement start point
- f. Free run angle measurement end point
- Set START TORQUE as 1/50 or greater number of adjusted calibration value (CAL value x PROOF RATIO x TOOL RATIO). Too low START TORQUE can prevent UECP from doing OK or NOK judgment leading to next fastening inoperative.

Example: CAL 200 x Proof ratio 1.00 x Tool ratio 1.00 x 1/50 makes Adjustment calibration value 4.0Nm or greater.

• If you set START TORQUE greater than SNUG TORQUE, which will be automatically 0.1Nm greater than START TORQUE.

COUNT (Number of fasteers fastened)

Default: 99

Range: 1~99

Functions

- Set the number only if it is necessary.
- This is fastener numbers UECP counts per WORK.
- UECP provides COUNT OK/NOK judgment by the number.

PROOF RATIO (CAL adjustment)

Default: 1.00 Range: 0.01~9.99

Functions

- Use to set UECP display by break torque in the tightening direction: calculate the ratio by the formula of dividing break torque by UECP display.
- There is occasionally much difference values between break torque and displayed torque on UECP, depending on character of an actual work piece. After fastening test with the actual work piece several times, use to set UECP display with the calculated ratio.

TOOL RATIO

| Default: | 1.00 | |
|----------|-----------|--|
| Range: | 0.01~9.99 | |

Functions

• Integrate reduction gear ratio of speed changer on the transducer into torque calculation to correct torque generated just before the fastener.

PROOF VALUE (Adjusted calibration value)

Default: 1,000

Functions

- Calculate PROOF VALUE by math formula of CAL x PROOF RATIO x TOOL RATIO.
- UECP displays fastening torque by computing PROOF VALUE and actual torque signal voltage devided by rated strain together.

INVALID PULSE

Default: 3

Range: 0~10

Functions

• UECP invalids a fastening if it was interrupted before CUT torque with low pulses than INVALID pulses after START torque.

• Use by default setting is recommended.

%This function is invalid for UDBP-AFZ operation with 7 entry in TIGHTENING MOD (Tightening mode).

%LCD does not have this setting screen.

AD TORQUE

- Default: 0 Not use AD torque sensor
- Setup: 1 Use AD torque sensor

Functions

*This is not applicable to UDP tools.

10.2. MODE

| MODE #1 (1/14) | MODE #1 (2/14) | MODE #1 (3/14) | MODE #1 (4/14) |
|--|--|---------------------|-------------------|
| →INITIAL TORQUE Ø | →UP/LOWER ERROR 1 | →EXTERNAL START Ø | →JAPAN.ITUUT 1 |
| CYCLE ERROR Ø | INCOMPLETE JOB 1 | BUZZER VOLUME 5 | LINE CNT.SELEC Ø |
| FASTENING ERRO 1 | TIME CONT. ST. 0 | TIGHTENING MOD 3 | ALARM BUZZER 1 |
| MODE #1 (5/14) | MODE #1 (6⁄14) | MODE #1 (7/14) | MODE #1 (8/14) |
| →ST.TORQUE ERRO 0 | →PULSE LOW 0002 | →ADDTION PALSE 01 | →ANG LOW LMT 0000 |
| CYCLE OVER 0 | PULSE HIGH 0100 | WORK SIG.SEL 0 | ANG UPP LMT 0100 |
| TIGHTING(TSS) 00000 | TORQ.CUT CONP. 0 | LAN OUT SEL. 0 | SNUG TRQ 015.0 |
| MODE #1 (9/14) | MODE #1 (10/14) | MODE #1 (11/14) | MODE #1 (12/14) |
| →ANG CUT 0999 | →SNUG ANG. LOW 0000 | →ANG JUDG SEL 0 | →PC COMM.SPEED 3 |
| SNUG TORQ.ERR 0 | SNUG ANG. UPP 0999 | FREE ANGLOW LM 9999 | WAVE MEM FANC 4 |
| SNUG ANG. JUDG 0 | FREE RUN ANG 0 | WAVE CNTNT SLT 2 | ROTAT STOP 0 |
| MODE #1 (13/14) →VALVE CHECK 0 JUDG.DELAY BEF 20 DETECT. +TR 20 | MODE #1 (14/14) →DETECTTR 20 PLUS/STALL 1 PASSWORD FUNC 0 | | |

INITIAL TORQUE (Initial Error Detection)

Setup: 1 ON

[Function]

- This is detection of double fitting (re-hit a fastener) etc. UECP provides INITIAL ERROR judgment when START to CUT elapsed time was shorter than INITIAL ERROR timer (torque reaches CUT before INITIAL ERROR timer is up).
- DPM displays LO.E. and torque alternately. UECP does not light TORQUE lamp but with buzzer sounding, and tool lamp flashes red (light 0.3 sec. and out 0.2 sec.). Terminal block outputs TORQUE NOK signal.

• Press Res, or switch on RESET terminal.

CYCLE ERROR

| Default: | 0 | OFF |
|----------|---|-----|
|----------|---|-----|

Setup: 1 ON

[Function]

- Use this function to regulate fastening time of the tool.
- UECP allows tool to continue fastening from START torque until CYCLE TIMER is up. UECP stops tool running with CYCLE ERROR judgment unless torque reachs CUT torque when CYCLE TIMER is up.

[Display]

• DPM displays CYL.E. sign and torque alternately. UECP does not light TORQUE lamp but with buzzer souding, and tool lamp flashes red (light 0.3 sec. and out 0.2 sec.). Terminal block outputs TORQUE NOK signal.

[Error cancel]

• Trigger the tool, and UECP will cancel error judgment if 1 is entered in FASTENING ERRO (Fastening error) setup.

• Press RES, or switch on RESET terminal.

FASTENING ERRO (How to override fastening errors)

Default: 1 ON

Setup: 0 Tool remains inoperative until last error (LO.E., CYL.E. or F.E.) judgment is cancelled by RESET terminal switch on or pressing RES.

Tool shifts to next fastening without cancelling previous error judgment. Just trigger the Setup: 1 tool, and UECP will cancel error judgment to start new fastening cyle when torgue exceeds START torque. This is start reset.

UP/LOWER ERROR (How to override limit errors)

Default: ON 1

- Setup: 0 Tool remains inoperative until last error (UPPER & LOW ERROR OF TORQUE/PULSE/ANGLE/FREE RUN ANGLE) is cancelled by RESET terminal switch on or pressing RES.
- Setup: 1 Tool shifts to next fastening without cancelling previous UPPER & LOW error judgment. Just trigger the tool, and UECP will cancel error judgment to start new fastening cycle when torque exceeds START torque. This is start reset.

INCOMPLETE JOB

Default: 1 ON OFF

Setup: 0

[Function]

 UECP detects and provides INCOMPLETE JOB error if the tool goes over START torque but stops fastening before CUT torque due to halfway finger off the trigger.

[Display]

- DPM displays F.E. sign and torque alternately.
- · UECP does not light TORQUE lamp but with buzzer sounding, and tool lamp flashes red (light 0.3 sec. and out 0.2 sec.). Terminal block outputs TORQUE NOK signal.

[Error cancel]

- Just trigger the tool, and UECP will cancel error judgment to start new fastening cycle when torque exceeds START torque. This is start reset.

Press RES, or switch on RESET terminal.

XUECP provides INCOMPLETE JOB error judgment even if final torque was in OK zone if it was due to halfway finger off the trigger before CUT torque.

TIME CONT.ST. (Compulsory stop due to CYCLE TIMER)

0 Default: OFF

UECP stops tool running and provides judgment wheh CYCLE ERROR timer is up. Setup: 1

[Function]

- Use this function to control fastening by time without detecting CYCLE ERROR.
- · Switching on CYCLE ERROR timer at START torque, UECP compulsory stops fastening and provides judgment if the tool fails to reach CUT torque at the timer maturity.
- JUDGMENT DELAY timer starts when torque is below START after CYCLE ERROR timer is up. CYCLE ERROR timer expires first, and then JUDGMENT DELAY timer starts upon torque underruns START torque.
- This function is operative only when 0 is entered in CYCLE ERROR (switched off).

%This function is unavailable when 7 is entered in TIGHTENING MOD (UDBP-AFZ).

EXTERNAL START

- Default: 0 At START torque, UECP begins torque measurement with no dependence on external start.
- Setup: 1 On making ZERO/CAL check, UECP switches VALVE terminal to start torque measurement.
- Setup: 2 On making ZERO/CAL check, UECP starts torque measurement without switching on VALVE terminal.
- Setup: 3 UECP switches on VALVE terminal to start torque measurement without ZERO/CAL check. [Function]

*Maintain 0 entry in EXTERNAL START.

BUZZER VOLUME

Default: 5 (Maximum) Range: 1~5 [Function] Adjust the volume 1 minimum ~ 5 maximum.

TIGHTENING MOD (Control method)

| Default: | 3 | |
|----------|---|---|
| Setup: | 1 | Torque monitor but not for UDP tools |
| Setup: | 2 | Torque control for multiple nutrunners but not for UDP tools |
| Setup: | 3 | UDP, MC, and EC tools' torque measurement, control and judgment. |
| Setup: | 5 | AMC tools' torque control and angle monitor but not for UDP tools |
| Setup: | 6 | AMC tools' angle control and torque monitor but not for UDP tools |
| Setup: | 7 | UDBP-AFZ torque control/angle monitor ZigBee-mounted tools |
| Setup: | 9 | Monitor UFT tester and display peak torque that a self-shutoff "T" tool made. |
| | | |

JAPAN. ニホンゴ (Langauge option)

- Default: 0 Japanese display
- Setup: 1 English display
- [Function]
 - Langauge option on LCD.
 - LCD shows [ENGLISH・エイコ^{*}] under 0 entry, and [JAPAN・ニホンコ^{*}] under 1 entry.

LINE CNT.SELEC (Line control) Setup: 0 (Default)

Count-down is always operative. Switch on LS1 (limit switch), and UECP will provide COUNT judgment. UECP provides COUNT OK judgment if a tool finishes all pre-set number of fasteners with torque OK result before LS1. Switch on LS1, and UECP will reset previous judgment to prepare for next WORK. UECP provides COUNT NOK judgment if any fasteners are undone at the point of LS1 switched on, but additional fastening of undone fasteners will convert the judgment to COUNT OK. This is NOK repair. COUNT OK signal duration is adjustable 1~9999 msec. But repaired COUNT OK signal duration is 1 pulse fixed 1000 msec.



Setup:

1

Set 2 limit switches LS1 and LS2 to specify entrance and exit of a WORK SECTION. Switch on LS1, and UECP will reset previous COUNT OK to prepare for next WORK. UECP provides COUNT OK judgment if a tool finishes with torque OK result before LS2. UECP provides COUNT NOK judgment if any fasteners are undone at LS2 switched on point, but additional OK fastening of undone fasteners will convert the judgment to COUNT OK. Once UECP provides COUNT OK, COUNT DOWN does not work unless LS1 is switched on (out of WORK SECTION). COUNT OK signal duration is adjustable 1~9999 msec. But repaired COUNT OK signal duration is 1 pulse 1000 msec.



Setup: 2

COUNT DOWN begins with LS1 switching on, and UECP provides judgment when LINE CONTROL timer is up. Switch on LS1, and the timer will start. Fasten pre-set number of fasteners before the timer is up, and UECP will provide COUNT OK judgment. UECP provides COUNT NOK judgment if any fasteners remain undone when the timer is up.

COUNT OK signal duration is adjustable 1~9999 msec. But repaired COUNT OK duration is 1 pulse fixed 1000 msec.



Setup: 3

Setup 3 uses only LINE CONTROL timer instead of limit switches. First torque OK or QL signal has COUNT DOWN started, and UECP provides judgment when LINE CONTROL timer is up. Fasten a fastener by tool or by QL wrench to enter first torque OK signal into UECP, and the timer will start. Finish pre-set number of fasteners before the timer is up, and UECP will provide COUNT OK judgment. UECP will be ready for next WORK when COUNT OK signal goes out. UECP provides COUNT NOK judgment if any fasteners remain undone when the timer is up.

COUNT OK signal duration is adjustable only 1~9999 msec. But UECP does not accept 0 entry for COUNT OK signal duration.

Set COUNT OK signal duration longer than 5000 msec for MC tools because too short setting can cause zero point deviation.

*Repaired COUNT OK duration is 1 pulse fixed 1000 msec.



Setup:

4

To enjoy the following WORK change, use WORK 1~5 signals under 1 entry in WORK SIG.SEL (see page 23). WORK number change has COUNT DOWN started. Finish pre-set number of fasteners, and UECP will output COUNT OK singal to the corresponding WORK terminal like COUNT OK of WORK NO.2 to WORK 2 COUNT OK terminal. Set COUNT OK signal duration time on a WORK NO to WORK NO basis. Repaired COUNT OK signal duration is 1 pulse fixed 1000 millisecond. Switch off WORK signal as foregoing COUNT OK comes, and the COUNT OK will go out. UECP provides COUNT NOK judgment if WORK change signal comes before the tool finish pre-set number of fasteners. We provide an example having WORK 4 to WORK 1 change and judgment sequence as follows.


Setup:

5

UECP makes WORK NO switchover by socket changer signal. To carry out ZERO/CAL check of torque sensor, use WORK 1~5 signals under 1 entry in WORK SIG.SEL (see page 23). WORK number change has COUNT DOWN started. Finish pre-set number of fasteners, and UECP will output COUNT OK singal to the corresponding WORK terminal like COUNT OK of WORK NO.2 to WORK 2 COUNT OK terminal. Set COUNT OK signal duration time on a WORK NO to WORK NO basis. Repaired COUNT OK signal duration is 1 pulse fixed 1000 millisecond. Switch off WORK signal as foregoing COUNT OK comes, and the COUNT OK will go out. UECP provides COUNT NOK judgment if WORK change signal comes before the tool finish pre-set number of fasteners. We provide an example having WORK 4 to WORK 1 change and judgment sequence as follows. Press eff., or switch on RESET terminal to cancel COUNT NOK. Once UECP provides COUNT NOK, COUNT DOWN does not work unless WORK change signal is available (out of WORK SECTION). Following is an example having WORK 4 to WORK 1 change sequeunce.



ALARM BUZZER

Default: 1 Use buzzer. Setup: 0 Do not use buzzer.

[Function] UECP gives 1-pulse sound for each OK, and 2-pulse sound for COUNT OK.

ST.TORQUE ERRO (Start torque error)

UECP does not provide start torque error. Default: 0 Setup: 1 UECP detects and provides start torgue error. *Enter 0 for UDP tool operation.

CYCLE OVER (Cycle over error)

Default: UECP does not provide cycle over error. 0 Setup: UECP detects and provides cycle over error. 1 *Enter 0 for UDP tool operation.

TIGHTING (TSS) (Elapsed time to reach START)

[Function] UECP displays elapsed time from EXTERNAL START to START torque.

XThis is not setup but elapsed time display.

XUECP keeps 00000 display because UDP tools do not depend upon EXTERNAL START.

PULSE LOW (Pulse number low limit) 2

Default:

Range: 0~9998

Condition: PULSE LOW LIMIT<PULSE HIGH LIMIT

[Function]

· UECP provides PULSE LOW NOK judgment if pulse numbers during START to torgue measurement end point was lower than this limit. PULSE LOW NOK does not come unless torque reaches CUT.

[Display]

· DPM displays PLS.L. sign and torque alternately with buzzer sounding, and tool lamp flashing yellow (light 0.8 sec and out 0.2 sec).

Terminal block outputs TORQUE NOK signal.

[Cancel]

 Trigger the tool, and UECP will cancel this NOK judgment to start new fastening cycle when torque exceeds start torgue under 1 entry in UP/LOWER ERROR.

• Press RES, or switch on RESET terminal.

PULSE HIGH (Pulse number high limit)

Default: 100

Range: 0~9999

Condition: PULSE LOW LIMIT<PULSE HIGH LIMIT

[Function]

• UECP provides PULSE HIGH NOK judgment with error display and stop the tool if pulse number from START torque reaches PULSE HIGH LIMIT before torque measurement end point.

[Display]

- DPM displays PLS.H. sign and torque alternately with buzzer sounding, and tool lamp flashing yellow (light 0.3 sec and out 0.2 sec).
- Terminal block outputs TORQUE NOK signal.

[Cancel]

- Trigger the tool, and UECP will cancel this NOK judgment to start new fastening cycle when torque exceeds start torque under 1 entry in UP/LOWER ERROR.
- Press RES, or switch on RESET terminal.

TORQ.CUT CONP. (Torque cut compensation select)

- Default: 0 UECP judges fastening by peak torque resulting from pulses generated both before and after CUT torque.
- Setup: 1 UECP judges fastening by peak torque resulting from pulses generated on and before CUT torque.

[Function]

• Using this function allows you to give fasteners extra pulses beyond CUT torque.

ADDITION PULSE

Default: 1 Range: 1~99 (Setup 3 in Control method) 1~5 (Setup 7 In Control method)

[Function]

• Fastening continues until the tool finishes pre-set number of ADDITION PULSES beyond CUT torque. **X**Enter 1 if you do not use this function.

WORK SIG.SEL Work number select)

Default: 0 Use WORK A, B, C and D signals to use WORK switchover up to 16.

Setup: 1 Use WORK 1~5 signals to use WORK switchover up to 5.

[Function]

- Refer to 9. WORK NO. Change (Page 23) for the details.
- Use setup 1 for LINE CNT. SELEC (Setup 4 or 5).

LAN OUT SEL. (LAN output destination select)

Default: 0 Hook up with setup software running device such as PC.

Setup: 1 Hook up with quality server.

[Function]

- Select LAN's destination server.
- Select 1, and serial number will appear on LCD display.
- To use URYU standard data management system, enter 0 in LAN OUT SEL. If the hook up is successfully completed, the setup will be automatically changed from 0 to 2.

ANG LOW LMT (Angle Low Limit) 0

Default:

Range: 0~9999 deg

[Function]

- · UECP provides ANGLE LOW NOK judgment if turning angle SNUG to CUT TORQUE and 10 msec was lower than ANGLE low limit.
- Enter 0, and UECP will not provide ANGLE LOW NOK judgment.

Set angles ANGLE LOW < ANGLE HIGH under setup 7 in TIGHTENING MOD (UDBP-AFZ).</p>

[NOK display and ouput]

- DPM displays AnG.L. sign and torque alternately.
- · Front panel TORQUE LOW lamp blinks with buzzer sounding.

[Error cancel]

- Trigger the tool, and UECP will cancel this NOK judgment to start new fastening cycle when torque exceeds start torque under 1 entry in UP/LOWER ERROR.
- Press RES, or switch on RESET terminal.

*Use this function only for setup 7 in TIGHTENING MOD (UDBP-AFZ).

ANG HIGH LMT (Angle High Limit)

Default: 100

Range: 0~9999 deg.

[Function]

Angle high limit that UECP provides ANGLE HIGH NOK judgment.

- UECP provides ANGLE HIGH NOK judgment if turning angle SNUG to CUT TORQUE and 10 msec was greater than ANGLE high limit.
- Enter 0, and UECP will not provide ANGLE HIGH NOK judgment.

Set angles ANGLE LOW < ANGLE HIGH under setup 7 in TIGHTENING MOD (UDBP-AFZ).</p>

[NOK display and ouput]

- DPM displays AnG.H. sign and torgue alternately.
- Front panel TORQUE HIGH lamp blinks with buzzer sounding.

[Error cancel]

- · Trigger the tool, and UECP will cancel this NOK judgment to start new fastening cycle when torque exceeds start torque under 1 entry in UP/LOWER ERROR.
- Press RES, or switch on RESET terminal.

*Use this function only for setup 7 in TIGHTENING MOD (UDBP-AFZ).

SNUG TORQUE

Default: 15.0

0.2~999.7 Range:

Condition: START TORQUE < SNUG TORQUE < CUT TORQUE

[Function]

- Torque when UECP starts angle measurement.
- If you set START torque greater than SNUG torque, which will automatically go 0.1Nm ahead of START torque.
- If you set CUT torque less than SNUG torque, which will automatically go 0.1Nm smaller than START torque.

ANG CUT (Angle cut value) Default: 999

Range: 0~9999

[Function]

★This is not applicable to UDP tools.

SNUG TORQ. ERR (Snug torque error)

Default: 0 UECP does not provide SNUG torque error.

Setup: 1 UECP provides SNUG torque error.

[Function]

XEnter 0. This is not applicable to UDP tools.

SNUG ANG. JUDG (Snug angle judgment select)

Default: 0 UECP does not provide SNUG angle judgment.

Setup: 1 UECP provides SNUG angle judgment.

[Function]

XEnter 0. This is not applicable to UDP tools.

SNUG ANG.LOW (Snug angle low limit error)

Default: 0

Range: 0~9999

[Function]

• UECP provides SNUG angle LOW NOK if the SNUG angle was lower than low limit.

• Enter 0, and UECP will not provide SNUG angle low error.

★This is not applicable to UDP tools.

SNUG ANG.UPP (Snug angle high limit error)

Default: 999

Range: 0~9999

[Function]

• UECP provides SNUG angle HIGH NOK if the SNUG angle was higher than high limit.

• Enter 0, and UECP will not provide SNUG angle high error.

※This is not applicable to UDP tools.

FREE RUN ANG (Free run angle judgment select) (Exclusive for UDBP-AFZ)

Default: 0 UECP does not provide free run angle error.

Setup: 1 UECP provides free run angle error.

[Function]

• Enter 1, and UECP will provide free run angle error if angles turned 0.4 sec to START was less than free run angle low limit.

*This error detection functions when setup 7 is in TIGHTENING MOD.

[NOK display and output]

- DPM displays FrE.E. and measured torque alternatery.
- Terminal block outputs TORQUE NOK signal with buzzer sounding.
- Torque lamp does not light.

[Error cancel]

• Trigger the tool, and UECP will cancel this NOK judgment to start new fastening cycle under 1 entry in UP/LOWER ERROR.

• Press RES, or switch on RESET terminal.

ANG JUDG SEL (Angle judgment select)

- Default: 0 UECP does not provide angle judgment.
- Setup: 1 UECP carries out angle judgment with error detection.

[Function]

- Select whether UECP provides angle upper and low limit error judgment.
- Enter 1, and UECP will provide angle upper and low limit NOK.

*This error detection functions when setup 7 is in TIGHTENING MOD.

FREE ANGLOW LM (Free run angle low limit)

Default: 0

Range: 0~9999

[Function]

- Low limit setting for free run angles turned 0.4 sec to START torque.
- UECP provides FREE run angle low NOK judgment when the angle was lower than its low limit under 1 entry in FREE RUN ANG (free run angle judgment select).
- This is not related with 「MOTOR Ang low」 in MOTOR SET.

%This function works when setup 7 is in TIGHTENING MOD.

WAVE CBTNT SLT (Waveform contents select)

| | • | |
|----------|---|----------|
| Default: | 2 | |
| Setup: | 0 | 100 µsec |
| Setup: | 1 | 1 msec |
| Setup: | 2 | 2 msec |
| Setup: | 3 | 5 msec |

[Function]

- Enter 0, and UECP will perform torque wave sampling per 100 µsec and transmit the same to external setup software display screen. UECP buffers 5 wave data.
- Enter 1~3, and UECP will convert the torque wave into 1, 2, or 5 msec interval and transmit to outside. UECP buffers 50 wave data.
- Enter 2 when 7 is in TIGHTENING MOD, and UECP will store only torque and angle value per pulse of UDBP-AFZ wave form data.

PC COMM. SPEED (Communication speed with PC)

| Default: | 3 | | | | |
|----------|---|-----------|--------|---|------------|
| Setup: | 1 | 9600 bps | Setup: | 2 | 19200 bps |
| Setup: | 3 | 38400 bps | Setup: | 4 | 115200 bps |

[Function]

• Set communication speed UECP front panel PC connector (not rear panel PC connector). **X**Enter 3 when 7 is in TIGHTENING MOD.

WAVE MEM FUNC (Waveform memory function)

| Default: | 4 | |
|----------|---|--|
| Setup: | 1 | UECP does not memorize data. |
| Setup: | 2 | UECP memorizes data with alarm display and buzzer sounding. |
| Setup: | 3 | UECP memorizes data with alarm display but without buzzer. |
| Setup: | 4 | UECP memorizes data, but neither provides alarm display nor buzzer sounding. |

[Function]

- UECP alarms buffer full information by $b \mu F \xi$. sign on LCD with buzzer sounding.
- Buffer capacity depends on data character set by WAVE CNTNT SLT (Waveform contents select).

ROTAT STOP (Tool inoperative when out of WORK SECTION)

Default: 0 Tool is constantly operative.

Setup: 1 Tool is disabled as the function explains.

[Function]

- Tool is disabled unless COUNT DOWN is in process.
- Tool is operative while WORK is in WORK SECTION, but is inoperative from COUNT OK to RESET (out of WORK SECTION).
- When the server fails to maintain an existence-confirming message, UECP keeps the tool disabled until RESET is switched on.

VALVE CHECK (Valve short circuit check)

Default: 0 UECP does not carry out the check.

Setup: 1 UECP checks VALVE terminal.

Setup: 2 UECP checks CN-1 tool connector.

[Function]

※Enter 0 in UECP, if you use UDP tools.

DETECT.+TR (Sensor wire break detect by positive [+] torque)

Default:

Range: 0~20% of rated torque

20

[Function]

- This is threashold torque to detect positive side [+] torque deviation due to disconnection.
- UECP provides disconnection error if it senses greater torque deviation than preset percent (%) of rated torque for a certain period of time.
- Use DETECT.JUDG+ timer.
- This function does not work when 2 or 3 is in PLUS/STALL (Stall tool mode or switch off this function).
- UECP displays [Udn.E.] on LCD with buzzer sounding. Terminal block does not output TORQUE NOK signal.

[Error reset]

- Restart UECP to cancel error display if 0 is in PLUS/STALL (Pulse/Stall select).
- Press so or switch on RESET to cancel the error display if 1 is in PLUS/STALL select.

DETECT.-TR (Sensor wire break detect by negative [-] torque)

Default: 20

Rage: 0~20% of rated torque

[Function]

- This is threashold torque to detect negative side [-] torque deviation due to disconnection.
- UECP provides disconnection error if it senses greater torque deviation than preset percent (%) of rated torque for a certain period of time.
- Use DETECT.JUDG. timer.
- UECP displays [Udn.E.] on LCD with buzzer sounding. Terminal block does not output TORQUE NOK signal.

[Error cancel]

• Restart UECP to cancel error display if 0 or 2 is in PLUS/STALL (Pulse/Stall select).

• Press , or switch on RESET to cancel the error display if 1 or 3 is in PLUS/STALL (Pulse/Stall select). JUDG.DELAY BEF (Sensor wire break detect before judgment)

Default: 20

Range: 0~20% of rated torque

[Function]

- This is threashold torque to detect either side [+/-] torque deviation due to disconnection.
- UECP provides disconnection error if it senses greater torque deviation than preset percent (%) of rated torque for a certain period of time.
- Use JUDG DELAY BEF.- timer.
- UECP displays [Udn.E.] on LCD with buzzer sounding. Terminal block does not output TORQUE NOK signal.

[Error reset]

- Restart UECP to cancel error display if 0 or 2 is in PLUS/STALL (Pulse/Stall select).
- Press es or switch on RESET to cancel if 1 or 3 is in PLUS/STALL (Pulse/Stall select).

PLUS/STALL (Pulse/Stall select tool, and wire break detect)

- Default: 1 Pulse tool. Reset process cancels sensor wire disconnection error judgment. UECP detects negative side wire break error.
- Setup: 0 Pulse tool. Reset process does not cancel sensor wire disconnection error judgment. UECP detects negative torque error.
- Setup: 2 Stall tool. Reset process does not cancel sensor wire disconnection error judgment. UECP does not detect negative torque error.
- Setup: 3 Stall tool. Reset process cancels sensor wire disconnection error judgment. UECP does not detect negative torque error.
- Setup: 4 UECP does not detect sensor wire disconnection error.

[Function]

• Set various sensor disconnection error detection functions for tools, joint cables, sensor cable, tool type selection, and error display cancellation.

* Enter 4 when 7 is in TIGHTENING MOD.

PASSWORD FUNC (Password and the History Select)

- 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]

• Enter 1, and UECP will ask for password if you try to change password-protected setup value.

• Refer to 12.6 password function for the details.

XIf you forget the password, initialize UECP and enter 2 to clear the password (see page 26).

10.3. TIMER

| 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 RETUNE 0300 | +LINE CONTROL 0100 | →MONTH 0000 |
| REVERSE ROTATE 0300 | JUDG DELAY BEF 1000 | DAYS 0000 |
| PIN ADJUSTMENT 0000 | YEAR 0000 | HOURS 0000 |
| TIMER #1 (7/8) +MINUTES 0000 SECONDS 0000 DETECT, JUDG + 99 | TIMER #1 (8/8) →DETECT. JUDG - 99 WR-RETRO.CHECK 000 Lifecheck Time 00 | |

JUDGMENT DELAY (Judgment delay timer for post CUT)

Default: 300 msec

Range: 100~9999 msec

[Function]

• This timer delays **post-CUT torque** judgment. Torque goes under START due to motor stop just after CUT, and UECP provides OK judgment if START is not recovered at the time up.

· Use this timer as torque measurement end point.

• Study post-CUT torque spike magnitude to determine timer length.

**Another timer, JUDG DELAY BEF (pre-CUT torque) is operative when UECP first detects START torque.
[Guidelines]

- 100 msec for UDBP-AFZ
- 100~300 msec for MC and EC wrenches

INITIAL ERROR (Initial error timer)

Default: 500 msec

Range: 1~9999 msec

[Function]

- UECP provides INITIAL ERROR judgment if torque reaches CUT before this timer is up.
- This timer begins at START.
- This timer is operative under 1 entry in INITIAL TORQUE mode setup.

CYCLE ERROR (Cycle error timer)

Default: 5000 msec

Range: 1~9999 msec

[Function]

- UECP provides CYCLE ERROR judgment if the tool fails to reach CUT at the time up.
- This timer begins at START.
- This timer is operative under 1 entry in CYCLE ERROR mode or 1 entry in TIME CONT.ST mode.

FASTENING OK (Fastening/Torque OK timer)

9999 msec Default:

Range: 0~9999 msec

[Function]

- This is time setup how long UECP maintains TORQUE OK signal on rear terminal block.
- Trigger the tool to start torgue measurement, and foregoing TORQUE OK signal will go out before the timer is up.
- Adjust the timer if its duration can affect external sequencer.
- Enter 0, and UECP will maintain TORQUE OK signal until next torque measurement starts.

COUNT OK (Count OK timer)

Default: 9999 msec

Range: 0~9999 msec

[Function]

- This is time setup how long UECP maintains COUNT OK signal on rear terminal block.
- Enter 0, and UECP will maintain COUNT OK signal until next COUNT cycle starts.
- This is a single setting for all WORKs 1~16.

*UECP does not accept 0 entry for this timer if 3 is selected for LINE CNT.SELEC mode.

TORQ.MEAS.DELA (Torque measurement delay timer)

Default:

20 Range: 0~9999 msec

[Function]

- This is time setup how long UECP passes up torque measurement from START to reject torque spike happening at the bolt seating. UECP starts torque measurement when this timer is up.
- · With external start option, UECP starts torque measurement when START of rear terminal block is switched on.

ST.TORQUE ERRO (Start torque error timer)

Default: 500 msec

1~9999 msec Range:

[Function]

XThis is not applicable to UDP tools.

CYCLE OVER ERR (Cycle over error timer)

Default: 9999 msec

Range: 1~9999 msec

[Function]

XThis is not applicable to UDP tools.

SNUG TORQUE ERR (Snug torque error timer)

Default: 1 msec

Range: 9999~1 msec

[Function]

 This timer starts at START. UECP provides SNUG torque error if torque overpasses START but fails to reach SNUG torque before this timer is up. XThis is not applicable to UDP tools.

VALVE RETUNE (Valve ON timer)

Default: 300 msec

Range: 1~9999 msec

[Function]

✗This is not applicable to UDP tools.



When 7 is in TIGHTENING MOD, OFF DELAY TIME (Valve OFF delay timer) replaces VALVE RETUNE (Valve ON timer).

Time setting for VALVE RETUNE (Valve ON timer) and OFF DELAY TIME (Valve OFF delay timer) is the same (different setting is not possible).

OFF DELAY TIME (Valve OFF delay timer)

Default: 300 msec

Range: 1~9999 msec

| TIMER #1 | (4/8) |
|------------|-----------|
| →OFF DELAY | TIME 0300 |
| REVERSE RO | TATE 0300 |
| PIN ADJUST | MENT 0000 |

[Function]

• Trigger off, but UECP keeps UDBP-AFZ alive until this timer is up.

• UDBP-AFZ can keep cooling fan running for tool protection after this timer is up.

When non-7 is in TIGHTENING MOD, VALVE RETURN (Vavle ON timer) replaces this timer.

Time setting for OFF DELAY TIME (Valve OFF delay timer) and VALVE RETURN (Vavle ON timer) is the same (different setting is not possible).

REVERSE ROTATE (Reverse rotate delay timer)

Default: 300 msec

Range: 0~9999 msec

[Function]

★This is not applicable to UDP tools.

PIN ADJUSTMENT (Pin-hole alignment timer)

Default: 0 msec

Range: 0~9999 msec

[Function]

- Use this function to align castellated nut notches and holes drilled threaded end of bolt so they are secured by a cotter pin preventing the nut from turning and loosening.
- UECP stops torque measurement for the duration of this timer starting fromTORQUE judgment. After giving TORQUE judgment, UECP performs PIN-HOLE alignment process while this timer is operative.

★This is not applicable to UDP tools. Enter 0.

LINE CONTROL (Line control timer)

Default: 100 msec

Range: 1~9999 msec

[Function]

• UECP provides COUNT judgment for a WORK SECTION when this timer is up. This is for setup 2 and 3 of LINE CNT.SELEC mode doing line control by timer.

JUDG DELAY BEF (Pre-CUT Judgment delay timer)

Default: 1000 msec

Range: 100~9999 msec

[Function]

• If you fail to continue fastening without reaching CUT, UECP waits to provide judgment until this timer is up after the discontinuation.

※JUDGMENT DELAY timer works if torque reaches CUT torque.

YEAR (A.D. Christian era)
Default: 0
Range: 1~99
[Function]
Set calendar year.
Example) Enter 18, and UECP will recognize year of 2018.

MONTH

Default: 0 Range: 1~12 [Function] • Set calendar month.

DAYS

Default: 0 Range: 1~31 [Function] • Set calendar date.

HOURS

Default: 0 Range: 0~24 [Function] • Set calendar hour.

MINUTES Default: 0 Range: 0~59 [Function] • Set calendar minutes.

SECONDS

Default: 0 Range: 0~59

[Function]

· Set calendar seconds.

DETECT. JUDG + (Sensor wire break detect timer for positive torque)

Default: 99 msec

Range: 0~99 msec

[Function]

This is time setup detecting positive torque deviation caused by the wire disconnection.

UECP provides wire disconnection error if preset torque deviation continued over this timer.

DETECT.JUDG - (Sensor wire break detect timer for negative torque)

Default: 99 msec

Range: 0~99 msec

[Function]

- This is time setup detecting negative torque deviation caused by the wire disconnection.
- UECP provides wire disconnection error if preset torque deviation continued over this timer.

WR-RETRO CHECK (Sensor wire break detect timer right before judgment)

| Default: | 0 msec |
|----------|--------|
| - | |

Range: 0~99 msec

[Function]

- Enter appropriate time, and UECP will monitor retroactive torque deviation back from tool complete stop.
- UECP provides sensor wire disconnection error judgment if preset torque deviation is found in this timer.

Lifecheck Time (Existence-confirming interval)

Default: 0 msec

Range: 0~99 msec

[Function]

- This is interval setup for UECP to receive existence-confirming enquiry from the server.
- UECP provides existence-confirming error judgment if the server fails to send next enquiry before this timer is up.
- UECP keeps the tool disabled until RESET is switched on if ROTAT.STOP mode is ON.

10. 4. DATA OUT (Data out setup) from rear panel

UECP serves fastening data output setup by PC connector (RS232C), and communication setup of <u>URYU-standard communication specifications (hereafter URYU-standard)</u> and <u>data management system (hereafter Data Manager</u>) by LAN port. Refer to <u>12.5 FASTENING DATA OUT</u> for the details of the communication functions and items requiring setup.



UEC No (UEC number)

Default: 1 Range: 1~25

[Function]

• When you hook up multiple UECP to Data Manager, give each UECP individually-arranged numbers.

OUT MOVEMENT (Output data select)

- Default: 0 UECP outputs all fastening data via RS232C in the rear.
- Setup: 1 UECP outputs data only when following errors are detected. Torque High/Low error (with TORQUE lamp ON), Pulse High/Low error (PLS.H/PLS.L on DPM), Angle High/Low error (AnG.H/AnG.L on DPM), and INITIAL TORQUE, CYCLE ERROR, INCOMPLETE JOB (LO.E/CYL.E/F.E. on DPM).

Setup: 2 UECP provides no data.

[Function]

Select output data contents from RS232C port in the rear.

OUTPUT OF FORM (RS232C data system select)

| Default: | 0 | #~CR |
|----------|---|---------------------|
| Setup: | 1 | #~LF |
| Setup: | 2 | ENQ. NO. ACK/NAK~ET |
| Setup: | 3 | Global |
| Setup: | 4 | Same as UEC-4500 |
| Setup: | 5 | Same as UEC-4100 |
| | | |

[Fucntion]

· Select data system when UECP outputs data.

COMM. SPEED (Baud rate select)

- Default:
 1
 9600 bps

 Setup:
 0
 4800 bps
- Setup: 2 19200 bps

[Function]

Select baud rate of data transmission from RS232C port in the rear.

XThis is not communication speed with a PC making parameter setup.

BIT (Bit length select)

Default: 1 8 bit

Setup: 0 7 bit

[Function]

Bit selection for data output.

STOP (Stop bit select)

Default: 0 1 bit

Setup: 1 2 bit

[Function]

• Stop bit selection for data output.

PARITY (Parity bit select)

Default: 0 No parity

Setup: 1 Even number

Setup: 2 Odd number

[Function]

Parity check selection for data output.

TORQ.VAL.TRNS (Torque value output select)

- Default: 1 UECP outputs torque value by 5 Byte with decimal point inclusive.
- Setup: 0 UECP outputs no torque value.

[Function]

Select if UECP includes torque value in output data.

PALSE NUMB. (Pulse number output select)

Default: 1 UECP outputs pulse number by 4 byte.

Setup: 0 UECP outputs no pulse number.

[Function]

Select if UECP includes pulse number in output data.

FASTENED TIME (TSC time output select)

Default: 1 UECP outputs TSC (<u>Time START to CUT</u>) by 4 byte.

Setup: 0 UECP outputs no TSC.

[Function]

Select if UECP includes TSC data in output data.

DECISION (Judgment output select)

Default: 1 UECP outputs judgment.

Setup: 0 UECP outputs no judgment.

[Function]

• Select if UECP includes judgment data in output data.

WAVE DATA OUT (Torque wavefore data output select)

Default: 1 UECP outputs torque waveform data.

Setup: 0 UECP outputs no waveform data.

Setup: 2 UECP outputs waveform data only if NOK judgment was provided.

[Function]

• Select if UECP includes waveform data for data transmission to Data Manager.

%This option does not affect output via RS232C port in the rear.

ANG DATA TRNSM (Angle data output select)

Default: 1 UECP outputs angle data.

Setup: 0 UECP outputs no angle data.

[Function]

• Select if UECP includes angle data in output data.

FREE RUN TRNSM (Free run angle data output select)

Default: 0 UECP outputs no free angle data.

Setup: 1 UECP outputs free run angle data.

[Function]

Select if UECP includes free run angle data in output data.

SNUG DATATRNSM (Snug angle data output select)

Default: 0 UECP outputs no snug angle data.

Setup: 1 UECP outputs snug angle data.

[Function]

• Select if UECP includes snug angle data in output data. Enter 0 for UDP tool operation.

WAVE DATA FORM (Wave data output form select)

Default: 0 UECP outputs wave data by binary format (2 byte per data).

Setup: 1 UECP outputs wave data by ASCII format (4 byte per data).

[Function]

• Select data type for the transmission to Data Manager.

- Select 0 (binary format) when sending the data to URYU software Ethernet Data Communication Protcol.

ID DATA OUT (ID data output)

Default: 0 UECP outputs no ID data.

Setup: 1 UECP outputs ID data.

[Function]

Select if UECP includes ID data in output data to Data Manager.

ID DATA FORM (ID digit number select)

Default: 48

Range: 1~48

[Function]

• Set digit number of ID data for transmission to Data Manager.

• Unused digit is filled with 0.

DATA COMM. FOR (Communication data select)

Default: 1 UECP receives setup and operation command from the server.

Setup: 0 UECP does not accept setup and operation command from the server.

[Function]

- For URYU standard communication, select whether or not UECP receives setup and operation command from the server.
- When 0 is selected, UECP does not accept operation command or setting change. WORK No. changes by inputting a WORK signal through I/O termials.

When 1 is selected, UECP does not accept a WORK signal inputted through I/O terminals, setting values of UECP changes by sending a setting value and WORK No. from the server.

INIT.SPLICING (Initial hook up select)

Defautl: 0 Turn on UECP, and it will start hook up to server.

Setup: 1 Turn on UECP, and the server will start hook up to UECP.

[Function]

• For URYU standard communication, select whether UECP or server will first send hook up command for initial connection.

TRNS. PAT. (Data transmission pattern)

- Default: 0 UECP outputs fastening result data without waveform data.
- Setup: 1 UECP outputs each OK result data associated with torque waveform data.
- Setup: 2 UECP outputs each OK result data associated with torque waveform data and angle waveform data.
- Setup: 3 UECP outputs only fastening result data at each OK, but memorizes torque waveform data for cumulative output at COUNT OK.
- Setup: 4 UECP outputs only fastening result data at each OK, but memorizes torque waveform data and angle waveform data for cumulative output at COUNT OK.
- Setup: 5 UECP outputs each OK result data associated with torque waveform data and angle waveform data.

[Function]

- Select output data contents of UDBP-AFZ to UECP.
- Readiness time after judgment is variable depending on the selection.



- Fastening is possible only after UECP completes cumulative data output
 under 3 or 4 setup option. Tool remains inoperative until cumulative data output.
- Selecting setup 5 allows UECP to store waveform data of up to 50 pulses providing shorter readiness time than that of setup 2. Select setup 2 if pulses per waveform are more than 50.

%TRNS. PAT. appears on LCD when setup 7 is in TIGHTENING MOD as shown above right.

DATA CLR. (Data clear)

Default: 0 UECP does not clear fastening data storage at TCP/IP connection time.

Setup: 1 UECP clears fastening data storage at TCP/IP connection time.

[Function]

- Select whether or not UECP clears fastening data storage at TCP/IP connection time.
- Selecting setup 0 allows UECP to output fastening data stored by buffer when is hooked up to the server by URYU standard communication.
- Selecting setup 1 allows UECP to clear all fastening data stored by buffer when is hooked up to the server by URYU standard communication. In this case all fastening data is cleared without output.

%Rear Panel RS232C port for PC connection

Change on-board DIP switch SW5 setup, and communication contents of the wires will change.

%Factory default setup is 1 and 2 are ON, and 3 and 4 are OFF.

①Turn off UECP and disconnect power plug from wall socket.

②Remove black color covering plate from UECP to find DIP switch SW5 on main board. The figure below indicates view seen from ceiling, and the top is DPM and LCD side.

③Open 8 screws fixing black color covering plate and remove the plate.



10.5. TOOL CONTROL

UECP memorizes cumulative fastener numbers and pulse numbers from first fastener commenced by a tool. Use these data to determine WARNING COUNT, WARNING PULSE, REPAIR COUNT, and REPAIR PULSE so you will notice elementary maintenance such as oil change, parts replacement, overhaul etc. for maintenance management.

| TOOL CONTROL (1/3) →TIGHTING COUNT00000 TIGHTING PALSE00000 TOOL DAT.CLEAR 0 | TOOL CONTROL (2/3) →WARNING COUNT 0000 WARNING PALSE 0000 REPAIR COUNT 0000 | TOOL CONTROL (3∕3) →REPAIR PALSE 0000 |
|---|--|--|
|---|--|--|

TIGHTING COUNT (Total fastener numbers)

Range: 0~99999 (Unit: ten thousand fasteners)

[Function]

Total fastener numbers that the connected tool fastened with NOK fasteners inclusive.

TIGHTING PALSE (Total pulse numbers)

Range: 0~99999 (Unit: ten thousand pulses)

[Function]

Total pulse numbers that the connected tool delivered with NOK fasteners inclusive.

TOOL DAT. CLEAR (Tool data clear)

• To clear cumulative COUNT and PULSE numbers, enter 1.

WARNING COUNT (Warning count number)

Default: 0

Range: 0~9998 (Unit: ten thousand fasteners)

[Function]

- UECP gives warning display [kcH.E.] on DPM with buzzer sounding when cumulative fastener number reaches WARNING COUNT.
- Set maintenance cycle you need to carry out next parts or oil replacement.

[Note]

Press Int to stop buzzer sounding.

• Fastening is possible even if warning display is on UECP.

※Enter 0 if WARNING is not necessary.

WARNING PALSE (Warning pulse number)

Default: 0

Range: 0~9998 (Unit: ten thousand pulses)

[Function]

- UECP gives warning display [kcP.E.] on DPM with buzzer sounding when cumulative pulse number reaches WARNING PULSE.
- Set maintenance cycle you need to carry out next oil replacement or maintenance.

[Note]

- Press Int to stop buzzer sounding.
- Fastening is possible even if warning display is on UECP.

₭ Enter 0 if WARNING is not necessary.

REPAIR COUNT (Repair count number)

0

Default:

Range: 0~9999 (Unit: ten thousand)

[Function]

• UECP gives repair display [rPH.E.] on DPM with buzzer sounding when cumulative fastener number reaches REPAIR COUNT.

[Note]

- · CAUTION terminal is switched on.
- Fastening is possible even if warning display is on UECP.

₭ Enter 0 if WARNING is not necessary.

REPAIR PALSE (Repair count pulse number)

Default: 0

Range: 0~9999 (Unit: ten thousand)

[Function]

• UEC gives repair display [rPP.E.] on DPM with buzzer sounding when cumulative pulse number reaches REPAIR PULSE.

[Note]

- CAUTION terminal is switched on.
- Fastening is possible even if warning display is on UECP.

₩Enter 0 if WARNING is not necessary.

10. 6. INPUT & OUTPUT (Rear terminal signal allocation)

Signal allocation to IN and OUT terminal is free format. Change the allocation to the terminals as necessary.

| IN/OUT PUT | (1/4) | IN/OUT PUT | (2/4) |
|---------------|-------|---------------|------------|
| →IN TERMINAL1 | 01 | →IN TERMINAL4 | 07 |
| IN TERMINAL2 | 02 | IN TERMINAL5 | 08 |
| IN TERMINAL3 | 03 | IN TERMINAL6 | 0 9 |

INPUT terminal signal allocation

Allocate INPUT signals to IN terminals 1 to 6.

Default INPUT signal allocations to IN terminal 1 to 6.

| LCD display (above) | Default allocation | Terminal numbers |
|---------------------|--------------------|------------------|
| IN TERMINAL1 | 1 (LS1) | IN1 |
| IN TERMINAL2 | 2 (START) | IN2 |
| IN TERMINAL3 | 3 (RESET) | IN3 |
| IN TERMINAL4 | 7 (WORK A) | IN4 |
| IN TERMINAL5 | 8 (WORK B) | IN5 |
| IN TERMINAL6 | 9 (WORK C) | IN6 |

Signal details

| Entry number | Signals | Contents | | | |
|-----------------|-------------|---|--|--|--|
| 1 | LS1 | COUNT judgment under line control setup 0. Reset previous COUNT OK judgment to prepare for next WORK under line control setup 1 or 2. | | | |
| 2 | START | External start | | | |
| 3 | RESET | Reset line control setup, NOK judgment, and COUNT. | | | |
| 4 | LS2 | Switch on judgment under line control setup1. | | | |
| 5 | PASS | Compulsory COUNT OK if any fastener remains undone. | | | |
| 6 | QL | Count down fastening signal of click wrench (QL wrench). | | | |
| 7 | WORK A | | | | |
| 8 | WORK B | Allocate these 4 signals to IN terminals, and UECP will provide 16 work select maximum under 0 entry in WORK SIG.SEL. | | | |
| 9 | WORK C | | | | |
| 20 | WORK D | | | | |
| 10 | WORK 1 | | | | |
| 1 | ł | Allocate these 5 signals to IN terminals, and UECP will provide 5 work select under 1 optry in WORK SIG SEI | | | |
| 14 | WORK 5 | work select under 1 entry in workk SIG.SEL. | | | |
| 15 | CUT | Stop running tool by an external signal. | | | |
| 16 | VALVE | Check solenoid valve failure. | | | |
| 17 | TOOL SWITCH | Pass up torque measurement while this is switched on. | | | |
| 21 | CW (LOW) | UECP drives UDP tool CW at a speed of 500rpm. | | | |
| 22 | CW (MED) | UECP drives UDP tool CW at a speed of 1000rpm. | | | |
| 23 | CW (HIGH) | UECP drives UDP tool CW at a speed of motor setting. | | | |
| 24 | CCW (LOW) | UECP drives UDP tool CCW at a speed of 500rpm. | | | |
| 25 | CCW (MED) | UECP drives UDP tool CCW at a speed of 1000rpm. | | | |
| 26 | CCW (HIGH) | UECP drives UDP tool CCW at a speed of motor setting. | | | |

OUTPUT terminal signal allocation

Allocate OUTPUT signals to OUT terminals 1~6.

| IN/OUT PUT | (3/4) | IN/OUT PUT | (4/4) |
|----------------|-------|----------------|-------|
| →OUT TERMINAL1 | 01 | →OUT TERMINAL4 | 04 |
| OUT TERMINAL2 | 02 | out terminals | 05 |
| OUT TERMINAL3 | 03 | OUT TERMINAL6 | 19 |

Default OUTPUT signal allocation to OUT terminals 1~6.

| LCD display | Default allocation | Terminal numbers |
|---------------|--------------------|------------------|
| OUT TERMINAL1 | 1 (COUNT OK) | OUT1 |
| OUT TERMINAL2 | 2 (COUNT NOK) | OUT2 |
| OUT TERMINAL3 | 3 (TORQUE OK) | OUT3 |
| OUT TERMINAL4 | 4 (TORQUE NOK) | OUT4 |
| OUT TERMINAL5 | 5 (SV) | OUT5 |
| OUT TERMINAL6 | 19 (SV2) | OUT6 |

Signal details

| Entry number | Signals | Contents | |
|-----------------|-----------------|---|--|
| 1 | COUNT OK | COUNT OK. Adjust signal duration time by COUNT OK timer. | |
| 2 | COUNT NOK | COUNT NOK. UECP holds signal output until NOK is repaired or reset. | |
| 3 | TORQUE OK | TORQUE OK. Adjust signal duration time by FASTENING OK timer. | |
| 4 | TORQUE NOK | TORQUE NOK. UECP holds signal output until NOK is repaired or reset. | |
| 5 | SV | UECP outputs SV when torque reaches START torque. | |
| 6 | TORQUE LOW NOK | UECP outputs this NOK if torque fails to reach torque low limit. | |
| 7 | TORQUE HIGH NOK | UECP outputs this NOK if torque exceeded torque high limit. | |
| 8 | OPERATION RANGE | UECP outputs when is operative with WORK in work section. | |
| 9 | CPU RUN | UECP outputs while it is operative. But this signal goes out while it is writing mode without tool control. | |
| 10 | CAUTION | UECP outputs when cumulative fastener number/pulse number reaches REPAIR COUNT/REPAIR PULSE. | |
| 11 | WORK A answer | | |
| 12 | WORK B answer | UECD outputs answer signals of WORK surrently aslasted | |
| 13 | WORK C answer | | |
| 20 | WORK D answer | | |
| 14 | WORK 1 COUNT OK | | |
| 15 | WORK 2 COUNT OK | | |
| 16 | WORK 3 COUNT OK | COUNT OK per WORK number. | |
| 17 | WORK 4 COUNT OK | | |
| 18 | WORK 5 COUNT OK | | |
| 19 | SV2 | UECP outputs when torque reaches SNUG torque. | |

%It is not possible to allocate one signal to two or more terminals.

10.7. LAN

This is Ethernet communication setup. Change setup value on LCD display first. Press esafter the change is over, and then switch off UECP once. Switch on UECP again, and setup value rewriting is completed.

| LAN #1 (1∕6 | LAN #1 (2/6) | LAN #1 (3/6) |
|---|--|--|
| →IP ADDRESS 1 012 | →IP ADDRESS 4 0001 | →DEFAULT GATWAY 0000 |
| IP ADDRESS 2 000 | SUBNET MASK 0024 | DEFAULT GATWAY 0000 |
| IP ADDRESS 3 010 | DEFAULT GATWAY 0000 | DEFAULT GATWAY 0000 |
| LAN #1 (4/6 →TCP PORT 0210 CONNECT MODE 000 HOST IP ADDR 1 012 | LAN #1 (5/6) →HOST IP ADDR 2 0000 HOST IP ADDR 3 0100 HOST IP ADDR 4 0000 | LAN #1 (6/6) →REMOTE TCP POR02101 MAC ADRESS ***** |

IP ADDRESS 1~4 (IP Adress 1~4)

Default: 120.0, 100.1

Range: 0~255

[Function]

· Set controller side IP address.

SUBNET MASK

| Default: | 24 |
|------------|------|
| Range: | 1~31 |
| [Function] | |

Set subnet mask.

| | | | Subnet Mask Table | | |
|----|--------------------|----|--------------------|----|----------------|
| 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. 255. 224 | 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 |

*Configurable subnet mask coverage depends upon IP address. Set subnet mask within the following range. Subnet mask setting out of the range can cause UECP to malfunction.

[Setting range]

| 【IP Address】 | [Subnet Mask] |
|---------------------------------------|---------------|
| [0. 0. 0. 0] ~ [127. 255. 255. 255] | 17~24 |
| [128. 0. 0. 0] ~ [191. 255. 255. 255] | 9~16 |
| [192. 0. 0. 0] ~ [223. 255. 255. 255] | 3~8 |

(DEFAULT GATEWAY (Default Gateway)

Default: (0. 0. 0. 0)

Range: 0~255

[Function]

• Set Default Gateway.

• Make the setup when you hook up a PC to UECP through router.

TCP PORT Default: 2101 Range: 0~9999 [Function] • Set TCP port of UECP.

CONNECT MODE (Connection Mode)

Default: 1 Set UECP as client side.

Setup: 0 Set UECP as host side.

[Function]

• For setup software use, set UECP as client side (enter 1).

HOST IP ADDR (Host IP 1~4)

Default: 120.0 100.0

Range: 0~255

[Function]

· Set IP address of the destination.

REMOTE TCP POR (Remote TCP Port)

Default: 2101

[Function]

· Set TCP port of the destination (setup software etc.)

MAC ADRESS (MAC Address)

Default: Every UECP comes with a unique MAC address.

Range: 0~99999

[Function]

This is UECP's MAC address.

• A different value is set in all controllers.

• MAC address change is not possible.

 \cdot When all value of MAC address is "0" (no setting), $\ \lceil MAC \ error \rfloor \ shows \ on \ LCD \ display.$

XYou can operate fastening, though 「MAC error」 is showing.

| Ver4.30 | MAC error |
|---------|-----------|
| →COUNT | 99 |
| PULSE | 0 |
| TIME | 0 |
| | 0 |

10.8. MEMORY DATA

UECP displays, clears and sets calculated value of memory data.



AVR. (Mean of memorized data)

[Function]

UECP displays mean value of memorized data.
XThis is not set up.

$$\overline{X} = \frac{X_1 + X_2 + \cdots X_n}{n}$$

X : Mean value

n : Sample number

Sigma (σ) value display

[Function]

• UECP displays σ (standard deviation) of memorized data. **X**This is not set up.

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

 σ : Standard deviation

3^[]+/- % Display (3 x σ/mean value of memorized data ±% display) [Function]

• UECP displays 3 sigma/mean value.

XThis is not set up.

$$3\sigma = \frac{3\sigma}{x} \times 100\%$$

3σ value: Variation

CP (CP value display)

- [Function]
 - UECP displays CP (Capability of Process) value of memorized data.
 - UECP calculate CP value by using torque LOW limit, torque HIGH limit of the selected WORK number and memorized data.

XThis is not set up.

6σ

CP value: Capability of process

CPK (CPK value display)

[Function]

- UECP displays CPK (One side Capability of Process) value of memorized data.
- UECP calculates CPK value by using torque LOW limit, torque HIGH limit of the selected WORK numberand memorized data.

XThis is not set up.

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

B 1 : HIGH limit – Mean value

B 2 : Mean value – LOW limit

B : B 1, B 2 whichever the smaller

CPK: Capability of Process Index with mean value deviation inclusive.

MEMORY BLOCK (Memory block classification)

Default: 1 Less ID data (4,550 data without angle or 3,900 with angle data maximum).

Setup: 2 With ID data (1,900 data without angle or 1,800 with angle data maximum).

[Function]

- Select whether or not to include ID in data for UECP to memorize.
- For memory confirmation, download the memorized data by setup software.

• Change the setup, and UECP will clear all memorized data.

*Data numbers depend upon whether angle data is associated or not. Data number is less if you select TIGHTENING MOD setup 3 with MOTOR MODE setup 4 for UDP, or TIGHTENING MOD setup 7 for UDBP-AFZ. Clear memorized data if you changed TIGHTENING MOD and MOTOR MODE.

** A setup software used for V4.0 and lower version of UECP-4800 does not allow to receive memory data properly with UECP-4811. Use the most recent setup software for UECP.

MEM. CONTENTS (Memory contnets select)

- Default: 2
- Setup: 0 UECP does not memorize fastening data.
- Setup: 1 UECP memorizes all fastening data. UECP provides alarm display COUP (MAX memory) sign on DPM with buzzer sounding when unused memory is for 10 data. Press **ES**, or switch on RESET terminal in the rear, and the alarm display will go out. Another fastening data will however switch on the alarm display again.
- Setup: 2 UECP memorizes all fastening data without alarm display COUP (MAX memory).
- Setup: 3 UECP memorizes only OK data and provides alarm display COUP (MAX memory).
- Setup: 4 UECP memorizes only OK data without alarm display COUP (MAX memory).

[Function]

- Specify whether or not to have alarm display COUP (MAX memory) when unused memory is for 10 data.
- · Change the setup, and UECP will clear all memorized data.

MEMORY CLEAR

[Function]

- Enter 1, and UECP will display –CLE on DPM asking if you clear all internal data.
- Press , and UECP will clear all internal data.
- Click *Statistic* screen of setup software on PC, and the internal data will be gone.

Execute MEMORY CLEAR when setup of TIGHTENING MOD changes.

UNUS.HIST.CL (Unusual history clear)

• Enter 1, and UECP will clear internal error data.

SD SETUP VALUE (Setup value storage by SD card)

[Function]

- Enter 1, and UECP will store all setup data of UECP in a SD card.
- The data is stored with the writing data as the file name like SD180204 (2018 February 4).
- If you do the writing twice or more in a day, UECP will advance tens place of the day such as SD180214 from above SD180204.
- Example: Do the data writing on 2018.02.04, and the SD card will prepare a folder [SD180204] in which the data will be stored with file name [SD180204.SDT]. This is first data storage of the day. SD-Data reading screen will display [180204]. If you do your second time writing on 2018.02.04, the folder name will be [SD180214].

SD FORMAT (SD card format)

[Function]

- Insert SD card in the rear slot and enter 1 for the format (initialization).
- If you use a new SD card, format it before use.
- Format SD card after confirming [SD READ] disappearing on LCD display when SD card is 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.
- *Format SD card, and it will clear all data and create a new folder. SD card error occurs when the new folder can not be read on inserting SD card.

SD WAVE REC.SE (Waveform saving in SD card)

Default: 0 UECP does not write waveform data in SD card.

Setup: 1 UECP writes waveform data in SD card.

[Function]

- Enter 1 in SD card, and waveform data writing will be operative.
- UECP accepts SD card up to 32GB.
- Change the entry from 0 to 1, and UECP will start waveform data storage in SD card. Waveform data before the change is not stored by SD card.

*Waveform data are not memorized when SD read showed on LCD display. After confirming SD READ disappearing on LCD display, you should start a fastening operation.

- SD DATA REC.SE (Fastening data saving in SD card)
 - Default: 0 UECP does not write fastening data in SD card.
 - Setup: 1 UECP writes fastening data in SD card.

[Function]

- Enter 1 in SD card, and fastening data writing will be operative.
- UECP accepts SD card up to 32GB.
- Change the entry from 0 to 1, and UECP will start fastening data storage in SD card. Fastening data before the change is not stored by SD card.
- Contents of fastening data saving SD card are 「Work No.」「Year, Month, Day, Hour, Minute, Second」
 「ID」「Count number」「Torque」「Pulse number」「Fastening time」「Judgement」「Angle」
 「Free run angle」「Snug angle」.
- *Waveform data are not memorized when [SD read] showed on LCD display. After confirming [SD READ] disappearing on LCD display, you should start a fastening operation.

SD DATA REC.SE (Setup value reading stored in SD card)

Default:

0

Setup: 1~4 (UECP reads setup value stored in SD card.)

[Function]

• Select SD DATA REC.SE under writing MODE, and UECP will display file names stored in SD card.

| MEMORY DATA (6/6) | MEMORY DATA (6/6) |
|--|---------------------------------------|
| →SD READ VALUE <u>3</u> 1:101204 2:110315 | →SD READ VALUE 0 1:101204 2:110315 |
| 3:110006 4:110007 | 3:110000 4:110007 |

Enter left figure of file name, and UECP will download setup value stored in SD card. Above picture (right) shows entry of 3 downloading file 110606. Fix digit number like [SD+(6 digit only)] when you name file by PC. UECP will not display setup value if digit number is less than 6.

10.9. PROGRAM SEL (Program select)

Use PROGRAM NUMBER, and you will be able to use 16 different power setups with a tool for each fastener of 20 pieces maximum in a WORK section like 1st fastener by high torque, 2nd fastener by low torque, etc.



PROGRAM NO SEL (Program number function select)

Specify 1~3, and 16 WORK settings will be PROGRAM NUMBER 1~16.

| Default: | 0 | Do not use PROGRAM function. |
|------------|---|--|
| Setup: | 1 | UECP changes PROGRAM number by WORK signal entry combination to IN terminals. |
| Setup: | 2 | UECP changes PROGRAM number as per (32 byte) data sent from GLOBAL pokayoke to |
| | | rear PC connector. Enter 1 in ID DATA OUT, and set digit number 32 for ID data. |
| Setup: | 3 | UECP performs fastening as per PROGRAM number and the setup sent from GLOBAL |
| | | pokayoke to rear PC connector. Enter 1 in DATA OUT, and set digit number 48 for ID |
| | | data. |
| [Function] | | |

- Specify whether or not to use PROGRAM. Select method of how to use PROGRAM.
- Change the entry from 0 to 1, 2, or 3, or the retrograde, and UECP will clear fastening result memory (unable to change above setup while retaining the memory).

PROGRAM NO SWI (Fastener shift process)

- UECP will shift to next PROGRAM if foregoing fastening was OK. Default: 0
- Setup: 1 UECP will shift to next PROGRAM regardless of foregoing OK or NOK result.
- Setup: UECP will shift to next PROGRAM if foregoing fastening was OK or HIGH NOK. 2

[Function]

· Select conditions allowing UECP to shift to next PROGRAM.

FIRST ~ 20TH (WORK number allocation from 1st to 20th fastener)

- Default: 0 UECP ends a cycle when the foregoing fastening has successfully completed.
- Range: 1~16 UECP drives the tool with different PROGRAM (WORK) individually allocated to each fastener.

[Function]

• Fasten each fastener by custom-allocated PROGRAM as per predetermined sequential order designating what number by what PROGRAM.

[An example]

With 1 or 2 entry in PROGRAM NO SEL, allocate PROGRAM 1 to 1st, 2nd, up to 3rd, PROGRAM 2 to 4th, and UECP will fasten 1~3 fasteners by WORK 1 parameter and 4th fastener by WORK 2 parameter. Allocate PROGRAM 0 to 5th fastener, and UECP will end the cycle serving 4th fastener as the last. Enter 1 or 2 in PROGRAM NO SEL, and the maximum fasteners per cycle will be 20 pieces, and each of them is with a unique PROGRAM (WORK 1~16).



10.10. MOTOR SET

Set tool's revolution speed, current value, and built-in buzzer ON/OFF option. UECP drives tool by INITIAL speed and INITIAL current from triggering to START torque. After START, UECP shifts to regular SPEED and regular CURRENT driving.



Init. Speed (Initial speed setup)

Default: 25 (2500 rpm)

Range: 10~48 (1000~4800 rpm)

[Function]

• Set tool speed from triggering to START torque.

Init. Curr (Initial current setup)

 Default:
 3

 Range:
 1~4 (Low~High)

 Setup:
 1 (35%)

 Setup:
 2 (55%)

 Setup:
 3 (75%)

 Setup:
 4 (100%)

[Function]

• Set tool initial current from triggering to START torque.

Speed (Regular speed setup after START torque)

Default: 35 (3500 rpm)

[Function]

Set tool speed after START torque.

- Low limit speed is directly dependant on Motor MODE and current value setup.

[Speed range, how-to, and relations with Motor MODE]

- Motor MODE setup 1 serves:
 - Adjustable speed range 10~48 (1000~4800 rpm)
- Motor MODE setup 2 ~ 4 serves:

Range

| Setup: | 1 | 13~48 (1300~4800 rpm) |
|--------|---|-----------------------|
| ootap. | | |

- Setup: 2 17~48 (1700~4800 rpm)
- Setup: 3 21~48 (2100~4800 rpm)
- Setup: 4 25~48 (2500~4800 rpm)

Current (Regular current setup)

Default: 4

| 1 | (35%) |
|---|------------------|
| 2 | (55%) |
| 3 | (75%) |
| 4 | (100%) |
| | 1 2 3 4 |

[Function]

· Set current strength running the tool after START torque.

TOOL buzzer

Default: 1

Setup: 0 Switch off tool's buzzer.

Setup: 1 Switch on tool's buzzer.

[Function]

· Select whether or not to use UDP built-in buzzer.

• Enter 1, and tool will announce OK with one pulse buzzer and NOK with continuous buzzer sounding.

%Switch off option is not available for UDBP-AFZ ZigBee tools.

REV. Speed (Reverse speed)

Default: 48 (4800 rpm) 10~48 (1000~4800 rpm) Range:

[Function]

Set reversing 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 | |
|------------|---|--|
| Setup: | 2 | Low limit speed changes in accordance with current adjustment (regular current setup). |
| Setup: | 3 | Add motor angle monitor to setup 2 to detect double fitting (re-hit a fastener). |
| | | %It is not used, because it includes Setup 4 |
| Setup: | 4 | Setup 3 (detect double fitting) + UECP has motor angle displayed on LCD and offers DUTY ratio setting. |
| [Function] | | - |

• UECP regulates speed range of use per current to stabilize motor output (setup 2~4 recommended).

· Following LCD shows motor angle measured by ID screen under setup 4.

| 15/10/01 | 10:15:31 |
|----------|----------|
| ANGLE | 0 |
| | |
| | |

XOnly the compliant tools can use the above setup 4.

※Press
■ after the change is over, and then switch off UECP once. Switch on UECP again, and setup value rewriting is completed.

MOTOR Angle low (Motor angle low limit, exclusive for UDP)

Default: 0000

0000~9980 Range:

[Function]

Set motor angle low limit detecting MOTOR angle low error under MOTOR MODE setup 4.

• The angle set is at 20 degree intervals.

• UECP provides angle low error if motor rotation from triggering to START torque was lower than this angle. ** This is not bolt or nut turning angles but motor angles from triggering to START torque.

*Motor angle monitor-integrated UDP tools are necessary.

%When tool runs by inputting a signal through I/O terminals, this function is not available.

[Error display and output]

- DPM displays 2tr.E. and measured torque alternately.
- Torque lamp does not light.
- Terminal block outputs TORQUE NOK signal with buzzer sounding.

[Error cancel]

• UECP will cancel this error by pressing 🔤 key or inputting RESET signal through terminal block.

Rev. COUNT (Reverse count)

Default: 0 Do not use this function.

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

[Function]

- If you opened a fastener whose fastener count was already made, UECP clears the count by sensing opening torque and reverses WORK individually allocated to each fastener under PROGRAM NUMBER.
- A serial reverse is not possible.
- UECP reverses WORK individually allocated to each fastener if PROGRAM NUMBER is used.
- %Rev. COUNT works when setup 3 is in TIGHTENING MOD.

%Rev. COUNT is effective for motor angle monitor-integrated UDP tools.

When you open a fastener with the tool by inputting a signal through I/O terminals, this function is not available.

DUTY (Duty cycle)

Default: 100

Range: 10~100% (Adjustable at 10% intervals)

[Function]

- · Adjust motor output by setting or changing input voltage.
- When you decrease the setting value, rotation speed sometimes becomes lower than set value with fastening power. So, confirm whether the rotation speed becomes target value as necessary when you change duty cycle.

*This is operative when MOTOR MODE is setup 4.

ZigBee Pairing under MOTOR SET (3/5 and 4/5)

Default: 0 Do not use ZigBee function.

Setup: 1 Have UDBP-AFZ radio link controlled by UECP.



To realize wireless fastening control and data-logging, have Uzig01 and UDBP-AFZ paired as follows. [Function]

- Enter 7 in TIGHTENING MOD.
- · Get into MOTOR SET, and above 5-page LCD will appear.
- Change ZigBee Paring 0 to 1.
- Ensure the Pairing Ch and PANID are correct by referring to the following Pairing Ch and PANID.
- Press Im, and UECP will have Pairing Ch and PANID written in Uzig01 and UDBP-AFZ.
- Refer to another dedicated paper [UDBP-AFZ manual] for the details.

%The ZigBee-related setup appears when CONTROL METHOD is setup 7.

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 UECP will write PAIRING Ch in Uzig01 and UDBP-AFZ.

%The ZigBee-related setup appears when TIGHTENING MOD is setup 7.

PAN ID (PAN ID)

Default: FE01(1) FE00~FE7F (0~127)

Range: [Function]

· Make Uzig01 and UDBP-AFZ PANID setup.

• Move arrow \rightarrow to PANID.

- Press **I**, and the hexadecimal display will be decimalized with the cursor under the figure for adjustment like FE01 to 001 or FE7F to 127.
- Carry out pairing after setup change, and UECP will write PANID in Uzig01 and UDBP-AFZ). %The ZigBee-related setup appears when TIGHTENING MOD is setup 7.

COUNT RESET (Count reset) 0

Default:

Setup: 1 UECP clears COUNT numbers counted from the last repair.

Setup: 2 UECP clears COUNT numbers counted from the beginning and from the last repair.

[Function]

· UECP clears COUNT numbers retained by the tool.

· Use this function to know fastener numbers that the tool has fastened.

 First setup parameter transmission after 1 or 2 entry will clear COUNT numbers memorized in UDBP-AFZ. *The ZigBee-related setup appears when TIGHTENING MOD is setup 7.

SCAN COUNT

Default: 20

Range: 10~999

[Function]

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

%The ZigBee-related setup appears when TIGHTENING MOD is setup 7.

11. FUNCTIONS

11.1. Fastening control specifications

5 options are available. (Use 3 or 7 for the specifications described herein.) TIGHTENING MOD

(Control method): 1 Torque monitor (UECP does not adopt for the specifications described herein.)

- 2 Torque control (UECP does not adopt for the specifications described herein.)
- 3 UDP torque control
- 5 Torque control and angle monitor (UECP does not adopt for the specifications described herein.)
- 7 UDBP-AFZ (ZigBee built-in battery tool)
- 9 Torque wrench monitor (UECP does not adopt for the specifications described herein.)

1) UDP torque control by TIGHTENING MOD setup 3

UECP begins torque measurement when torque reaches START, and stops tool running when torque reaches CUT. UECP however passes up torque measurement from START until TORQ.MES.DEL (Torque measurement delay timer) is up to reject torque spike happening at the bolt seating. UECP drives tool with initial speed and initial current until torque reaches START, and from this point the driving shifts to regular speed and regular current. Judgment output is made when judgment delay timer is up after torque goes under START. UECP measures FREE RUN angles of motor rotated triggering to START when MOTOR MODE is setup 4. If you quit fastening with 3 pulses or less beyond START, UECP provides no judgment due to INVALID PULSE function.


2) UDBP-AFZ Torque control and angle monitoring TIGHTENING MOD setup 7

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

UECP begins torque measurement when torque reaches START, and stops tool running when torque reaches CUT. Judgment output is made when judgment delay timer is up after torque goes below START.



Free run angle: Angles turned 400 msec to START torque.

Final angle: Angles turned SNUG to 10 msec elapsed point after CUT.

*Confirming absence of SNUG caused by torque spike until TORQ.MES.DEL (Torque measurement delay timer) maturity, UECP will shift to torque control and angle monitor for judgment.

11.2. UPPER & LOW LIMIT JUDGMENT

UECP provides TORQUE and PULSE number OK or NOK judgment on whether or not the measured numbers at the end was within upper and low limit. Set TORQUE upper and low limit as mentioned in page 27. Set PULSE upper and low limit as mentioned in page 37 and 38.

[Judgment]

- (1) TORQUE OK
 - UECP lights torque OK green lamp on front panel.
 - UDP tool LED lamp lights green.
 - UECP switches on TORQUE OK terminal in the rear.
 - UECP outputs 1-pulse sound for TORQUE OK and 2-pulse sound for COUNT OK under ALARM BUZZER setup 1.

(2) TORQUE HIGH NOK

- UECP lights NOK red lamp on front panel with buzzer sounding.
- UDP tool LED lamp lights red.
- UECP outputs signals at TORQUE NOK terminal and TORQUE HIGH NOK terminal in the rear.

(3) PULSE HIGH NOK

- PLS.H. sign alternates measured TORQUE on DPM with buzzer sounding.
- UDP tool LED lamp flashes yellow (light 0.3 sec. and out 0.2 sec.).
- UECP outputs signal at TORQUE NOK terminal in the rear.

(4) TORQUE LOW NOK

- UECP lights LOW yellow lamp on front panel with buzzer sounding.
- UDP tool LED lamp lights yellow.
- UECP outputs signals at TORQUE NOK terminal and TORQUE LOW NOK terminal in the rear.

(5) PULSE LOW NOK

- PLS.L. sign alternates measured TORQUE on DPM with buzzer sounding.
- UDP tool LED flashes yellow (light 0.8 sec. and out 0.2 sec.).
- UECP outputs signal at TORQUE NOK terminal in the rear.

11.3. ANGLE UPPER & LOW LIMIT JUDGMENT

This chapter explains how UECP judges measured angles of UDBP-AFZ against two restricted angle ranges. One is LOW limit of free run angles. The other is LOW and HIGH limit of FINAL angles turned SNUG to 10 msec elapsed point after CUT. These limits are set by FREE ANGLOW LM (free run), SNUG ANG. LOW (Snug angle low) and SNUG ANG. UPP (Snug angle high) included in MODE set.



[Judgment]

- (1) UDBP-AFZ failed to exceed free run angle.
 UECP provides FREE RUN ANGLE ERROR judgment under FREE RUN ANG setup 1.
- (2) FINAL angle was greater than ANGLE HIGH LIMIT.
 UECP provides FINAL angle HIGH error judgment under ANG JUDG SEL setup 1.
- (3) FINAL angle was less than ANGLE LOW LIMIT.
 - UECP provides angle LOW error judgment under ANG JUDG SEL setup 1.

11. 4. TORQUE CHANGE DEGREE MONITOR ZONE



Note) Abstructed torque curve

1) LO.E. sign on DPM (Initial error)

UECP provides INITIAL ERROR judgment when START to CUT elapsed time was shorter than INITIAL ERROR timer (torque reaches CUT before INITIAL ERROR timer is up).

[Setup]

- INITIAL TORQUE setup 1 under MODE
- INITIAL ERROR under TIMER: 1~9999 msec

[Hint]

- Calculate average time elapsed START to CUT for OK fasteners. Then study time to detect INITIAL ERROR.
- 2) CYL.E. sign on DPM (Cycle error)

UECP stops tool running with CYCLE ERROR judgment unless torque reaches CUT when CYCLE ERROR TIMER is up.

[Setup]

- CYCLE ERROR setup 1 under MODE
- CYCLE ERROR under TIMER: 1~9999 msec

[Hint]

• Calculate average time elapsed START to CUT for OK fasteners. Then study time to detect CYCLE ERROR.

11.5. Fastening data output

The purpose of this function is to communicate with server by a variety of communication ports. UECP 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)

UECP outputs fastening data at PC connector in the rear. Adjust setup of DATA OUT, and the output data contents will change. UECP outputs the fastening data at every fastening. For more details of data output format or communication, refer to an exhibit "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 standard (TCP/IP)

This is to have communication with the server by NETWORK connector in the rear. The server sends some of the changed setup values, ID or Bypass (tool stop) signal to UECP, which outputs fastening data in return. Refer to an exhibit "URYU Ethernet communication specifications" for the details.



[Necessary setups]

[MODE] (14-page)

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

••• 7/14

[DATA OUT] (7-page)

- UEC No. Number UECP (maximum 25 sets)
 · · · 1/7
- OUT MOVEMENT (Out data select), INIT. SPLICING (Initial hook up) & DATA CLR. (Data clear) · · 7/7

[LAN] (6-page)

| IP address 1~4 | • | •• | 1/6 | SUB NET MASK (1~31) | •••2/6 |
|--------------------------------|--------|-----|-----|---|---------|
| TCP port connect | • | ••• | 3/6 | HOST IP address 1~4 | ••• 4/6 |
| REMOTE TCP POR (Remote TCP por | ort) • | ••• | 6/6 | | |

3) Data management (TCP/IP)

UECP outputs fastening data at NETWORK connector in the rear. Various measured data and fastening waveform data are sent to the server. To hook up with multiple UECP and serve data management, use URYU data management software for data receipt. Receiving barcode reader's ID data at PC connector in the rear allows UECP to have fastening data associated with the ID data. Use cross type RS232C cable or change DIP switch SW5 setting as mentioned in 11.4 DATA OUT at page 54. UECP outputs fastening data without the association of ID data if the provision is not available.



REMOTE TCP POR (Remote TCP port)
 · · · 6/6

11.6. PASSWORD

Use this function, and UECP will ask for the password when you change setup values. Register user's name and password as a pair, and UECP 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

XThe below explains how to register 1234 as user's name and password. Enter 1 in PASSWORD FUNC in MODE, and press m. Then press to get out of setup mode once.

| MODE #1 | (14/14) |
|-------------|---------|
| →DETECTTR | 20 |
| PLUS/STALL | 1 |
| PASSWORD FU | 4C 0 |

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



Change 0 of USER SET to 1 and press



UECP asks for the password. Enter password if it is already set up. and UECP will display password registration LCD shown at the right. (Asking for the password)

Press if password is unregistered,

(Enter password for the modification)

(Registration/modification acceptable)



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 **I** to make the digit to 1 first and **I** next to have 0 displayed on LCD. UECP will get back to PASSWORD WRITING MODE after right side LCD display if you fail to enter 4-digit in USER and PASS both (shortpassword).



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 UECP will have error message displayed on LCD.

| Short password | Wrong password |
|--|---|
| PASSWORD? USER 1234 →PASS 123 Input is insuffic | PASSWORD? →PASS 1235 password is wron9_ |

2) Confirmation of setup change history

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

Execute the history download by selecting F8 receipt.

| (| 🕖 UECP | SYSTEM - [CONFIGURA | TION LOG] | | | | | | | - | | |
|---|---------|---------------------|-----------------|--------------|----------------|--------------|-----------|-----|------|-----|--------------|------------|
| Γ | FILE N/ | AME :uryu | | | | PLANT/APPI | ICATION : | | | | | |
| 1 | | | | | | | | | | | | |
| L | No. | DATE | REGISTRANT | WORK NO | CONFIGURATIO | N NO. | | | | | OLD VALUE | NEW VALUE |
| | 1 | 2018/03/08 14:30:11 | 1234 | 1 | TORQUE LOW V | ALUE (BASIC |) | | | | 80.0 | 10.0 |
| | 2 | 2018/03/08 14:30:14 | 1234 | 1 | TORQUE HIGH | VALUE (BASIC |) | | | | 60.0 | 20.0 |
| | 3 | 2018/03/08 14:31:59 | 1234 | 1 | TORQUE CUT V | ALUE (BASIC) | Ì | | | | 19.6 | 15.0 |
| | 4 | 2018/03/08 14:32:02 | 1234 | 1 | RATED TORQUE | E SENSOR (B | ASIC) | | | | 1000 | 400 |
| | 5 | 2018/03/08 14:32:04 | 1234 | 1 | INITIAL ERROR(| LO.E.) (MODE | .) | | | | 0 | 1 |
| | | | | | | | | | | | | |
| | F. | F.2 F | 1.0 F.4 | F.S PRINT | F.,団 SAVE | F, 키 READ | FB RCV | F.9 | F.10 | F.U | 序,I型 STAT | |
| | PC:V1. | 82 MAIN:V4.0 FINISH | ED RECEIVING CO | NFIGURATIO | N LOG | | | | | | 3/8/2018 (T | HU) 14:32: |

12. TORQUE SENSOR WIRING DIAGNOSIS

UECP Zero/Cal function performs checkup of torque sensor failure, joint cable short circuit, tool's internal wire short circuit.

12.1. Error Detection

1) ZERO check

UECP checks output deviation from zero-voltage state torque sensor under no load application. UECP provides ZERO ERROR judgment when the deviation is greater than $\pm 6\%$ of rated torque.

 $2\,)~~{\rm CAL}~{\rm check}$

UECP checks whether or not its setup is compatible with torque sensor specifications of connected UDP tools. Giving torque sensor with dummy current causing rated strain, UECP checks if torque sensor output signal is less than 100±6% of entered CAL value. CAL check due to this method detects incorrect torque sensor connection, and disagreement of UECP setup to UDP tool sensor specifications.

12.2. ZERO/CAL check timing

- Self-diagnosis will check when UECP is switched on.
- When **RES** is pressed, or switch on RESET terminal.
- When START terminal is switched on by external start signal.
- When you select F6 CAL from ZERO adjust screen of URYU dedicated software.
- · When socket changer signal is input.

Error display and the output

- $\cdot \mathcal{L}\mathcal{E}$ sign alternates measured torque on DPM for ZERO error with buzzer sounding.
- [RLF. sign alternates measured torque on DPM for CAL error with buzzer sounding.
- UECP switches on TORQUE NOK terminal in the rear.

13. Auto Zero

UECP performs automatic correction of torque measurement error caused by torque sensor zero point variation. This is the function to ensure precise torque measurement. UECP adjusts torque value converted from sensor signal with the earlier memorized ZERO vatiation add or subtract for every fastener. This function however does not work in case ZERO error or CAL error happens.

Example of Auto Zero

 $1\,)\;$ UECP observed positive variation at ZERO check.



 $2\,)\;\; {\rm UECP}$ observed negative variation at ZERO check.



Auto ZERO perform timing

Precondition is no error by ZERO/CAL check.

- · Self-diagnosis will check when UECP is switched on.
- When **RES** is pressed, or switch on RESET terminal.
- When START terminal is switched on (not for UDP tools).
- When UECP receives job command from GLOBAL pokayoke (OUTPUT OF FORM setup 3 under DATA OUT).

14. Torque waveform measurement

Measure torque waveform by MEMORY HiCORDER or by Memory Scope as follows.

①Confirm if setup values are set correctly.

(Confirm no mistake of CAL value.)

②Hook up the DEVICE to UECP-4811.



③Press not UECP will apply torque sensor with current of rated strain to make CAL check.

(4) The Device recognizes CAL value wave height and make its internal adjustment for waveform recording.

⑤Fasten actual fasteners, and the Device will start torque waveform recording.

%This function is not available when UDBP-AFZ is in use.

15. Analog Output

UECP outputs analog torque signals which is filter and attenuator processed sensor signal in real time.

1) Output voltage

Following is output voltage from UECP when torque sensor is under load of rated strain current (CAL).

| Torque sensor specifications | UECP analog output voltage |
|------------------------------|----------------------------|
| Magnetostrictive | DC 1.0V |

2) Torque calculation by conversion from analog terminal voltage



3) Analog output voltage specifications



4) Analog output

Use JIS C6560 Small Single Head Plug φ 3.5x15.

| Error sign | Errors | What error? | Trouble shooting |
|----------------|---------------|--|--|
| <i>Q.E.</i> | ZERO error | Sensor deviation under 0 volt is | * Turn off UECP, and replace tool SENSOR |
| | | ±6% or greater. <u>[] {</u> error value | and/or tool cable as tool failure or S.G M.S |
| 53.5 | | alternates on DPM & buzzer. | wire break is suspected. |
| <i>L XLE</i> . | CAL error | Sensor deviation under rated | * Confirm that sensor is set to appropriate |
| | | strain volt is $\pm 6\%$ or greater than | side as the tool demands (upper right). |
| | | CAL. L'HLL./error value alternates | * Make sure that ZERO/CAL check is not |
| 9,00 | A L | on DPM & buzzer. | made by RESET signal during operation. |
| nnu.c. | Angle I/F | Connection failure or break of | • This is an error of F-element-used nut- |
| | enor | damage resolver failure | runners. Fix it in conjunction with F- |
| | | | element dedicated setting. |
| | | | * Enter 3 or 7 in CONTROL method if the |
| | | | |
| RbnE. | Angle I/F | Angle I/F failure. Or, angle I/F and | tool is UDP of UDBP-AF2. |
| | board not | UECP connection error. | • This is an error of F-element-used nut- |
| | connected | | runners Fix it in conjunction with F- |
| | error | | clement dedicated catting |
| b88 | Buffer full | Waveform buffer is full buEE/ | |
| 001.L. | alarm | torque alternates on DPM & | Buffer capacity depends on data contents. |
| | | buzzer. | Enter 1 or 4 in WAVE MEM FANC, and |
| | | | UECP will switch off this function. |
| 5. <i>E</i> . | Setting error | Tool is inoperative. Conflicted | * Review the values and correct them. |
| | | setup, such as START > CUT | * For UDBP-AFZ case, correct the values |
| | | sign on DPM & buzzer UDBP- | and restart the tool |
| | | AF7 received RESET initializing | |
| | | its parameter to conflicted setup. | |
| ULUE. | Valve dis- | Misallocate signal 16:VALVE to | * Enter 0 in VALVE CHECK of MODE setup |
| | connect error | IN terminal, and UECP will | * Do not allocate signal 16:\/ALVE to IN |
| | | provide this error even if UDP | |
| | | does not owe to VALVE terminal | terminais. |
| | | shutoff (this is not an error, but | |
| 1.05 | Initial error | Torque reached CUT but elapsed | |
| 6 6+6+ | | time from START was shorter | * Study START to CUT time consumed by |
| | | than initial timer. LOF. /torque | OK fasteners to adjust initial timer or |
| | | alternates on DPM & buzzer. | cycle timer. |
| E YL E. | Cycle error | Torque failed to reach CUT before | * Check tool capacity, speed, current, bolt |
| | | cycle timer was up. [<u>YL</u> /torque | state, setup, MODE, etc. |
| 0151 | D. I. J. O.M. | alternates on DPM & buzzer. | * Check START and CUT values |
| | Puise LOW | LOW pulse error. PLSi./torque | * Check re-bit a fastener or cross thread |
| <i>P</i> ! 58 | Pulse HIGH | HIGH pulse error 2158 /torque | |
| 1 6 20 4 | | alternates on DPM & buzzer. | Check too long timer setup, less oil in |
| RnūL. | Angle LOW | LOW angle error. Rout./torque | pulse unit, motor deterioration. |
| | - | alternates on DPM & buzzer | * Check whether limit setup of pulse and |
| Ялб.Н | Angle HIGH | HIGH angle error. ՑոնՑ/torque | angle numbers. |
| | | alternates on DPM & buzzer. | |

| Error | Errors | What error? | Trouble shooting |
|----------------|---|---|---|
| sign | | | |
| F <u>F</u> . | Incomplete job error | Operation was interrupted before judgment. <i>F<u>F</u></i> /torque alternates on DPM & buzzer. | * Check premature trigger off. * Check if START torque is reasonable. * Review JUDG DELAY BEF timer. * Check tool capacity, speed and current. |
| SLE. | START torque error | External signal started fastening and timer but torque did not reach START torque at timer maturity. <u>51.5.</u> /torque alternates on DPM & buzzer. | * They are error messages of F-elements- used nutrunners. UECP will not detect these errors unless it functions normally. Check fasteners when no other cause is found. |
| C YOE. | Cycle over error | External signal started fastening and timer but torque did not reach CUT torque at timer maturity. [YIIE. /torque alternates on DPM & buzzer. | * Enter 0 in ST.TORQUE ERRO of MODE except for nutrunners. * Enter 0 in CYCLE OVER of MODE except for nutrunners. |
| YELLOW lamp | TORQUE LOW | Torque did not reach torque LOW limit. Yellow lamp lights with torque on DPM & buzzer. | Check tool capacity, speed, current, bolt |
| RED lamp | TORQUE HIGH | Final torque was above HIGH limit. Red lamp lights with torque on DPM & buzzer. | state, seup, MODE, timer, etc. |
| 5nt.E. | Snug error | Torque was less than snug torque when SNUG timer was up. 5 n έ. ξ. /torque alternates on DPM & buzzer. | |
| SnūL. | Snug angle low error | Angles START to SNUG were less than SNUG angle low limit. $\frac{5\pi L}{1}$ /torque alternates on DPM & buzzer. | * They are error messages of F-elements- used nutrunners. UECP will not detect these errors unless it functions normally. Check fasteners when no other cause is |
| Snû.K | Snug angle high error | Angles START to SNUG were greater than SNUG angle high limit. $\int du R/t$ torque alternates on DPM & buzzer. | found. * Enter 3 in THIGHTENING MOD of MODE except for nutrunners. |
| FrE.E. | FREE RUN LOW (UDBP- AFZ) | Free run angles of 400 msec to START were less than low limit. $Fr \underline{\xi} \underline{\xi}$ /torque alternates on DPM & buzzer. | * Check if START torque is appropriate. * Check if the angles are too low. * Check if it is due to initial engagement not |
| 2tr.E. | Two-time hit error (UDP- MC) | Motor angles of trigger to START were less than low limit. <i>dcr.t.</i> / torque alternates on DPM & buzzer. | requiring error judgment? |
| Ε οΠΕ. | URYU- standard communi- cation error | URYU-standard communication failed to maintain UECP to server communication. | * Check server and LAN cable. * Replace damaged one with a new one. * Check "Lifecheck Time" setting. |
| GPE.E. | GP error | Global Pokayoke communication disconnected. | * Check if DATA OUT setup is correct. * Confirm Pokayoke side power communication cable, etc. |
| SrUE. | Server error | No data comes to server. Sr U.E. comes on DPM & buzzer. | * Check LAN-related setup is appropriate. * Check LAN cable. |

| Error | Error & alarm | What error? | Trouble shooting |
|-----------------|---------------|---|--|
| sign | | | |
| UdP.1 | NAK response | UDP send NAK respose to UECP | |
| | from UDP | because UDP could not correctly | |
| | | receive existence-confirming signal | * Check if tool is connected to UECP. |
| | | sent from UECP. | * Replace tool & the cable with a new one. |
| UdP.2 | NAK response | UDP send NAK respose to UECP | |
| | from UDP | because UDP could not correctly | |
| | | receive setup value sent from UECP. | |
| UdP.3 | NAK response | UDP send NAK respose to UECP | |
| | from UDP | because UDP could not correctly | |
| | | receive various command signals | |
| | | sent from UECP. | |
| UdP.4 | No response | UDP not respond to existence- | |
| | from UDP | confirming signal from UECP. | |
| <i>üd</i> P.5 | No response | UDP not respond to setup value form | * Check if tool is connected to UECP. |
| | from UDP | UECP. | * Replace tool & the cable with a new one. |
| UdP.b | No response | UDP not respond to various | |
| 6.9. | from UDP | command signals from UECP | |
| <u>tr.Ul</u> | ROM error | On-board ROM fails or malfunctions | |
| <u> </u> | RAM error | On-board RAM fails or malfunctions | Replace UECP with a new one. |
| <u> </u> | FILTER error | On-board filter IC fails | |
| čr.ü3 | A/D error | On-board A/D fails or malfunctions | * Replace tool or cable with a new one. |
| 17115 | | | * Replace UECP with a new one. |
| <i>d 2</i> 4.E. | DC24V error | DC24V fuse blowout causes: | Replace the DC24V fuse by referring to |
| | | IN terminals not receive signals and | 18.2 DC24V fuse replacing process. |
| | | +24V not provide power (OUI | * UECP itself is not powered on if AC 10A |
| | | terminals remain alive). | fuse is blown out (4.2 Rear Panel (2)). |
| Udn.E. | Sensor dis- | No tool is detected due to cable short- | * Make certain of tool and UECP hook up. |
| | connect error | circuit, incomplete physical hook up | It udn.c. sign remains after |
| | | or tool failure. | reassurance, replace tool and the cable |
| | | | with a new one. |
| 66116 | | Control tools overteen foile | Enter 4 in POLS/STALL for non-use. |
| | | Control task system fails. | * Make enother the of Uzig01 physical |
| <i>n</i> E E.E. | INET Mask | switch on DECP but failing to | Make another try of Ozigo'i physical |
| | enor | | * Chock Uzig01 adoptor and |
| | | | |
| | | | * Confirm PC COMM SPEED is setup 3 |
| | | | * Change TIGHTNING MOD to other than |
| | | | 7 if you do not use UDBP-AF7 |
| EcOS | SAM error | Setup data in RAM has troubles | If RES. operation or restart LIECP clear |
| 21.024 | | | this error suspect noise tampering setup |
| | | | data in RAM SAM error cancel by RES. |
| | | | initializes RAM Make the setup from the |
| | | | scratch. |
| GPP.E. | PROGRAM | Pokayoke or server gave UECP an | Check the number that Pokavoke or |
| | number error | out-of-range number. | server |
| | | , , , , , , , , , , , , , , , , , , , | gave UECP. |

| Error | Error & alarm | What error? | Trouble shooting |
|------------------|-------------------|--------------------------------------|--|
| sign | | | |
| črüð | SD card error | Card failure, card slot failure, low | * Format the card before use. |
| | | memory, reading/writing failure, | * Reassure card insertion. |
| | | use of card greater than 32GB. | * Replace card/UECP with a new one. |
| | | | * Use card with capacity up to 32GB. |
| SddF | SD card full | Card runs short of memory space. | Replace with a new SD card. |
| <i>E</i> . | Minus | Torque reached CUT but the | * Check tool & UECP polarity agreement |
| | CUT error | polarity was minus (-) due to wire | (see 10. Polarity change). |
| | | break within cable or torque sensor. | * Replace tool or cable with a new one. |
| | | | * Enter 4 in PULS/STALL for non-use. |
| UdP.E. | UDP error | Communication with UDP breaks. | * Check tool and cable. Replace them if |
| | | * At above 80 deg., heat protector | they are found damaged (make unplug |
| | | functions to turn off UDP motor. | & plug with UECP switched off). |
| | | * Wire is disconnected or cut. | * Replace UECP with a new one. |
| | | | * Reduce UDP temperature. |
| | | | * Communication restart clears this error. |
| <i>Е с РЕ</i> . | Warning | Cumulative pulse number reaches | * Make maintenance (oil & parts replace- |
| | PULSE | maintenance cycle. | ment). |
| tcKE. | Warning | Cumulative fastener number | * Set next maintenance pulse or count |
| | COUNT | reaches maintenance cycle. | numbers. |
| r PKE. | Repair | Cumulative fastener number | * Repair or replace the tool. |
| | COUNT | reaches repair cycle. | * Set next repair count or pulse numbers. |
| - PP <u>.E</u> . | Repair | Cumulative pulse number reaches | |
| | PULSE | repair cycle. | |
| EOUP | Memory full | Free memory is 10 pieces away | * Have memory stored outside UECP. |
| | | from maximum number. | * Clear UECP memory. |
| | | | * Review memory-related setup contents |
| | | | if this alarm is not necessary. |
| 6Ph.E. | Pokayoke error | Server sent cycle END signal to | Force-quit the cycle. Or, press RES |
| | | UECP having unfinished fasteners | |
| | | instructed by pokayoke. | |
| E PU.E. | CPU system | UDBP on-board CPU gets hot. | |
| | error | | |
| Udt.E. | Motor system | UDBP internal communication error | |
| | error | between control board and motor. | |
| <i>ь22.</i> Е. | ZigBee system | UDBP on-board control board error | Replace the tool with a new one. |
| | error | | |
| <i>ЪЯŁ.Е.</i> | Battery system | UDBP battery failure | * Check if battery is successfully loaded. |
| | error | | * Replace the battery with a new one. |
| Rdt.E. | AD torque | * UDBP sensor A/D failure | Replace the tool with a new one. |
| | system error | * UDBP internal wiring break/cut | |
| L.bRE. | Battery low error | UDBP battery is approaching low | * Recharge the battery and reload. |
| | | limit. | * Detach battery from tool when not in |
| | | | use. |
| r 88.8. | Encoder errow | UDBP rotary encoder failure | Replace the tool with a new one. |

| UDP tool errors | | | | | | |
|---|--|--|---|--|--|--|
| Error display | What error? | State | Trouble shooting | | | |
| Rear LED lights GREEN & RED alternately. | * Setting error * Self-diagnosis | Tool is inoperative with 5. <i>5.</i> sign on UECP's DPM. | * Refer to above 5.5. setting error. * Check tool and UECP. Replace them if they are found damaged (make unplug & plug with UECP switched off). | | | |
| | Communication error | Tool is inoperative. | * Make certain of tool and UECP hook up. * Check tool, cable and UECP. Replace them if they are found damaged (make unplug & plug with UECP switched off). | | | |
| Rear LED flashes in RED (RED: 0.8s, Lights out: 0.2s) | Over heat error | UECP stops the tool for over heat prevetion by internal temperatures of above 80 degree within motor. | * Review operation frequency. * Switch to one larger size tool. * Tool is operative again if the temperature is reduced to below 80 degree. | | | |
| Rear LED lights YELLOW and RED alternately. | Over current error | UECP stops the tool for over current protection by 4A or higher for 6 sec or longer. | * Check if fasteners' condition is normal. * Check if tool's performance is down. * Switch to one larger size tool. | | | |
| Abnormal action | * Wire break of tool or cable * Tool failure | Rotate out of range speed or fastening is interrupted despite in progress. | Check tool and cable. Replace them if they are found damaged (make unplug & plug with UECP switched off). | | | |
| Abnormal statistic data receipt by PC | PC & UECP have different setups. | * Data sorting between them disagrees. * Work numbers between them disagrees. | Make both setups the same. | | | |
| UECP and server n | o communication | Wrong Ethernet cable | Definitely use 10BASE-T or 100BASE-T. | | | |
| Error display | State | | Trouble shooting | | | |
| <i>SUITE</i> (SUM check error) Uzig01 & UECP communi-cation error | UECP displays to it does not displa Multi Uzig01s s allocated to the to | orque for no operation. Or, y torque despite operation. share a single PAN ID pol in operation. | * Give each Uzig01 a unique PAN ID. * Confirm environmental radio wave con- dition and use the most suitable channel. | | | |
| Tool not run | * Tightening mod * Heat protector f * WORK change UECP after prosectup 5 in LINE section state). * Attempted to fix | e is not suitable. unctioned to turn off tool. e signal does not come to oviding COUNT OK under E CNT.SELEC (out of work over preset fasteners. | *Reassure 7 is in TIGHTENING MOD. *Reduce motor temperature below 80 deg. *Reconfirm WORK change signal provision. *Do not try to fix extra fasteners. | | | |

17. Others

17.1. Cleaning

To wipe stain off the body, use soft clothes soaked with a small amount of water or neutral detergent.

17.2. DC24V fuse replacement method

•how to replace DC24V fuse

①Turn off UECP and disconnect power plug from wall socket.
②Remove black color covering plate from UECP to find DC24V

Fuse on main circuit board. Right figure shows view seen from the ceiling, and the top is DPM and LCD side.

③Open 8 screws fixing black color covering plate and remove the plate.

④Pull out DC24V fuse vertically up from main circuit board.

⑤Insert a new fuse to the bottom. Either direction is okay because 2-pin fuse has no polarity.

Use URYU genuine fuse whose code number is 909-814-0 Fuse HM10(1A). When replacing fuse damaged by short-circuit, fix the short-circuit problem first. Fuse replacement without fixing the problem will repeat the same trouble.



how to replace AC fuse

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

2 When 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).



URYU SEISAKU,LTD Combo Controller for URYU electric UDP-MC Tools UECP-4811 Instruction Manual Ver.1.0 P.O.BOX 7 Higashinari,Osaka,Japan. URL : <u>http://www.uryu.co.jp/</u>