DPharp EJX Series can perform remote setting and monitoring of measuring ranges, damping time constant, etc. through a HART protocol revision 5 (HART 5) and revision 7 (HART 7) compliant configuration tool.

**FEATURES**

- **Remote Ranging and Monitoring Functions**
  Ranges can be remotely set and monitored through HART communication.

- **On-line Communication**
  Output signal and communication signal do not interfere making on-line communication possible.

- **Enhanced Burst Mode and Event Notification (HART 7)**
  Advanced burst mode includes the variety of transmission setting by specifying burst variables, update period, and message trigger mode, and event notification function gives you alert signal based on the status change in preset values and self-diagnosis.

- **Long Tag Supporting Up to 32 Characters (HART 7)**
  Long tag secures a better asset management with abundant digits in its software.

- **Self-Diagnostic**
  Pressure input outside of range limit, excessive ambient temperature, incorrect span setting etc. can be diagnosed through HART communication.

- **HART protocol revision selectable**
  Selectable from HART 5 and HART 7.

- **NE107 Field Diagnostic Function**
  In NAMUR recommendation NE107, alarms are standardized into four status signals (Failure, Function Check, Out of Specification, Maintenance Required). This alarm management function can deliver recommended actions and appropriate diagnosis information for alarms to suitable persons.

**STANDARD SPECIFICATIONS**

For items other than those described below, refer to each General Specification sheet.

**HART Protocol Revision**

HART protocol revision can be selected from 5 or 7 when ordering. The protocol revision can be changed by user configuration.

**Write Protection Switch:**

Hardware/software write protection switch

**Conditions of Communication Line:**

Supply Voltage:
- General Use & Explosion proof Type
  16.6 to 42 V DC
- Intrinsically safe Type
  Refer to each General Specification sheet.

Load resistance;
See figure 1.

![Figure 1. Relationship Between Power Supply Voltage and External Load Resistance](image)
## FUNCTIONAL SPECIFICATIONS

Functional specifications for remote setting and monitoring

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DISPLAY</th>
<th>SETTING</th>
<th>SUMMARY</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag Number (Software Tag)</td>
<td>O</td>
<td>O</td>
<td>Up to 8 alphanumeric characters</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Long Tag (Software Tag)</td>
<td>O</td>
<td>O</td>
<td>Up to 32 alphanumeric characters (HART 7)</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Output Mode</td>
<td>O</td>
<td>O</td>
<td>LINEAR/SQUARE ROOT output</td>
<td>'LINEAR' unless otherwise specified in order</td>
</tr>
<tr>
<td>Display Function</td>
<td>O</td>
<td>O</td>
<td>LINEAR/SQUARE ROOT display</td>
<td>'LINEAR' unless otherwise specified in order</td>
</tr>
<tr>
<td>Display Mode</td>
<td>O</td>
<td>O</td>
<td>Input pressure, % of range, User set scale, Input static pressure, or % of static pressure range.</td>
<td>PRES %</td>
</tr>
<tr>
<td>Damping Adjustment</td>
<td>O</td>
<td>O</td>
<td>Software damping in 0.00 to 100.00 second</td>
<td>2 s</td>
</tr>
<tr>
<td>Lowest Limit of Calibration Range</td>
<td>O</td>
<td>O</td>
<td>Pressure equal to 4 mA value.</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Highest Limit of Calibration Range</td>
<td>O</td>
<td>O</td>
<td>Pressure equal to 20 mA value.</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Instantaneous Value of Input (Differential Pressure or Pressure)</td>
<td>O</td>
<td>–</td>
<td>Display actual Differential Pressure or actual Pressure.</td>
<td>–</td>
</tr>
<tr>
<td>Instantaneous Value of Output (Current)</td>
<td>O</td>
<td>–</td>
<td>Display actual % of calibrated span or 4-20 mA output value.</td>
<td>–</td>
</tr>
<tr>
<td>Unit of Calibration Range</td>
<td>O</td>
<td>O</td>
<td>in H₂O, in Hg, ftH₂O, mmH₂O, mmHg, psi, bar, mbar, g/cm², kg/cm², Pa, kPa, MPa, Torr, or atm</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Constant Current Output</td>
<td>O</td>
<td>O</td>
<td>4 to 20 mA DC</td>
<td>–</td>
</tr>
<tr>
<td>Self-diagnostic</td>
<td>O</td>
<td>O</td>
<td>Pressure input outside of range limits, Excessive ambient temperature, or Incorrect rangesetting.</td>
<td>–</td>
</tr>
<tr>
<td>Advanced Test Output</td>
<td>O</td>
<td>O</td>
<td>Simulate device variable for fixed PV output with filtering functions such as damping and low cut mode. (HART 7)</td>
<td>–</td>
</tr>
<tr>
<td>Burst Mode</td>
<td>O</td>
<td>O</td>
<td>Continuous transmission of following information (Max. three burst messages for HART 7)</td>
<td>–</td>
</tr>
<tr>
<td>Event Notification</td>
<td>O</td>
<td>O</td>
<td>Signal transmission triggered by detecting the setting change or the self-diagnostics as an event to alarm (HART 7)</td>
<td>–</td>
</tr>
<tr>
<td>Squawk</td>
<td>O</td>
<td>O</td>
<td>Identifying the transmitter by displaying the particular pattern on LCD (HART 7)</td>
<td>–</td>
</tr>
<tr>
<td>Multidrop Communication</td>
<td>O</td>
<td>–</td>
<td>Up to 15 (HART 5/63 (HART 7) transmitters can be connected. An analog signal output available for one device in a loop for HART 7.</td>
<td>–</td>
</tr>
</tbody>
</table>
MODEL AND SUFFIX CODES

EJX          A-J-/ Output signal . . . 4 to 20 mA DC with digital communication (HART 5/HART 7 protocol*)

*: HART 5 or HART 7 selectable. Specify HART 5 or HART 7 when ordering.

Selection guide for HART 5 and HART 7
Select HART 5 or HART 7 according to Table 1.

Table 1. Selection guide for HART 5 and HART 7

<table>
<thead>
<tr>
<th>Output signal code</th>
<th>Specified item when ordering “HART protocol revision”</th>
<th>HART protocol revision</th>
<th>Requirement for HART 7 functionality</th>
<th>Future change to HART 7</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>-E</td>
<td>Not Available</td>
<td>HART 5</td>
<td>Select when HART 7 functionality is not required.</td>
<td>Select when future change to HART 7 is not required.</td>
<td>*1</td>
</tr>
<tr>
<td>-J</td>
<td>Specify ‘5’</td>
<td>HART 5</td>
<td>Select when HART 7 functionality is not required.</td>
<td>Select when future change to HART 7 is not required.</td>
<td>*2</td>
</tr>
<tr>
<td></td>
<td>Specify ‘7’</td>
<td>HART 7</td>
<td>Select when HART 7 functionality is required. In this case, be sure to confirm that HART configuration tool supports HART 7 by Table 2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: Refer to each EJX General Specifications (GS 01C25B) regarding output signal code -E. The code -E is available for only HART 5. This code will be unified to the new code “-J”. Therefore the code “-J” is recommended for HART communication type.

*2: Indicate the most typical selection for HART communication. In case of selecting HART 7 without conforming to Table 2, communication will not be available. Select this when HART 7 functionality is not required.

HART protocol revision and communication
Protocol revision supported by HART configuration tool must be the same or higher than that of the EJX. HART 7 communication is supported by FieldMate R2.02 or later.

Table 2. HART protocol revision and communication

<table>
<thead>
<tr>
<th>Protocol revision of EJX</th>
<th>Protocol revision supported by HART configuration tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 5</td>
<td>Communication Available</td>
</tr>
<tr>
<td>HART 7</td>
<td>Communication Not Available</td>
</tr>
</tbody>
</table>
<Ordering Information>
Specify the following when ordering:
1. Model, suffix codes, and optional codes
2. Calibration range and units:
   1) Calibration range can be specified with range
      value specification up to 5 digits (excluding any
decimal point) for low or high range limits within
the range of -32000 to 32000.
   2) Specify only one unit from the above table, ‘Unit
      of Calibration Range.’
3. Select linear or square root for output mode and
display mode.
   Note: If not specified, the instrument is shipped set for
linear mode
4. Display scale and units (for transmitters equipped
with the integral indicator only)
   Specify either 0 to 100 % or ‘Range and Unit’ for
engineering units scale:
   Scale range can be specified with range limit
specifications up to 5 digits (excluding any decimal
point) for low or high range limits within the range
of -32000 to 32000. Unit display consists of 6-digit,
therefore, if the specified scaling unit excluding ‘/’ is
longer than 6-characters, the first 6 characters will
be displayed on the unit display.
5. Tag Number (if required)
   Specify tag number (up to 22 letters) to be
engraved on the tag plate. The specified letters
are written on “Tag” (the first 8 letters) and “Long
tag”(22 letters) in the amplifier memory.
6. Software tag
   Specify this software tag when tag number which is
different from the tag number specified in the “Tag
Number” is required. The tag number specified
in “SOFTWARE TAG” will be entered on “Tag” (the
first 8 letters) and “Long tag” (32 letters) in the
amplifier memory.
7. HART protocol revision
   Specify the HART protocol revision “5” or “7”.
   *1: Up to 32 characters are specified
   *2: Applicable only for HART 7

<Reference>
• “EJX” is a registered trademark of Yokogawa
  Electric Corporation.
• HART; Trademark of the HART Communication
  Foundation.