

Product Details

Take fastening accuracy and quality manufacturing to a higher level with Panasonic's next generation transducerized mechanical pulse tool.

AccuPulse 4.0 offers the advanced precision, comprehensive data collection and best-in-class reactionless ergonomics. Four onboard microcomputers and transducer intelligently manage torque sensing, motor control, power, and wireless communication for an Industry 4.0 compatible assembly solution like no other.

Key Features

- One-hand cordless operation with no reaction for increased worker safety and freedom of movement
- Durable high resolution non-contact torque sensor for reliable torque measurement
- · Patented torque traceability and torque curve detection algorithm for high accuracy
- · Double hammer mechanism for optimized torque calculations
- Advanced programmable features for greater productivity and plant automation
- Wireless 2-way communication
- Data collection for monitoring torque, angle, time, OK/NOK, pulses and graph
- Eco-friendly, low maintenance and energy efficient





| Model Number | EYFMH2RC | EYFMH2RP | EYFMH1RC | EYFMH1RP |
|--------------|--|---------------------------|---------------------------------------|-------------------------|
| | | | | |
| Torque range | 50-120Nm | 50-120Nm | 20-60Nm | 20-60Nm |
| Anvil type | C = 1/2" Sq. C-Ring w/ through Hole | P= 1/2" Sq. Pin Detent | C= 1/2" Sq. C-Ring w/ through Hole | P = 1/2" Sq. Pin Detent |
| Anvil size | | И | 2 in | • |

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Tool bolt torque range

The chart below is a general recommendation. Joint rate from soft - hard will affect the torque range.

| AccuPulse 4.0 Recommended Bolt Size | | | | | | | | | |
|--|-----|----|-----|--|--|--|--|--|--|
| Model Bolt Size Min Torque (Nm) Max Torque (Nn | | | | | | | | | |
| | M8 | 20 | 50 | | | | | | |
| | M10 | 20 | 60 | | | | | | |
| | M10 | 50 | 80 | | | | | | |
| EYFMH2 | M12 | 50 | 120 | | | | | | |
| | M14 | 80 | 120 | | | | | | |

Tool to Bolt Chart

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Quick Guide Overview

AccuPulse 4.0 Transducerized Mechanical Pulse Tools

- Initial tool setup will require running down the same joint more than once In the Adjust Torque Offset to get the Initial joint signature to match the audit torque. That joint signature will be unique for that application.
- It's recommended to use new hardware for each rundown during Adjusting Torque Offset setup.
- After each rundown connect the tool to read the data and perform the offset calculation.
- On multi fastener setup, especially with mean shift characteristics, select the bolt with medium to soft joint, not the hardest joint for initial setup. This gives the best average results across the batch.
- Items needed for setup:
 - Digital torque wrench or rotary transducer for static audit only
 - Do Not run rotary inline with tool
 - PC with software and cable

Table of Contents

- Getting started.....4
- Connect the tool.....5
- Initial setup......6
- New Parameter Setup......7
- Offset Setting......8
- Minimum Output Mode.....9
- Saving parameters.....11
- Parameter setting and limit Explanations......12
- CMK Study......13
 Graph Display.....14



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Getting Started

- Download and unzip the software from the Link below
- Open Tool Manager software folder
- Follow the path below to the Install.exe and select
- When the tool manager installation opens, select next and follow the onscreen instructions

Software link: https://na.panasonic.com/us/support/accupulse-40-resources





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Connecting the Tool

- Open Tool Manager software, plug the tool into the USB if you haven't already
- Pull the trigger to wake the tool if the tool is not already awake
- A Pair Tool screen will popup. Press Pair Tool button
- The paired tool will highlight in blue in the left column. The tool list will include all tools previously connected tools, up to 9 tools

| File Option Help | Pair Tool | | | | | | |
|---|--|----|---------|----------------|-------------------------|----------------------------|----------------------------|
| Open Tool | USB Serial Device (COM5) | | | | | | 201 |
| EVEMH2RC MH2RC20210014 EVEMH1RC MH1RC20210009 disconnected | Model EYFMH2RC Serial MH2RC20210014 | | | | Comment | Expo | ort |
| | Pair Tool Cancel ne | ne | Message | NOK Message | Shut-off Torque [Nm] | Upper Torque Limit [Nm] | Lower Torque Limit [Nm] |
| | | | | | | | |
| | | | | | | | > |

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Initial setup

- The tool will contain the last parameter written to the tool if it's been used before or default values if it's a new tool
- Under the Parameter tab to select Read From Connected Tool to see current tool parameters to edit or save.

| File | Option | Help | | | | | | | | | | | | |
|------|----------------------|-------------|--------------|---|---------------------------|----------|---------------|-----------------|--------|-------------------|------------------|-----|----------|-----|
| | Open Too | bl | | E | EYFMH1RP IH1RP21100008 | | | | | | | | | 3 |
| | EYFMH1 MH1RP2110 | RP 10008 | | | History Parameter | > | | | | | | | | 20 |
| Z | EYFMH2I MH2RP2110 | RP 10037 | disconnected | | Import Parameter File | î | Read From Cor | nnected Tool | | | | | | |
| 3 | EYFMH1 MH1RP2110 | RP 10011 | disconnected | - | Create New | ` | Write | to Tool Sav | e Para | meter Copy Para | meter Comm | ent | Export | |
| 7 | EYFMH2I MH2RP2110 | RP 10038 | disconnected | | MH1 Validation 25Nm | | Torque | Shut-off Torque | | 20.0 Nm | | | | ^ |
| 7 | EYFMH1 MH1RP2110 | RP 10003 | disconnected | | MH1 Validation 35Nm | | | Upper Limit | | 999.9 Nm | 🗹 Lower Limit | | 0.0 Nm | - 6 |
| Z | EYFMH2I MH2RP2111 | RP .0001 | disconnected | | MH1 Validation 50Nm | | | Tolerance | | 4899.5 % | Tolerance | | -100.0 % | |
| | EVEMHO | DD | | | MH1C Validate 22 | | | Offset | Adi | | Default | | | |
| 1 | MH2RP2110 | 00014 | disconnected | | MH1P Validation 22 | | | onset 🕓 | Auj | ust forque offset | Derault | | | |
| Z | EYFMH2I MH2RP2110 | RP 10013 | disconnected | | MH2 120Nm Validate | | | Offset_Slope | ? | 25.00 | Offset_Intercept | ? | 5.00 | |
| * | EYFMH2 | ₹Р | | | MH2 80Nm NG 100PTC | | | | | | | | | - |
| - | MH2RP2110 | 0001 | disconnected | | MH2 80Nm Validate | | Angle | Angle Before Sr | nug | | | | | |
| | | | | | newParameter | | | 🗹 Upper Limit | | 99999 degree | 🗹 Lower Limit | | 0 degree | |
| | | | | | Test 30 | | | Angle After Snu | g | | | | | |

- Copy Parameter to save the tools parameter if you don't want to lose that parameter
- Create New to setup for a new application
- Parameters will be archived in the parameter list

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New Parameter Setup

- 1. Select Create New Always start a new assembly with Create New and default offset values
- 2. A Popup window appears to name the Parameter, then select add
- 3. Select Adjust Torque Offset. A "Adjust Torque Offset" window will pop up and you will begin the process of matching the tool torque algorithm to the audit torque

| File Option Help | |
|--|--|
| Open Tool | EYFMH1RP MH1RP21100008 |
| EYFMH1RP MH1RP21100008 | History Parameter |
| T EYFMH2RP MH2RP21100037 disconnected | Import Parameter File |
| T EYFMH1RP MH1RP21100011 disconnected | Create New Read From Connected Tool Write to Tool Save Parameter Copy Parameter Comment Export |
| T EYFMH2RP MH2RP21100038 disconnected | MH1 Validation 25Nm Media North Lange Community Communit |
| T EYFMH1RP MH1RP21100003 disconnected | MH1 Validation 35Nm |
| T EYFMH2RP MH2RP21110001 disconnected | MH1 Validation 50Nm Mode Setting ⑦ ○ Wireless Communication Mode |
| EYFMH2RP MH3RP31100014 disconnected | MHIC Validate 22 |
| * EYFMH2RP | MH2 120Nm Validate |
| MH2RP21100013 disconnected | Pinta fazinin validate |
| EYFMH2RP MH2PP21100001 disconnected | MH2 80Nm NG 100PTC Tolerance 4899.5 % Tolerance -100.0 % |
| | MH2 80Nm Validate Offset Offset Offset |
| | newParameter(1) |
| | newParameter Offset_Slope (?) 25.00 Offset_Intercept (?) 5.00 |

| | Default Offset Values | | | | | | | | | |
|----|-----------------------|--------|-----------|-----------------|------|--------|-----------|-----------------|--|--|
| | Tool | Slope | Intercept | Unit of Measure | Tool | Slope | Intercept | Unit of Measure | | |
| es | | 25Nm | 5 | Nm | | 55 | 25 | Nm | | |
| | MH1 | 221.24 | 44.25 | in.lbs | MH2 | 486.73 | 221.24 | in.lbs | | |
| | | 18.44 | 3.69 | ft.lbs | | 40.56 | 18.44 | ft.lbs | | |

Default Offset Values

- If the assembly has multiple fasteners and mean shift issues, use the softer to middle joint to initially setup the tool.
- Use the minimum output mode to determine the fasteners minimum torque discussed on page 8

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Adjust Torque Offset matching the tool torque algorithm to the audit torque

- 1. Choose the socket length including the extension
- 2. Type in the target torque for Shut-off torque
- 3. Continue Offset to store the value in the tool
- 4. Unplug the tool and rundown the fastener
- 5. Use a digital torque wrench to check the residual torque for the Audit torque Value required for step 8



- 6. Plug tool back in
- 7. Select Acquire to upload the tool rundown data.
- 8. Input the Audit Torque Value from the static audit
- 9. Select Check to calculate the new offsets
 - The offset slope and intercept will change, adjusting the tool torque signature to the audit torque
- **10**. Continue Offset to write the new values to the tool.
- 11. Repeat from step 4 until the % column and offset value Turn green indicating torque values are within 5%
- 13. Update & Exit when 5% is met

Note: If the tool is not shutting Off

- Harder joints and higher torque may cause the tool to not shut off
- Go back to the parameter page
 - Increase Offset slope by 5 incrementally (55-60) for a MH2.
 - Increase Offset Slope by 3 incrementally (25-28) for MH1
- Go back to Adjust Torque Offset and try the procedure again

| Offset | | | | | |
|--------|------------------------|-------------------------|------------------|------------------|-------------------------|
| ۵ | | | | | |
| | Tool Torque Result | [Nm] Audit Torque Value | e [Nm] % | Offset_Slope | Offset_Intercept |
| | 20.86 | 21.00 | 100.7 | 26.88 | 4.52 |
| | 20.32 | 23.00 | 113.2 | 28.25 | 0.66 |
| | 20.01 | 18.46 | 92.2 | 25.00 | 5.00 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| So | ocket Extension Length | 40mm 1.5inch 🗸 👖 | | Shut-off Torque | 2 20.0 Nm |
| То | ool Torque Result | Acquire 7 | | Audit Torque Val | ue <mark>8 21</mark> Nm |
| 9 | Check | Offset_Slope 25.68 | Offset_Intercept | 5.52 | |
| | Minimum Output Mode | 13 | 3 / | / 10 | |
| | | Update & Exit | Continu | ue Offset | |

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Minimum Output Mode

If you receive unexpected results during the Adjust Torque Offset or cannot achieve the lowest torque needed, use the "Minimum Output Mode" to qualify the bolt.

Test the bolts for minimum torque possible. Follow below

- 1. Change to 1500 rpm on the parameter page to get lower torque if required
- 2. Select the socket extension length
- 3. Select "Minimum Output Mode"
- 4. Select "OK"
- 5. Unplug the tool and run each bolt down that you want to test
- 6. Do a static audit of each bolt

That audit will be the minimum torque capable for that tool to bolt

*After the Minimum Offset Mode has been made or not required, uncheck the Minimum Offset Mode and continue to the next slide

Note: If you setup on bolts that cannot reach minimum torque required without testing, you will get unreliable torque results

Use the procedure described and stay within the torque to bolt range and the tool will be very reliable

|] Tool Tora | ue Result | [Nm] 4 | udit Torque V | alue [Nm] | % | Offset Slope | Offset Inte | rcent |
|----------------|------------|-----------|---------------|-----------|-----------|-------------------|-------------|-------|
| 1 10011014 | | [] , | aut torque t | nee [min] | 70 | onset_stope | onset_inte | reepe |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Informatin | | | | | | | |
| | Writing | parameter | s succeeded. | | | | - | |
| | | | | | | | | |
| | | | | | | ОК | | |
| Socket Extens | ion Length | 40mm 2ind | :h v | | | Shut-off Torque | 140.0 | Nn |
| Tool Torque Re | esult | Acquire | | | | Audit Torque Valu | e | Nn |
| Check | | Offset_Sl | ope 40.00 | Offset_I | Intercept | 0.00 | | |
| CITCON | | > | | | | | | |
| Minimum Out | tout Mode | | | | | | | |

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Appendix

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Saving Parameters

After adjusting torque offset you will close and return to this main screen. You can see below the new offset value As a part of the unique algorithm for that assembly

Write to Tool

Write to the tool will erase the previous parameter in the tool and replace it with the highlighted parameter selected from Parameter column

Save Parameter

Save Parameter will overwrite and save changes that are made to the selected parameter

Copy Parameter

Copy Parameter copies the selected parameter. A popup window will prompt for a name and any comments you want to add to the copy. The new parameter will be listed under the Parameter tab

Export

Export highlighted parameter to a .csv file to archive saved parameters to a file. The saved files are used for uploading to a controller or imported for stand alone use

| History Parameter | |
|--------------------------|--|
| Import Parameter File | Read From Connected Tool |
| Create New | |
| Read From Connected Tool | Write to Tool Save Parameter Copy Parameter Comment Export |
| MH1 Validation 25Nm | Model Number EYEMH1RP |
| MH1 Validation 35Nm | |
| MH1 Validation 50Nm | Mode Setting 🕐 🔿 Wireless Communication Mode 💿 Stand Alone Mode |
| MH1C Validate 22 | |
| MH1P Validation 22 | Torque Shut-off Torque 20.0 Nm |
| MH2 120Nm Validate | Upper Limit 999.9 Nm 🗹 Lower Limit 0.0 Nm |
| MH2 80Nm NG 100PTC | Tolerance 4899.5 % Tolerance -100.0 % |
| MH2 80Nm Validate | Offset ⑦ Adjust Torque Offset Default |
| newParameter(1) | |
| newParameter | Uffset_Slope |

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Settings and Limits Explanation

Mode Setting 🕐 🔿 Wireless Communication Mode 💿 Stand Alone Mode

- Mode setting turns wireless communication on/off.
- · Wireless Communication enable wireless communication for pairing to the controller
- Stand Alone is no wireless communication.

| Torque | Shut-off Torque | 50.0 Nm | | |
|--------|-----------------|----------------------|------------------|---------|
| | 🗹 Upper Limit | 65.0 Nm | 🗹 Lower Limit | 35.0 Nm |
| | Tolerance | 0.0 % | Tolerance | 0.0 % |
| | Offset 🕜 | Adjust Torque Offset | Default | |
| | Offset_Slope | 39.02 | Offset_Intercept | 0.11 |

- Shut off torque is the target torque
- Upper and lower limits for minimum and maximum allowable torque for OK/NOK. If the final rundown torque is above or below the limits, the tool will display NOK
- Offset is automatic offset adjustment during Adjust Torque Offset procedure. Alignment of tool torque to Static torque
- Default will change the offset values to default

| RPM | No Load Speed | 0 | 2300 rpm |
|-----|------------------|---------|----------|
| | Variable Speed 0 | Control | 0 |

- No Load speed rpm speed before the tool begins to pulse or see a load. Selectable from 1500 to 2300, in 100 rpm increments
- Variable speed is rpm speed before load depending on depth the trigger is pulled

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CMK Report

| | Machin | e Capab | ility Study | | | gine | | | | | | | |
|------------------------|------------|--------------|------------------|------|-------------------|------------------|-------|--|--|--|--|--|--|
| | | | | | | | | | | | | | |
| Result: | | ОК | | | | | | | | | | | |
| Accepable min. Cmk: | | 1.67 | | | | | | | | | | | |
| Date/Time: | | 2021-10-21 1 | 2021-10-21 16:50 | | | | | | | | | | |
| Sensor Serial Number | | M1B4EF0 | M1B4EF0 | | | | | | | | | | |
| Tool Type: | | EYFST20NM | EYFST20NM | | | | | | | | | | |
| Tool / Part No.: | | | | | | | | | | | | | |
| Tool / Part Name: | | | | | | | | | | | | | |
| Batch: | | | | | | | | | | | | | |
| Comment: | | | 1 | 1 | 1 | | 1 | | | | | | |
| Target Value [Nm]: | | 20,0000 | | | | | | | | | | | |
| | | 10.00% | | | | | | | | | | | |
| +Tolorance (Nm): | | 2 0000 | | | | | | | | | | | |
| -Tolerance [Nm]: | | 2.0000 | | | | | | | | | | | |
| Linner Limit [Nm]: | | 22.0000 | 22.0000 | | | | | | | | | | |
| Lower Limit [Nm]: | | 18 0000 | 18.0000 | | | | | | | | | | |
| Lower Linit [Min]. | | 10.0000 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Count (n): | | 10 | | | | | | | | | | | |
| Process Mean (x) [Nm | ז]: | 19.8144 | 19.8144 | | | | | | | | | | |
| Max. [Nm]: | | 20.3030 | 20.3030 | | | | | | | | | | |
| Min. [Nm]: | | 19.3730 | 19.3730 | | | | | | | | | | |
| Spread (R) [Nm]: | | 0.9300 | 0.9300 | | | | | | | | | | |
| Standard Deviation (s) |): | 0.321942 | 0.321942 | | | | | | | | | | |
| 6 Sigma (6 s): | | 1.931655 | 1.931655 | | | | | | | | | | |
| Cm: | | 2.07 | 2.07 | | | | | | | | | | |
| Cml: | | 1.88 | 1.88 | | | | | | | | | | |
| Cmu: | | 2.26 | | | | | | | | | | | |
| Стк: | 1 | 1.88 | | 1 | | 1 | 1 | | | | | | |
| | | | | | | | | | | | | | |
| No. | Date | Time | Max. | Unit | Dev. (Target) [%] | Dev. (Mean) [Nm] | Valid | | | | | | |
| 1 | 2021-10-21 | 16:48:07 | 19.8010 |) Nm | -0.995% | -0.0134 | TRUE | | | | | | |
| 2 | 2021-10-21 | 16:48:16 | 20.1300 |) Nm | 0.650% | 0.3156 | TRUE | | | | | | |
| 3 | 2021-10-21 | 16:48:25 | 20.3030 |) Nm | 1.515% | 0.4886 | TRUE | | | | | | |
| 4 | 2021-10-21 | 16:48:35 | 20.2030 |) Nm | 1.015% | 0.3886 | TRUE | | | | | | |
| 5 | 2021-10-21 | 16:48:44 | 19.4770 |) Nm | -2.615% | -0.3374 | TRUE | | | | | | |
| 6 | 2021-10-21 | 16:48:54 | 19.8380 |) Nm | -0.810% | 0.0236 | TRUE | | | | | | |
| 7 | 2021-10-21 | 16:49:03 | 19.8410 |) Nm | -0.795% | 0.0266 | TRUE | | | | | | |
| 8 | 2021-10-21 | 16:49:12 | 19.7150 |) Nm | -1.425% | -0.0994 | TRUE | | | | | | |
| 9 | 2021-10-21 | 16:49:21 | 19.4630 |) Nm | -2.685% | -0.3514 | TRUE | | | | | | |
| 10 | 2021-10-21 | 16:49:30 | 19.3730 |) Nm | -3.135% | -0.4414 | TRUE | | | | | | |

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Graph result display from AccuPulse 4.0 tool manager program



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