Remote Operation Instructions

HART Communicator 275
Asset Management Solutions (AMS)

ESKII

![Image of a meter with various readings and specifications]
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1 General Information
The ESKII is a two-wire transmitter with 4..20mA current output and HART™ capability. It can be mounted in H250 Variable Area Flowmeters with indicators M9 or M7. This document fills the gap between the „Installation and operating instructions H250“ and the online help available under AMS.

General characteristics of the ESKII HART™ interface:
- Multidrop Mode is supported.
- Burst Mode is not supported.
- The ESKII transmitter implements a fixed optimized damping value on both the digital process value transmitted via HART interface and the Analog Output.

2 HART Communicator 275 (HC275)

2.1 Installation
- Connection:
  Refer to the wiring diagrams and descriptions in the “Installation and Operating Instructions H250” (KROHNE) section 10.1.

- HC275 configuration:
  The HC275 has to be programmed with the ESKII HART Device Description (DD). Generally this must be done by the manufacturer or the distributor of the device. (If the ESKII DD is not programmed in the HC275 the transmitter self test can’t be executed, the Transmitter Specific Status Messages can’t be displayed and offline configuration is not possible.)

2.2 Operating
See ESKII Menu Tree HC275 (Attachment A).
The ESKII operating concept bases on the HART DD for generic devices with the following differences:
- Some parameters can only be read:
  sensor units, range values (upper/lower range value), damping value, transfer function, write protection, sensor units, final assembly number.
  (For calibration of both the ESKII output information and the mechanical indicator of the measuring instrument KROHNE offers a special program KroVaCal).
- Support of ESKII specific physical units
- Display format dependent on measuring range
- A ESKII Self Test can be performed and ESKII specific status messages can be displayed
- Meaning of General Status Messages:

<table>
<thead>
<tr>
<th>Status Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Device Malfunction</td>
<td>Set if any „Critical Error“ has been reported. Refer to Transmitter Specific Status messages.</td>
</tr>
<tr>
<td>Configuration Changed</td>
<td>Set whenever any configuration parameter is changed.</td>
</tr>
<tr>
<td>Primary Variable Analog Output</td>
<td>Set when:</td>
</tr>
<tr>
<td>Fixed</td>
<td>• Device is set in Multidrop Mode (Polling Address ≠ 0)</td>
</tr>
<tr>
<td></td>
<td>• Fixed Current Mode is entered (during Loop Test and DAC Trim)</td>
</tr>
<tr>
<td>Analog Output Saturated</td>
<td>During normal operation the maximum value for analog output is 20.4mA because of the „Namur Failure Signal“ (I&gt;20.8mA). While Process Value (PV) will work up to the Sensor Limits the analog output and its digital value is saturated at 20.4mA and the flag is set.</td>
</tr>
<tr>
<td>Primary Variable Out Of Limits</td>
<td>Is set whenever the Process Value (PV) exceeds the Sensor Limits.</td>
</tr>
</tbody>
</table>

- Meaning of Transmitter Specific Status Messages:

<table>
<thead>
<tr>
<th>Status Message</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Error</td>
<td>Error: Summary of „Initialization Failed“ and „Internal Checksum Error“. If set the measurement is invalid. HART-Classes: Hardware, State, Uncorrectable, Summary.</td>
</tr>
<tr>
<td>Initialization Failed</td>
<td>Error: If set the measurement is invalid. HART-Classes: Hardware, State, Uncorrectable, Detail.</td>
</tr>
<tr>
<td>No Linearization Data</td>
<td>Warning: If set the measured value is possibly incorrect. HART-Classes: Software, State, Uncorrectable.</td>
</tr>
<tr>
<td>Internal Checksum Error</td>
<td>Error: If set the measurement is invalid. HART-Classes: Software, Event, Selfcorrecting/Uncorrectable, Detail.</td>
</tr>
<tr>
<td>ADC zero scale not calibrated</td>
<td>Warning: If set the measured value is possibly incorrect. HART-Classes: Hardware, State, Uncorrectable.</td>
</tr>
<tr>
<td>ADC full scale not calibrated</td>
<td>Warning: If set the measured value is possibly incorrect. HART-Classes: Hardware, State, Uncorrectable.</td>
</tr>
<tr>
<td>No TC correction data</td>
<td>Warning: If set the measured value is possibly incorrect. HART-Classes: Software, State, Uncorrectable.</td>
</tr>
</tbody>
</table>
3 Asset Management Solutions (AMS)

3.1 Installation

• Connection:
  Refer to the wiring diagrams and descriptions in the
  “Installation and Operating Instructions H250” (KROHNE) section 10.1.
  Also see the
  “AMS Installation Guide” (Fisher Rosemount) section 5: “Installing Modems” and
  appendix B: “Wiring Diagrams”.

• AMS Configuration:
  If the ESKII Device Description is not already installed on the AMS System a
  “ESKII Device Installation Kit” (on floppy disk / CD-ROM from KROHNE) is needed.
  For installing the DD with the Installation Kit refer to the
  “AMS Installation Guide” (Fisher Rosemount) section 3:
  “Installing Device Descriptions for Field Devices”, “Manually Installing Device Types”.

3.2 Operating

See ESKII Menu Tree AMS (Attachment B).
The operating concept bases on the AMS HART DD for generic devices. For differences in detail
see section 2.2 HART Communicator 275 (HC275) Operating.
Attachment A

ESKII Menu Tree HC275

1 Process variables
- 1 Process Value
- 2 Percent Range
- 3 Analog Output

2 Diagnostics and Service
- 1 Device specific status
  - 2 Self Test
  - 3 Loop test
  - 4 D/A Trim
- 1 Tag *
- 2 Sensor Unit
- 3 Range values

3 Basic Setup
- 4 Device Info
  - 5 Transfer function
  - 6 Damping Value
- 1 Distributor
- 2 Model
- 3 Device Id
- 4 Tag *
- 5 Date *
- 6 Write Protect
- 7 Descriptor *
- 8 Message *
- 9 Final asmbly # Revisions

4 Detailed Setup
- 1 Sensors
  - 1 Process value
  - 2 Sensor Unit
  - 3 Sensor Info
  - 1 Damping Value
  - 2 Lower Range Value
  - 3 Upper Range Value
  - 4 Transfer Function
  - 5 Percent Range
- 1 Analog Output
- 2 HART Output
- 1 Poll Address *
- 2 Number of Response Preambles *

5 Review
- 1 Distributor
- 2 Model
- 3 Device Id
- 4 Tag *
- 5 Date *
- 6 Write Protect
- 7 Descriptor *
- 8 Message *
- 9 Final asmbly # Revisions

• No TC correction Data
• ADC fullscale not calibrated
• ADC zero not calibrated
• Internal timeout
• Internal checksum error
• No linearization data
• Initialization failed
• Critical error

* Parameter changeable (online help is available)
Attachment B

ESKII Menu Tree AMS

Process Variables

Status

Diagnostics and Test

Calibrate

Assign / Replace

Delete

Rename

Audit Trail

Drawing Notes ...

Help ...

Clear Offline Configuration

Compare Configurations

Configuration Properties

- Process Value (PV)
- Percent Range
- Analog Output

Overview

- Primary variable out of limits
- Primary variable analog output saturated
- Primary variable analog output fixed
- Configuration changed
- Field device malfunction

Critical

- Critical error
- Initialization failed
- No linearization data
- Internal checksum error
- ADC zero not calibrated
- ADC fullscale not calibrated
- No TC correction data

Informational

- Internal Timeout

Self Test

Loop Test

Calibration Management

- D/A trim

Sensor

- Sensor Serial Number
- Upper Sensor Limit
- Lower Sensor Limit

Process Input

- Sensor Unit
- Transfer Function
- Damping Value

Analog Output

- Upper Range Value
- Lower Range Value
- Alarm Type

Device

- Model
- Distributor
- Hardware revision
- Software revision
- Write protect
- Descriptor *
- Message *
- Date *
- Final assembly number

HART

- Tag *
- Polling Address *
- Universal revision
- Field device revision
- Number of Request
- Preambles
- Number of Response
- Preambles *
- Physical Signaling Code

* Parameter changeable (online help is available)