Supplementary Installation and Operating Instructions

HART Communicator 275
Field Communicator 375
Asset Management Solutions (AMS)
Process Device Manager (PDM)

UFC 030
Ultrasonic Flow Converter
## Table of Contents

1. General Information 3
2. IDs and Revision numbers 5
3. HART Communicator 275 (HC275), Field Communicator 375 (FC375) 6
   - 3.1 Installation 6
   - 3.2 Operating 6
4. Asset Management Solutions (AMS) 6
   - 4.1 Installation 6
   - 4.2 Operating 6
5. Process Device Manager (PDM) 7
   - 5.1 Installation 7
   - 5.2 Operating 7
1 General Information

The UFC 030 is a “four-wire” transmitter with 4...20mA current output and HART® capability. Dependent on device implementation it is available with active/passive current output (standard) or passive current output (MODIS).

General Characteristics of the UFC 030 HART® interface:
- Multidrop Mode is supported
- Burst Mode is not supported

Electrical connection: Refer to section “Electrical connection of the signal inputs and outputs” of the following manual:
- “Installation and Operating Instructions Universal 3-Beam ultrasonic flowmeter UFM 3030 Compact ultrasonic flowmeter UFC 030 Ultrasonic flow converter UFS 3000 Ultrasonic flow sensor” (KROHNE)

There are two ways of using the HART® communication:

a) As a point-to-point connection between the UFC 030 and the HART® master equipment. The instrument's current output may be active or passive.
b) As a multipoint connection (multidrop) with up to 15 devices (UFC 030 or other HART® equipment) in parallel. The instrument's current outputs must be passive.

**Multidrop Mode**
In case the UFC 030’s current output shall work continuously active a ‘third wire’ is needed to properly connect it together with two-wire loop powered devices in the same network.

**Multidrop Mode (‘three-wire’)**

(Connecting two-wire and four-wire devices in the same network)

**2 IDs and Revision numbers**

The HART Device Descriptions described in this document have the following IDs and revision numbers:

- Manufacturer ID: 69 (0x45)
- Device Type: 231 (0xE7)
- Device Revision: 2
- DD Revision: 1
- HART Universal Revision: 5
- HC 275 OS Revision: ≥ 4.9
- FC 375 System SW Rev.: ≥ 1.6
- AMS Version: ≥ 6.0
- PDM Version: ≥ 5.2
- FDT Version: ≥ 1.2

For information about Transmitter Revisions and related Device Descriptions refer to the KROHNE HART Device List.
3 HART Communicator 275 (HC275), Field Communicator 375 (FC375)

3.1 Installation
The UFC 030 HART Device Description has to be installed on the HC275 and FC375 respectively. Otherwise the user will work with the instrument as a generic one thus loosing opportunity for entire instrument control.
For installing DDs on the HC275 a ‘HART Communicator Module Programmer’ is needed (see details in the ‘Module Programmer User’s Guide’).
For installing DDs on the FC375 the ‘Easy Upgrade Programming Utility’ is needed and the FC375 must have a System Card with ‘Easy Upgrade’ option (see details in the ‘375 Field Communicator User’s Manual’).

3.2 Operating
Refer to the UFC 030 Menu Tree HC275 / FC375 (Attachment A).
The UFC 030 operation via HC275 / FC375 is made quite close to the manual instrument control via keypad. Due to limitations of the HC275 / FC375 there are some peculiarities:

- The online help of each parameter is only a short form help. However it contains the function number as a reference to the device’s local display and the “Installation and Operating Instructions” for a comprehensive description.
- Some selection lists (e.g. for output functions) may contain items which are actually not valid for the device concerned. However invalid settings are rejected when trying to send them to the device.

Parameter protection via passwords (Entry Code, Service Code) is the same as on local display. Please refer to the online help for valid symbols according to device's keypad.

The set of parameters of the HC275 “standard configuration” is only a partial set which doesn’t contain service parameters. However the HC275 “full configuration” contains a complete set of parameters. Prior to sending a “full configuration” to a device the Service Code protection must be disabled in case. Both types of configurations can be transferred to AMS.
The FC375 always creates a “full” configuration for interaction with AMS. Still the FC375 considers only a partial parameter set (like the HC275 “standard configuration”) when sending it to a device.

4 Asset Management Solutions (AMS)

4.1 Installation
If the UFC 030 Device Description is not already installed on the AMS System a so called Installation Kit UFC 030 HART AMS is needed (available as download from KROHNE ‘Download Centre’ on the internet or on floppy disk / CD-ROM from KROHNE).
For installing the DD with the Installation Kit refer to the “AMS Intelligent Device Manager Books Online" section "Basic AMS Functionality /Device Configurations / Installing Device Types / Procedures /Install device types from media”. Please read also the “readme.txt”, which is also contained in the Installation Kit.

4.2 Operating
Refer to the UFC 030 Menu Tree AMS (Attachment B).
Due to AMS requirements and conventions the UFC 030 operation differs to some extent from operation with HC275 / FC375 and via local keypad.
Due to limitations of the HC275 / FC375 which affect also AMS there are some peculiarities:

- The online help of each parameter is only a short form help. However it contains the function number as a reference to the device’s local display and the “Installation and Operating Instructions” for a comprehensive description.
- Some selection lists (e.g. for output functions) may contain items which are actually not valid for the device concerned. However invalid settings are rejected when trying to send them to the device.

Parameter protection via passwords (Entry Code, Service Code) is the same as on local display. Please refer to the online help for valid symbols according to device's keypad.
5 Process Device Manager (PDM)

5.1 Installation
If the UFC 030 Device Description is not already installed on the PDM System a so called Device Install is needed (available as download from KROHNE ‘Download Centre’ on the internet or on floppy disk / CD-ROM from KROHNE).
For installing the DD with the Device Install refer to the “PDM Manual” section 11.2: "Device Install / Integrating Devices in SIMATIC PDM with 'Device Install'". Please read also the “readme.txt”, which is also contained in the Device Install.

5.2 Operating
Refer to the UFC 030 Menu Tree PDM (Attachment C).
Due to PDM requirements and conventions the UFC 030 operation differs to some extent from operation with HC275 / FC375 and via local keypad.
Due to limitations of the HC275 / FC375 which affect also PDM there are some peculiarities:
- The online help of each parameter is only a short form help. However it contains the function number as a reference to the device’s local display and the “Installation and Operating Instructions” for a comprehensive description.
- Some selection lists (e.g. for output functions) may contain items which are actually not valid for the device concerned. However invalid settings are rejected when trying to send them to the device.
Parameter protection via passwords (Entry Code, Service Code) is the same as on local display. Please refer to the online help for valid symbols according to device’s keypad.
Supplementary Installation and Operating Instructions UFC 030 HART
HC275, FC375, AMS, PDM

Attachment A

UFC 030 HART Menu Tree HC275 / FC375

1 Dynamic Variables
1 View Process Vars
1 Actual Flow
2 Corrected Flow
3 VOS
4 Analog Input 1
5 Analog Input 2
6 F/R Indication
7 Gain
8 Digital Output
9 Totalizer 1
10 Totalizer 2
11 Totalizer Sum

2 View In/Outputs
1 Function I
2 Value I
3 %Range I
4 Function P
5 Value P
6 %Range P
7 Analog Input 1
8 Analog Input 2

2 Configuration / Test
1 Test / Info
1 Test Outputs
1 Test Current O.
2 Test Pulse O.

2 Test Inputs
1 Analog Input 1
2 Analog Input 2

3 Device Info
1 Manufacturer
2 Model Number
3 Serial Number
4 µP2 HW No.
5 µP2 SW No.
6 FE HW No.
7 DSP HW No.
8 DSP SW No.

4 Sensor Limits
1 Volume Flow
2 Heat Flow
3 VOS

5 Simulation
1 Volume Flow
2 Heat Flow
3 VOS

Designations:

- Optional, dependent on device implementation / configuration
- Read-only
- Local HC275/FC375, affects only HC275/FC375 views

KROHNE UFC030 HA 45e70201 (1/5)
05/04
UFC 030 HART Menu Tree HC275 / FC375

1 Dynamic

Variables

1 Flow

1 Flow Units
2 Full Scale
3 Zero Value
4 Zero Calibration
5 Master TC
6 L.F.Cutoff
7 Meter Size Units
8 Meter Size
9 GK Value
10 Flow Direction
11 VOS Min/Max
12 Min VOS
13 Max VOS

2 Configuration /

Test

2 Installation

3 Quit/Reset

4 HART Variables

2 Version

1 Converter Function
2 Temperature
3 Input 1 4mA
4 Input 1 20mA
5 Pressure Units
6 Input 2 4mA
7 Input 2 20mA
8 K0
9 K1
10 K2
11 Density 15
12 Heat Flow Units
13 Full Scale

3 Display

1 Display Flow
2 Function Totalizer
3 Display Totalizer
4 Volume Units
5 Energy Units
6 VOS Units
7 Cyclic Display
8 Error Messages
9 Date
10 Analog Input
11 Signal Gain
12 Display Formats

4 Current Output

1 Format Flow
2 Format
3 Format Volume
4 Format

5 Pulse Output
6 Digital Input

P

C

7 User Data
8 Logging

Designations:

Opt: Optional, dependent on device implementation / configuration

Rd: Read-only

Loc: Local HC275/FC375, affects only HC275/FC375 views

KROHNE UFC030 HA 45e70201 (2/5)
05/04
UFC 030 HART Menu Tree HC275 / FC375

1 Dynamic Variables
2 Configuration / Test
3 Quit/Reset
4 HART Variables
5 Pulse Output P
6 User Data
1 Test / Info
2 Version
3 Display
4 Current Output
1 Flow
2 Version
3 Display
4 Current Output
5 Pulse Output P
6 User Data
3 Service Menu

Designations:
Opt: Optional, dependent on device implementation / configuration
Rd: Read-only
Loc: Local HC275/FC375, affects only HC275/FC375 views
Designations:
- Optional, dependent on device implementation / configuration
- Read-only
- Local HC275/FC375, affects only HC275/FC375 views

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05/04
## Supplementary Installation and Operating Instructions UFC 030 HART

### HC275, FC375, AMS, PDM

### UFC 030 HART Menu Tree HC275 / FC375

<table>
<thead>
<tr>
<th>1 Dynamic Variables</th>
<th>2 Configuration / Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Test / Info</td>
<td>2 Installation</td>
</tr>
<tr>
<td>3 Service Menu</td>
<td></td>
</tr>
</tbody>
</table>

### 3 Current Output I

| 1 Calibration 4 mA |
| 2 Calibration 20 mA|
| 3 Calibrate Current Output I |

### 4 Sensor

| 1 Dead Time |
| 2 Trigger Select |
| 3 Trigger Level 1 |
| 4 Trigger Margin |
| 5 Sensor Frequency |
| 6 Zero Value Path 1 |

### 5 Measuring Path

| 1 Select Path |
| 2 Weight 1    |
| 5 Calibrate Path |
| 6 Length 1    |
| 9 T. Window Start |
| 10 T. Window End |


| 1 Calibrate Analog Input 1 |
| 2 Calibrate Analog Input 2 |
| 3 Input 1 0mA |
| 4 Input 1 20mA |
| 5 Input 2 0mA |
| 6 Input 2 20mA |

### 7 Device Information

| 1 Manufacturer |
| 2 Model No.    |
| 3 Serial Number |
| 4 µP2 HW No.   |
| 5 Front end HW No. |
| 6 DSP HW No.   |
| 7 Available I/O |

### 8 Raw Values

| 1 Rel. Flow Speed 1 |
| 4 SOS 1             |
| 7 Gain 1            |

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**Designations:**
- **Opt**: Optional, dependent on device implementation / configuration
- **Rd**: Read-only
- **Loc**: Local HC275/FC375, affects only HC275/FC375 views

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*KROHNE UFC030 HA 45e70201 (5/5) 05/04*
### Supplementary Installation and Operating Instructions UFC 030 HART

**HC275, FC375, AMS, PDM**

#### Attachment B

#### UFC 030 HART Menu Tree AMS

<table>
<thead>
<tr>
<th>Basic Setup</th>
<th>Current / Pulse Output</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>• Zero Value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Flow Direction</td>
<td></td>
</tr>
<tr>
<td>Process Input</td>
<td>• Flow Units</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Full Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Master TC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• L.F. Cutoff</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cutoff on &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cutoff off &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Status/Conditions</td>
<td>Display</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Function Totalizer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Display Totalizer</td>
<td></td>
</tr>
</tbody>
</table>

| Sensor      |  • Zero Value          |            |
|             |  • Flow Direction      |            |

| Meter       |  • Meter Size Table <sup>Opt</sup> |       |
|            |  • Meter Size Units <sup>Opt</sup> |       |
|            |  • Meter Size          |            |
|            |  • GK Value            |            |

| Volume Flow Limits |  • Upper Sensor Limit <sup>Loc</sup> |       |
|                   |  • Minimum Span <sup>Loc</sup> |       |

| Heat Flow Limits <sup>Opt</sup> |  • Upper Sensor Limit <sup>Loc</sup> |       |
|                                |  • Minimum Span <sup>Loc</sup> |       |

<table>
<thead>
<tr>
<th>Process Input</th>
<th>Current Output</th>
<th>Pulse Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Flow Units</td>
<td>• Function P &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Full Scale</td>
<td>• Direction P &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Master TC</td>
<td>• Digital Output &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td>L.F. Cutoff</td>
<td>• Cut-off on &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td>• Trip. Point 1 &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Cut-off off &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td>• Trip. Point 2 &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• VOS Min/Max Units</td>
<td>• Time Constant &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Min VOS</td>
<td>• Output &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Max VOS</td>
<td>• Pulse Rate &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display</th>
<th>• Display Flow</th>
<th>• Function Totalizer</th>
<th>• Display Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Function Totalizer</td>
<td></td>
<td>• Format Flow &lt;sup&gt;Loc&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Display Totalizer</td>
<td></td>
<td>• Format Heat Flow &lt;sup&gt;Opt, Loc&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Volume Units &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td></td>
<td>• Format Volume &lt;sup&gt;Opt&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Energy Units &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td></td>
<td>• Format Energy &lt;sup&gt;Opt, Loc&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• VOS Units</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Analog Input &lt;sup&gt;Opt&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Signal Gain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Local Display |  • Language    |  • Cyclic Display |  • Format Flow <sup>Loc</sup> |
|              |  • Error Messages |                    |  • Format Heat Flow <sup>Opt, Loc</sup> |
|              |  • Text Volume  |  • Date             |  • Format Volume <sup>Opt</sup> |
|              |  • Text Time    |                        |  • Format Energy <sup>Opt, Loc</sup> |
|              |  • Unit Volume  |                        |                    |
|              |  • Unit Time    |                        |                    |

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**Designations:**
- <sup>Opt</sup> Optional, dependent on device implementation / configuration
- <sup>Loc</sup> Read-only
- <sup>Opt</sup> Local AMS, affects only AMS views

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Supplementary Installation and Operating Instructions UFC 030 HART
HC275, FC375, AMS, PDM

UFC 030 HART Menu Tree AMS

Measuring Path
- Path 1 active
- Weight 1
- Length 1
- Zero Value Path 1
- Time Window Start
- Time Window End

Plausibility Filter
- Error Limit
- Counter Decrement
- Counter Limit

Simulation
- Simulation Mode
- Uncorrected Flow
- VOS
- Gain
- Analog Input 1 (Opt)
- Analog Input 2 (Opt)

Device
- Device Info
  - Manufacturer (Rd)
  - Model Number (Rd)
  - Serial Number (Rd)
  - µP1 HW No. (Rd)
  - µP2 SW No. (Rd)
  - FE HW No. (Rd)
  - DSP HW No. (Rd)
  - DSP SW No. (Rd)
- Version
- Enable Reset
- Available IO (Opt)
  - SI Units (Opt)
  - Pulse Output (Opt)
  - Current Output (Opt)
  - Digital Input (Opt)
  - Analog IO module (Opt)
  - HART Interface (Opt, Rd)
  - FF Interface (Opt, Rd)
  - PA Interface (Opt, Rd)
  - MODIS Version (Opt, Rd)

Calibration Management
- Calibration and Test
- Diagnostics and Test
- Calibrate
- Reset
- Parameter Protection

- Rename
- Unassign
- Assign / Replace

Audit Trail
- Record Manual Event
- Drawings / Notes ...
- Help ...

Designations:
- Opt: Optional, dependent on device implementation / configuration
- Rd: Read-only
- Loc: Local AMS, affects only AMS views

KROHNE UFC 030 HA 45e70201 (2/3)
09/04
## UCF 030 HART Menu Tree AMS

### Overview
- Primary variable out of limits
- Non-primary variable out of limits
- Primary variable analog output saturated
- Primary variable analog output fixed
- Cold start
- Configuration changed
- Field device malfunction

### Sensor / Device
- Path 1 Signal Failure
- …
- Path 3 Signal Failure
- Sensor open
- Sensor short circuit
- Unreliable
- Empty Pipe Error
- Peripheral Contr. Error
- HW error frontend
- Communication error
- EEPROM R/W Error
- Checks. err. service par.
- Checks. err. menu par.
- Simulation mode active
- Restart

### IO / Totalizers
- Underrun analog input 1
- Overrun analog input 1
- Underrun analog input 2
- Overrun analog input 2
- 20mA Analog Input HW Error
- Calibration Data Lost
- Current Output Overrange
- Current Output in fixed mode
- Pulse Output Overrange
- Pulse Output in fixed mode
- Totalizer Overrun Error
- Totalizer Storage Error
- Primary flow Overrun Error
- Secondary flow Overrun Error

### Process Values
- Actual Flow
- Corrected Flow
- VOS

### Correction
- Analog Input 1
- Analog Input 2

### Additional Values
- F/R Indication
- Gain

### Totalizers
- Totalizer Overrun Error
- Totalizer Storage Error
- Primary flow Overrun Error
- Secondary flow Overrun Error

### Raw Values
- Relative
- Flow Speed 1 … 3
- SOS 1 … 3
- Gain 1 … 3

### Current Output
- Value
- Percent of Range

### Pulse Output P
- Value
- Percent of Range

### Device
- Tag
- Descriptor

### HART
- Polling Address
- Device ID

---

Designations:
- Opt: Optional, dependent on device implementation / configuration
- Read-only
- Loc: Local AMS, affects only AMS views

KROHNE UFC 030 HA 45e70201 (3/3)
09/04
Supplementary Installation and Operating Instructions UFC 030 HART
HC275, FC375, AMS, PDM

Attachment C

UFC 030 HART Menu Tree PDM

Menu Bar

<table>
<thead>
<tr>
<th>File</th>
<th>Device</th>
<th>View</th>
<th>Options</th>
<th>Help</th>
</tr>
</thead>
</table>

Communication Path

Load To Device
Load To PG/PC

Set Address

Simulation

Simulation Mode
Uncorrected Flow
VOS
Gain
Analog Input 1
Analog Input 2

Test

Inputs
Analog Input 1
Analog Input 2

Outputs
Test Current Output 1
Test Pulse Output

Reset

Reset
Quit Errors
Reset Totalizers
Master Reset
Reset Conf. Changed Fl.

Calibration

Zero Calibration
Zero Value 1...3
Zero Calibration
Zero Value 2...3

Current Output Calibration
Calibration 4 mA
Calibration 20 mA

Parameter Protection

Entry Code Lock
Activate/Deactivate Entry Code Lock
Service Code Lock
Deactivate Service Code Lock

HART Communication

Preambles
Request Preambles
Response Preambles

Designations:
Opt: Optional, dependent on device implementation/configuration
Rd: Read-only
Loc: Local PDM, affects only PDM views

KROHNE UFC030 HA 45e80101 (1/5)
09.04
UFC 030 HART Menu Tree PDM

Menu Bar

Display

Measured Values
• Actual Flow
• Corrected Flow
• VOS
• F/R Indication
• Gain
• Digital Output
• Device Status

Totalizer
• Totalizer 1
• Totalizer 2
• Totalizer Sum

Analog Inputs
• Analog Input 1
• Analog Input 2

Raw Values
• Relative
• Flow Speed 1
• SOS 1
• Gain 1

Yt Diagram

• Actual Flow
• Corrected Flow
• VOS

Outputs/Inputs

Current Outputs
• Function I
• Digital Value I
• Analog Value I
• Percent of Range
• Full Scale

Pulse Output
• Function P
• Digital Value P
• Analog Value P
• Percent of Range
• Full Scale

Analog Inputs
• Analog Input 1
• Analog Input 2

Device Status

Designations:

Opt: Optional, dependent on device implementation / configuration
Rd: Read-only
Loc: Local PDM, affects only PDM views

KROHNE UFC030 HA 45e80101 (2/5)
09.04
UFC 030 HART Menu Tree PDM

### Device Info
- Manufacturer
- Model Number
- Serial Number
- µP1 HW No.
- µP2 SW No.
- FE HW No.
- DSP HW No.
- DSP SW No.

### HART IDs
- Tag
- Device Type
- HART Device ID
- Universal Revision
- Device Revision
- Software Revision
- Hardware Revision
- Date
- Final Assembly No.
- Sensor Serial No.

### Status
- **Overview**
  - Primary variable out of limits
  - Non-primary variable out of limits
  - Analog Output outside the operating range limits
  - Analog Output in fixed mode
  - Cold start
  - Configuration changed
  - Field device malfunction
- **Sensor**
  - Sensor open
  - Sensor short circuit
  - Path 1 Signal Failure
  - Path 3 Signal Failure
- **Device Status**
  - Unreliable
  - Empty Pipe Error
  - Peripheral Contr. Error
  - HW error frontend
  - Communication error
  - EEPROM R/W Error
  - Checks. err. service par.
  - Checks. err. menu par.
  - Simulation mode active
  - Restart
- **Totalizers**
  - Totalizer Overrun Error
  - Totalizer Storage Error
  - PPrimary flow Overrun Error
  - SECondy flow Overrun Error

### I/O
- Calibration Data Lost
- 20mA Analog Input HW Error
- Underrun analog input 1
- Overrun analog input 1
- Underrun analog input 2
- Overrun analog input 2
- Current Output Overrange
- Pulse Output Overrange
- Current Output in fixed mode
- Pulse Output in fixed mode

---

Designations:
- Opt: Optional, dependent on device implementation / configuration
- Rd: Read-only
- Loc: Local PDM, affects only PDM views

---

KROHNE UFC030 HA 45e80101 (3/5)
09.04
--- Menu Tree PDM ---

**Identification**
- **Operation Unit**
  - Tag
  - Descriptor
  - Message

**Device**
- Manufacturer
- Model Number
- Serial Number
- µP1 HW No.
- µP2 SW No.
- FE HW No.
- DSP HW No.
- Version
- Meter Size Table
- Enable reset

**Input**
- **Measuring Limits**
  - Upper Sensor Limit
  - Minimum Span
- **Operation Parameter**
  - Manufacturer
  - Model Number
  - Serial Number
  - µP1 HW No.
  - µP2 SW No.
  - FE HW No.
  - DSP HW No.
  - Version
  - Meter Size Table
  - Enable reset

**Output**
- **Available I/O**
  - SI Units
  - Pulse Output
  - Current Output
  - Digital Input
  - Analog I/O module
  - HART Interface
  - FF Interface
  - PA Interface
  - MODIS Version
  - Time/log Module

**HART**
- Manufacturer
- Device Type
- HART Device ID
- Universal Revision
- Field Device Revision
- Software Revision
- Hardware Revision
- Date
- Final Assembly No.
- Sensor Serial No.

**Measuring Path**
- **Operation Parameter**
  - Sensor
  - Dead Time
  - Trigger Select
  - Trigger Level 1
  - Trigger Margin
  - Sensor Frequency

**Sensor Units**
- Pressure Units
- Input 1 4mA
- Input 1 20mA
- Input 2 4mA
- Input 2 20mA
- K0
- K1
- K2
- Density 15
- Heat Flow Units
- Full Scale

**Analog Input Calibration**
- Input 1 0mA
- Input 1 20mA
- Input 2 0mA
- Input 2 20mA

**Measuring Path**
- Path 1 active
- Weight 1
- Length 1
- Zero Value 1
- Time Window Start
- Time Window End

**Plausibility Filter**
- Error Limit
- Counter Decrement
- Counter Limit

--- Designations:---
- **Opt**: Optional, dependent on device implementation / configuration
- **Rd**: Read-only
- **Loc**: Local PDM, affects only PDM views

--- Additional Notes:---
- **Version**
- **Meter Size Table**
- **Pulse Output P**
- **Current Output I**

--- Supplementary Installation and Operating Instructions UFC 030 HART ---

KROHNE UFC030 HA 45e80101 (4/5)
09.04
### Identification
- **Operation Unit**
- **Device**

### Input
- **Measuring Limits**
- **Operation Parameter**
- **Sensor**
- **Version**
  - Analog Input \(\text{OPT}\)
  - Measuring Path \(\text{OPT}\)
  - Plausibility Filter

### Output
- **Current Output I**
- **Pulse Output P \(\text{OPT}\)**

### Human Interface
- **Local Display**
- **Display Formats**

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**Designations:**
- \(\text{OPT}\): Optional, dependent on device implementation / configuration
- \(\text{Loc}\): Read-only
- \(\text{LO}\): Local PDM, affects only PDM views

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**Output**
- **Current Output I**
  - Function I
  - Direction I
  - Range I
  - 0.0% I
  - 100% I
  - Limit
  - Calibration 4mA \(\text{OPT}\)
  - Calibration 20mA \(\text{OPT}\)

**Pulse Output P \(\text{OPT}\)**
- Function P
- Direction P
- Digital Output \(\text{OPT}\)
- Trip. Point 1 \(\text{OPT}\)
- Trip. Point 2 \(\text{OPT}\)
- Time Constant
- Output \(\text{OPT}\)
- Pulsrate Units \(\text{OPT}\)
- Pulsrate \(\text{OPT}\)
- Units Pulse/Unit \(\text{OPT}\)
- Pulse/Unit \(\text{OPT}\)
- Pulswidth \(\text{OPT}\)

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**Human Interface**
- Display Flow
- Function Totalizer
- Display Totalizer \(\text{OPT}\)
- Volume Units \(\text{OPT}\)
- Energy Units \(\text{OPT}\)
- VOS Units
- Analog Input \(\text{OPT}\)
- Signal Gain

**Local Display**
- Language
- Cyclic Display
- Error Messages
- Date \(\text{OPT}\)
- Text Volume
- Text Time
- Unit Volume
- Unit Time

**Display Formats**
- Format Flow \(\text{OPT, LO}\)
- Format Heat Flow \(\text{OPT, LO}\)
- Format Volume \(\text{LO}\)
- Format Energy \(\text{OPT, LO}\)

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KROHNE UFC030 HA 45e0101 (5/5)
09.04