Supplementary
Installation and Operating
Instructions

Optiflux IFC300 Converter
with HART Interface
(Dev Rev 2, DD Rev 1)

- HART/Field Communicator 375
- Asset Management Solutions (AMS)
- Process Device Manager (PDM)
- Field Device Tool/Device Type Manager (FDT/DTM)
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1 General Information

The IFC 300 is a “four-wire” transmitter with 4...20mA current output and HART® capability. Dependent on jumper setting and/or wiring the current output can operate as active or passive output.

General characteristics of the IFC 300 HART® interface:
- Multidrop Mode is supported
- Burst Mode is not supported

Electrical connection: Refer to section “Electrical connection: outputs and inputs” of the following manual:
- “Handbook IFC 300 signal converter” (KROHNE)

There are two ways of using the HART® communication:

a) As a point-to-point connection between the IFC 300 and the HART master equipment. The instrument's current output may be active or passive.

Point-to-Point Analog/Digital Mode
b) As a multipoint connection (multidrop) with up to 15 devices (IFC 300 or other HART® equipment) in parallel. The instrument's current outputs must be passive.

**Multidrop Mode**

![Multidrop Mode Diagram]

- Power Supply: $\geq 250 \Omega$
- HART Modem
- Primary Master
- Secondary Master
- Terminal A (C)
- Terminal A- (C-)
- Up to 15 Slaves

IFC 300
Addr. > 0
(passive current output)

IFC 300
Addr. > 0
(passive current output)
In case the IFC 300'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: 227 (0xE3)
- Device Revision: 2
- DD Revision: 1
- HART Universal Revision: 5
- FC 375 System SW Rev.:  \( \geq 1.8 \)
- AMS Version:  \( \geq 6.0 \)
- PDM Version:  \( \geq 6.0 \)

For information about Transmitter Revisions and related Device Descriptions refer to the KROHNE HART Device List.
3 Inputs/Outputs and HART Dynamic/Transmitter Variables

The IFC 300 is available with a choice of output/input assemblies (see details in the section "I/O assemblies for the outputs and inputs" of the "Handbook IFC 300 signal converter" (KROHNE)).

The assignment of the I/O terminals (A, B, C and D) to the HART Dynamic Variables (PV, SV, TV and FV) depends on the device's I/O option:

<table>
<thead>
<tr>
<th>HART Dynamic Variables:</th>
<th>PV</th>
<th>SV</th>
<th>TV</th>
<th>FV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic I/O terminals:</td>
<td>A</td>
<td>D</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Modular I/O and EEx–i I/O terminals:</td>
<td>C</td>
<td>D</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

The IFC 300 transmitter handles up to 10 measurement-related HART Transmitter Variables but the sub-set of available variables depends on the device's I/O option and its configuration:

<table>
<thead>
<tr>
<th>HART Transmitter Variable</th>
<th>Code</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Speed</td>
<td>20</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Volume Flow</td>
<td>21</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Mass Flow</td>
<td>22</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Conductivity</td>
<td>24</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Coil Temperature</td>
<td>23</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Counter 1 (C)</td>
<td>6</td>
<td>Totaliser</td>
<td>valid for Basic I/O option only</td>
</tr>
<tr>
<td>Counter 1 (B)</td>
<td>13</td>
<td>Totaliser</td>
<td>valid for Modular I/O and EEx–i I/O options only</td>
</tr>
<tr>
<td>Counter 2 (D)</td>
<td>14</td>
<td>Totaliser</td>
<td></td>
</tr>
<tr>
<td>Counter 3 (A)</td>
<td>12</td>
<td>Totaliser</td>
<td>valid for Modular I/O and EEx–i I/O options only</td>
</tr>
<tr>
<td>Diagnosis Value</td>
<td>25</td>
<td>Linear</td>
<td>function and validity depend on 'diagnosis value' setting (Fct. C1.3.17)</td>
</tr>
</tbody>
</table>

1 HART Transmitter Variable Code

To Dynamic Variables which are tied to linear analogue outputs (i.e. current outputs and frequency outputs) the HART Transmitter Variables are assigned by selecting the 'measurement' (Fct. C2.x.5) for these outputs. (E.g. when selecting the 'measurement' volume flow for current output A of a device with Basic I/O the HART Transmitter Variable Volume Flow is assigned to the HART Dynamic Variable PV). This implies that only Transmitter Variables of linear type can be assigned to Dynamic Variables tied to current or frequency outputs. (A totaliser variable e.g. can't be assigned to PV, the HART current output).

For Dynamic Variables not tied to linear analogue outputs there is no such correlation: Both linear and totaliser type Transmitter Variables can be assigned (Fct. C4). (Therefore a totaliser variable e.g. can be assigned to SV, TV and FV unless the respective output is a current or frequency output.)
4 Basic Configuration Parameters

There are some parameters (namely measurement counter 1..3 and diagnosis value selection) which, after they have been changed, require a warm start of the device e.g. for updating dependent units parameters, before any other parameters may be written. Dependent on the characteristics and capabilities of the HART host system (e.g. online-/offline-orientation) these parameters are treated differently (see details below).

5 Field Communicator 375 (FC375)

5.1 Installation

The IFC 300 HART Device Description has to be installed on the 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 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’).

5.2 Operating

Refer to the IFC 300 Menu Tree FC375 (Attachment A).

The IFC 300 operation via FC375 is made quite close to the manual instrument control via keypad with the restriction that parameters of the device’s "service" menu are not supported and simulation is possible only for current outputs. The online help of each parameter contains its function number as a reference to the device’s local display and the “Handbook”.

Parameter protection for custody transfer is the same as on the device's local display. Other specific protection mechanisms like "password quick setup" and "password setup" are not supported via HART.

The FC375 always creates a “full” configuration for interaction with AMS. Still the FC375 considers only a partial parameter set (like the “standard configuration” in the HART Communicator HC275) when sending it to a device.

In online mode the counter measurement and diagnosis value settings can be changed with the corresponding methods located in the menu tree below the related parameter. When editing an offline configuration these parameters are read only, however they are written to the device when sending an offline configuration.

6 Asset Management Solutions (AMS)

6.1 Installation

If the IFC 300 Device Description is not already installed on the AMS System a so called Installation Kit IFC 300 HART AMS is needed (available as download from KROHNE ‘Download Center’ 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.

6.2 Operating

Refer to the IFC 300 Menu Tree AMS (Attachment B).

Due to AMS requirements and conventions the IFC 300 operation differs to some extent from operation with FC375 and via local keypad. Furthermore parameters of the device’s "service" menu are not supported and simulation is possible only for current outputs. The online help of each parameter contains its function number as a reference to the device’s local display and the “Handbook”.

Parameter protection for custody transfer is the same as on the device's local display. Other specific protection mechanisms like "password quick setup" and "password setup" are not supported via HART.

Basic Configuration Parameters:
In online mode the counter measurement and diagnosis value settings can be changed with the corresponding methods located in the "Basic Configuration" menu. When editing an offline configuration these parameters are read only.

7  Process Device Manager (PDM)

7.1 Installation
If the IFC 300 Device Description is not already installed on the PDM System a so called Device Install IFC 300 HART PDM is needed (available as download from KROHNE ‘Download Center’ on the internet or on floppy disk / CD-ROM from KROHNE).
For installing the DD on PDM V 5.2 refer to the “PDM Manual” section 11.2: “Device Install / Integrating Devices in SIMATIC PDM with 'Device Install’".
For installing the DD on PDM V 6.0 refer to the “PDM Manual” section 13: “Integrating Devices”.
Please read also the “readme.txt”, which is also contained in the Device Install.

7.2 Operating
Refer to the IFC 300 Menu Tree PDM (Attachment C).
Due to PDM requirements and conventions the IFC 300 operation differs to some extent from operation with FC375 and via local keypad. Furthermore parameters of the device’s "service" menu are not supported and simulation is possible only for current outputs. The online help of each parameter contains its function number as a reference to the device’s local display and the “Handbook”. Parameter protection for custody transfer is the same as on the device's local display. Other specific protection mechanisms like "password quick setup" and "password setup" are not supported via HART.
Basic Configuration Parameters:
In the PDM offline Parameter Table the counter measurement and diagnosis value settings can be changed directly and dependent units parameters are updated automatically. However in Online Dialogs of the PDM Parameter Table an automatic update isn’t possible.

8  Field Device Tool Device Type Manager (FDT DTM)

8.1 Installation
If the IFC 300 Device Type Manager is not already installed on the Field Device Tool container a setup is needed (available as download from KROHNE ‘Download Centre’ on the internet or on CD-ROM from KROHNE).
For installing the DTM with the setup refer to the setup’s accompanying documentation.

8.2 Operating
The IFC 300 operation via DTM is made quite close to the manual instrument control via keypad. Refer to the device’s local display and the “Handbook”.

HART_Suppl_IFC300_V0201.DOC
04/2007
9 Attachment: Menu Trees for FC375, AMS and PDM

Attachment A

IFC 300 HART Menu Tree FC375

1 dynamic variables
1 measured values
1 volume flow
2 mass flow
3 flow speed
4 conductivity
5 coil temperature
6 counter 1
7 counter 2
8 counter 3
9 diagnosis value

2 in/outputs
1 A
2 % range A
3 B
4 % range B
5 C
6 % range C
7 D
8 % range D

2 quick setup
1 language
2 tag
3 reset

3 test
1 measurement A/C
2 unit
3 range min A/C
4 range max A/C
5 lfc threshold
6 lfc hysteresis
7 time constant

4 setup

4 setup

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

KROHNE IFC 300 HA 45e30201 (1/4)
04/06
IFC 300 HART Menu Tree FC375

1 dynamic variables
2 quick setup
3 test
4 setup

1 process input

1 calibration
1 autom. zero calib., Cust
2 zero set Cust
3 size Cust
4 GK selection Cust
5 GK / GKH Ws Cust
6 GKL Opt, Cust
7 coil resist. Rsp Cust
8 density Cust
9 target conductivity Cust
10 EF electr. factor Cust
11 num. of electrodes
12 field frequency Cust
13 select settling Cust
14 settling time Ws Cust
15 line frequency Cust

2 filter
1 limitation min Cust
2 limitation max Cust
3 flow direction Cust
4 time constant
5 pulse filter Cust
6 pulse width Opt Cust
7 pulse limitation Opt Cust
8 noise filter Cust
9 noise level Ws Cust
10 n. suppression Opt Cust
11 lif threshold Cust
12 lif hysteresis Cust

3 self test
1 empty pipe Cust
2 limit empty pipe Opt Cust
3 full pipe Opt Cust
4 limit full pipe Opt Cust
5 linearity Cust
6 gain Cust
7 coil current Cust
8 flow profile Cust
9 limit flow profile Opt Cust
10 electrode noise Cust
11 limit elect. noise Ws Cust
12 settling of field Cust
13 diagnosis value Rd
14 select diagnosis

4 information
1 volume flow
2 mass flow
3 flow speed
4 conductivity
5 coil temperature

5 sensor limits
1 upper snsr limit Rk
2 lower snsr limit Rk
3 minimum span Rk

Designations:
Opt = Optional, dependent on device implementation / configuration
Rd = Read-only
Cust = Custody Lock protected
Loc = Local FC375, affects only FC375 views

KROHNE IFC 300 HA 45e30201 (2/4)
04/06
Supplementary Handbook IFC 300 HART, FC375, AMS, PDM, DTM

IFC 300 HART Menu Tree FC375

1 process input

2 I/O

3 I/O Counter

4 I/O HART

5 device

1 process input

1 terminals A
2 terminals B
3 terminals C
4 terminals D

1 hardware

1 current output
2 range 0%
3 range 100%
4 ext. range min
5 ext. range max
6 error current
7 error condition
8 measurement
9 range max
10 polarity
11 limit min
12 limit max
13 lfc threshold
14 lfc hysteresis
15 time constant
16 special function
17 rc threshold
18 rc hysteresis
19 information

2 pulse output
1 pulse shape
2 pulse width
3 max pulse rate
4 measurement
5 pulse value unit
6 value p. pulse
7 polarity
8 lfc threshold
9 lfc hysteresis
10 time constant
11 invert signal
12 special function
13 phase shift w. B
14 information

3 frequency output
1 pulse shape
2 pulse width
3 100% pulse rate
4 measurement
5 range min
6 range max
7 polarity
8 limit min
9 limit max
10 lfc threshold
11 lfc hysteresis
12 time constant
13 special function
14 invert signal
15 phase shift w. B
16 information

4 status output
1 mode
2 output A
3 output B
4 output C
5 output D
6 invert signal
7 information

5 control input
1 mode
2 invert signal
3 information

Designations:
Opt: Optional, dependent on device implementation / configuration
Rd: Read-only
Cust: Custody Lock protected
Loc: Local FC375, affects only FC375 views
Supplementary Handbook IFC 300 HART, FC375, AMS, PDM, DTM

Attachment B

IFC 300 HART Menu Tree AMS

quick setup
- device:
  - language
  - tag

pulse output D:
- measurement D
- pulse value unit
- value p. pulse D
- IFC threshold (opt. Cust)
- IFC hysteresis (opt. Cust)

current output A/C:
- measurement A/C
- unit A/C
- range A/C max
- range A/C min
- time constant A/C
- IFC threshold A/C
- IFC hysteresis A/C

input calibration
- zero set
- size
- GK selection
- GK / GKH
- GKL
- coil resist. Rap
- density

sensor
- target conductivity
- EF electrode factor
- num. of electrodes
- field frequency
- select settling
- setting time
- line frequency

input filter
- limitation max
- limitation min
- flow direction
- time constant
- pulse filter
- pulse width
- pulse limitation

self test / info
- self test:
  - empty pipe
  - limit empty pipe
  - full pipe
  - limit full pipe
  - linearity
  - gain
  - coil current
  - flow profile
  - limit flow profile

designations:
- Opt: Optional, dependent on device implementation / configuration
- Rd: Read-only
- Cust: Custody Lock protected
- Loc: Local AMS, affects only AMS views

KROHNE IFC 300 HA 45e10201 (1/5)
04/06
### IFC 300 HART Menu Tree AMS

#### I/O terminals A/B/C/D

- **current output**<sup>Opt</sup>:
  - measurement<sup>Cust</sup>
  - limitation max<sup>Cust</sup>
  - limitation min<sup>Cust</sup>
  - time constant<sup>Cust</sup>
  - polarity<sup>Cust</sup>
  - Ic threshold<sup>Cust</sup>
  - Ifc hysteresis<sup>Cust</sup>
  - range max<sup>Cust</sup>
  - range min<sup>Cust</sup>

- **range 100%**<sup>Cust</sup>
- **range 0%**<sup>Cust</sup>
- **ext. range max**<sup>Cust</sup>
- **ext. range min**<sup>Cust</sup>
- **error current**<sup>Cust</sup>
- **error condition**<sup>Cust</sup>
- **rc threshold**<sup>Opt, Cust</sup>
- **rc hysteresis**<sup>Opt, Cust</sup>

#### Frequency output**<sup>Opt</sup>**:

- **polarity**<sup>Cust</sup>
- **lfc threshold**<sup>Opt, Cust</sup>
- **lfc hysteresis**<sup>Opt, Cust</sup>
- **range max**<sup>Cust</sup>
- **range min**<sup>Cust</sup>

- **pulse shape**<sup>Cust</sup>
- **pulse width**<sup>Cust</sup>
- **100% pulse rate**<sup>Cust</sup>
- **invert signal**<sup>Cust</sup>
- **special function**<sup>Opt, Cust</sup>
- **phase shift wrt. B**<sup>Opt, Cust</sup>

#### Pulse output**<sup>Opt</sup>**:

- **measurement**<sup>Cust</sup>
- **time constant**<sup>Opt, Cust</sup>
- **polarity**<sup>Cust</sup>
- **lfc threshold**<sup>Opt, Cust</sup>
- **lfc hysteresis**<sup>Opt, Cust</sup>
- **range max**<sup>Cust</sup>
- **range min**<sup>Cust</sup>

- **polarity**<sup>Cust</sup>
- **lfc threshold**<sup>Opt, Cust</sup>
- **lfc hysteresis**<sup>Opt, Cust</sup>
- **range max**<sup>Cust</sup>
- **range min**<sup>Cust</sup>

#### Status output**<sup>Opt</sup>**:

- **mode**
- **output A**<sup>Opt</sup>
- **output B**<sup>Opt</sup>
- **output C**<sup>Opt</sup>
- **output D**<sup>Opt</sup>
- **invert signal**

#### Limit switch**<sup>Opt</sup>**:

- **measurement**
- **time constant**
- **polarity**
- **threshold**
- **hysteresis**

#### Control input**<sup>Opt</sup>**:

- **mode**
- **invert signal**

### Designations:

- **Opt**: Optional, dependent on device implementation / configuration
- **Rd**: Read-only
- **Cust**: Custody Lock protected
- **Loc**: Local AMS, affects only AMS views
IFC 300 HART Menu Tree AMS

device
  device info:
    • tag
    • C number \textsuperscript{Ad}
    • device serial no. \textsuperscript{Ad}
    • electronic serial no. \textsuperscript{Ad}
  display:
    • language
    • default display \textsuperscript{Cust}
units:
  • volume flow \textsuperscript{Cust}
  • mass flow \textsuperscript{Cust}
  • flow speed
  • conductivity
  • temperature
  • volume \textsuperscript{Cust}
  • mass \textsuperscript{Cust}
  • density \textsuperscript{Cust}

---

Configure
  Compare
  Clear Offline

Status/Conditions
  Process Variables
  Scan Device

Calibration Management
  Diagnostics and Test

Calibrate
  Reset

Basic Configuration
  Rename
  Unassign
  Assign / Replace

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

---

1. meas./graph. page / 2. meas. page
  function \textsuperscript{Cust}
  measurem. 1. line \textsuperscript{Cust}
  limitation max
  limitation min
  time constant
  lfc threshold
  lfc hysteresis
  range max \textsuperscript{Cust}
  range min \textsuperscript{Cust}
  format 1. line

2. meas. page
  measurem. 2. line \textsuperscript{Cust}
  format 2. line \textsuperscript{Cust}
  measurem. 3. line \textsuperscript{Cust}
  format 3. line \textsuperscript{Cust}
  graphic page:
    • select range
    • range centre
    • range \textsuperscript{2/3}
    • time scale

HART
  identification:
    • manufacturer \textsuperscript{Ad}
    • model \textsuperscript{Ad}
    • device ID \textsuperscript{Ad}
    • address
    • tag
    • date
    • message
    • descriptor
    • write protect \textsuperscript{Ad}
    • final assembly no.
    • sensor serial no.
  revision numbers:
    • universal rev. \textsuperscript{Ad}
    • device rev. \textsuperscript{Ad}
    • software rev. \textsuperscript{Ad}
    • hardware rev. \textsuperscript{Ad}
  dynamic variables settings:
    • request preambles \textsuperscript{Ad}
    • response preambles
  preambles:
  • request preambles \textsuperscript{Ad}

HART units
  display formats:
    • volume flow \textsuperscript{Loc}
    • mass flow \textsuperscript{Loc}
    • flow speed \textsuperscript{Loc}
    • conductivity \textsuperscript{Loc}
    • temperature \textsuperscript{Loc}
    • counter 1 \textsuperscript{Loc}
    • counter 2 \textsuperscript{Loc}
    • counter 3 \textsuperscript{Opt, Loc}
  units:
    • volume flow
    • mass flow
    • flow speed
    • conductivity
    • temperature
    • counter 1
    • counter 2
    • counter 3 \textsuperscript{Opt}

Designations:
\textsuperscript{Ad} Optional, dependent on device implementation / configuration
\textsuperscript{Ad} Read-only
\textsuperscript{Cust} Custody Lock protected
\textsuperscript{Loc} Local AMS, affects only AMS views
IFC 300 HART Menu Tree AMS

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

Failure (device)
- F error in device
- F IO1
- F IO2
- F configuration
- F display
- F sensor electronic
- F sensor global
- F sensor local
- F field current local
- F current output A
- F current output B
- F current output C
- F software user interface
- F hardware settings
- F hardware detection
- F RAM/ROM error IO 1
- F RAM/ROM error IO 2

Failure (application)
- F application error
- F empty pipe
- F flow rate too high
- F field frequency too high
- F DC offset
- F open circuit A
- F open circuit B
- F open circuit C
- F over range A (current)
- F over range B (current)
- F over range C (current)
- F over range A (pulse)
- F over range B (pulse)
- F over range D (pulse)
- F active settings
- F factory settings
- F backup 1 settings
- F backup 2 settings

Check req. & Information
- C checks in progress
- C test sensor

information:
- I counter 1 stopped
- I counter 2 stopped
- I counter 3 stopped
- I power fail
- I control input A active
- I control input B active
- I over range display 1
- I over range display 2
- I backplane sensor
- I backplane settings
- I backplane difference
- I optical interface

Out of specification
- S out of specification
- S pipe not full
- S empty pipe
- S linearity
- S flow profile
- S electrode noise
- S gain error
- S electrode symmetry
- S field coil broken
- S field coil bridged
- S field current deviation
- S field frequency too high
- S electronic temperature
- S coil temperature
- S overflow counter 1
- S overflow counter 2
- S overflow counter 3
- S backplane invalid

Designations:
- **Optional, dependent on device implementation / configuration**
- **Read-only**
- **Custody Lock protected**
- **Local AMS, affects only AMS views**
ICF 300 HART Menu Tree AMS

- **Configure**
  - Compare
  - Clear Offline

- **Status/Conditions**

- **Process Variables**
  - Scan Device

- **Calibration Management**

- **Diagnostics and Test**

- **Calibrate**

- **Reset**

- **Basic Configuration**
  - Rename
  - Unassign
  - Assign / Replace

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

**Process values:**
- volume flow
- mass flow
- flow speed
- conductivity
- coil temperature
- diagnosis value

**Counter:**
- counter 1
- counter 2
- counter 3

**Outputs:**
- A
- % range A
- B
- % range B
- C
- % range C
- D
- % range D

**Device:**
- tag
- descriptor

**HART:**
- Polling Address
- Device ID

**Counter:**
- counter 1
- counter 2
- counter 3

**Designations:**
- Opt: Optional, dependent on device implementation / configuration
- R: Read-only
- Loc: Custody Lock protected
- Rd: Local AMS, affects only AMS views
Attachment C

IFC 300 HART Menu Tree PDM

Menu Bar

Communication Path
Load To Device
Load To PG/PC
Set Address

Test
- simulation. current/frequency A
- simulation current/frequency B
- simulation current C
- simulation frequency D

Reset
- <reset errors>
- <reset configuration changed flag>
- <warmstart>
- <reset counter 1>
- <reset counter 2>
- <reset counter 3>

Calibration
- automatic zero calibration
- D/A trim
- apply values

Parameter Protection

HART
- request preambles
- response preambles
- preambles
- dynamic variables settings
- PV is
- SV is
- TV is
- 4V is

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

HART_Suppl_IFC300_V0201.DOC
04/2007
IFC 300 HART Menu Tree PDM

Menu Bar

File   Device   View   Options   Help

Display

Measured Values
- volume flow
- mass flow
- flow speed
- conductivity
- coil temperature
- diagnosis value
- device status

Counters
- counter 1
- counter 2
- counter 3

Yt Diagram

- volume flow
- mass flow

Outputs

- current/frequency output A: measured value
- % range A
- current output C: measured value
- % range C

- current/frequency output B: measured value
- % range B
- frequency output D: measured value
- % range D

Device Status

Circuit Board Info

Designations:
- Optional, dependent on device implementation / configuration
- Read-only
- Custody Lock protected
- Local PDM, affects only PDM views

KROHNE IFC 300 HA 45c30201 (2/6)
04/06
### IFC 300 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>

#### Display

- Yt Diagram

#### Outputs

- Device Status

#### Circuit Board Info

- Device Info
  - C number
  - Device serial no.
  - Electronic serial no.
  - HART:
    - Tag
    - Manufacturer
    - Model
    - Device ID
  - Universal revision
  - Device revision
  - Software revision
  - Hardware revision
  - Date
  - Write protect
  - Final assembly no.
  - Sensor serial no.

#### Failure

- Device:
  - F error in device
  - F parameter
  - F configuration
  - F display
  - F sensor electronic
  - F sensor global

- Application:
  - F application error
  - F empty pipe
  - F flow rate too high
  - F field frequency too high
  - F DC offset
  - F open circuit A/B/C
  - F over range A/B/C (current)
  - F over range A/B/D (pulse)
  - F active settings
  - F factory settings
  - F backup 1/2 settings

#### Off-spec / Checks / Info

- Out of specification:
  - S out of specification
  - S pipe not full
  - S empty pipe
  - S linearity
  - S flow profile
  - S electrode noise
  - S gain error
  - S electrode symmetry
  - S field coil broken
  - S field current deviation

- Field frequency too high
- S electronic temperature
- S coil temperature
- S overflow counter 1
- S overflow counter 2
- S backplane invalid
- S overflow counter 3

#### Information

- C checks in progress
- C test sensor

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**Designations:**

- Opt: Optional, dependent on device implementation / configuration
- Rd: Read-only
- Cust: Custody Lock protected
- Loc: Local PDM, affects only PDM views
# IFC 300 HART Menu Tree PDM

## Parameter Table

### Identification
- operation unit
- device

### Input
- calibration
- filter
- self test
- information
- measuring limits

### IO
- A
- B
- C
- D
- counter 1
- counter 2
- counter 3

### Human Interface
- local display
- units (device)
- units (HART)
- formats (HART)

### Designations:
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**current output**
- terminals A
- terminals B
- terminals C
- terminals D

**A/B/C/D**
- current output
  - range 0%
  - range 100%
  - ext. range min
  - ext. range max
  - error current
  - error condition
  - measurement
  - range min
  - range max
  - polarity
  - limit min
  - limit max
  - lfc threshold
  - lfc hysteresis
  - time constant

**frequency output**
- pulse shape
- pulse width
- 100% pulse rate
- measurement
- range min
- range max
- polarity
- limit min
- limit max
- lfc threshold
- lfc hysteresis
- time constant
- invert signal
- special function
- phase shift wrt. B

**pulse output**
- pulse shape
- pulse width
- max pulse rate
- measurement
- pulse value unit
- value p. pulse
- polarity
- lfc threshold
- lfc hysteresis
- time constant
- invert signal
- special function
- phase shift wrt. B

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**status output**
- mode
- output A
- output B
- output C
- output D
- invert signal

**limit switch**
- measurement
- threshold
- hysteresis
- polarity
- time constant
- invert signal

**control input**
- mode
- invert signal

**counter 1/2/3**
- function
- measurement
- lfc threshold
- lfc hysteresis
- time constant
- preset value
### IFC 300 HART Menu Tree PDM Parameter Table

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<thead>
<tr>
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<th>Operation Unit</th>
<th>Device</th>
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<tbody>
<tr>
<td>Input</td>
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<td>C</td>
<td>D</td>
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<tr>
<td>Counter 1</td>
<td>Counter 2</td>
<td>Counter 3</td>
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<tr>
<td>Human Interface</td>
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<td>local display</td>
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