Honeywell

SmartLine Devices
FDM Offline Configuration
User's Manual

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Honeywell Process Solutions
1250 W Sam Houston Pkwy S
Houston, TX 77042

About This Manual

Honeywell's LEAP for FI is a program with the goal of increasing the effectiveness of project execution and operations by making SmartLine instruments a key enabler to provide enhanced end to end user experience from Field Instruments to control room.

LEAP refers to Lean Execution of Automation Projects

This document lists the offline configuration guidelines for the user who creates the FDM Offline Configuration that will be used in Experion Automated Device commissioning.

This Document contains the guidelines for the SmartLine devices: SLG700, ST800 / 700, STT850/750/STT700 and SMV800

Revision History

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Support and Contact Information

For Europe, Asia Pacific, North and South America contact details, refer to the back page of this manual or the appropriate Honeywell Support web site:

Honeywell Corporate www.honeywell.com
Honeywell Process Solutions https://www.honeywellprocess.com/*

Telephone and Email Contacts

Area	Organization	Phone Number
United States and Canada	Honeywell Inc.	1-800-343-0228 Customer Service 1-800-423-9883 Global Technical Support
Global Email Support	Honeywell Process Solutions	ask-ssc@honeywell.com

Definitions, Acronyms, and Abbreviations

The following are of special significance to this version of the document

Term	Definition
ADC	Automated Device Commissioning
AVT	Application and Validation Tool. Also referred as Cloud Design tool in this document
BF (Brownfield)	Brownfield is a term used in urban planning to describe land previously used for industrial purposes or some commercial uses.
Cloud Design Tool	Same as AVT
CDA	Control Data Access: proprietary protocol between embedded process nodes (C300, FIM) and Experion system
DCS	Distributed Control System (DCS) is the process control system that accepts the output of transmitters and provides output to the final control elements in the field.
DD	A Device Description (DD) provides an extended description of each device and includes information needed for a control system or host to understand the meaning of data in the device.
DTM	Device Type Manager: A driver that plugs into a host system that allows a user to configure devices without another configuration device.
EDDL	Electronic Device Description Language (EDDL): Allows users to interact with their intelligent devices in new ways, including graphs, charts and calculations, among other benefits.
End User	End customer using Honeywell control and Instrumentation offering
EPC	Engineering, Procurement, Construction
EPKS	Experion Process Knowledge System (EPKS) is Honeywell's flagship Distributed control system
EPKS STAC Project	Experion STAC project is part of the larger LEAP program. LEAP is based on UIO, Virtualization and VEP targeted to the System Test and Commissioning phase of the project.
FDI	Field Device Integration Technology that combines the benefits of Device Description by means of UID (User Interface Descriptor) and the DTM by means of Optional UIP (User Interface Plugin)
FDM	Field Device Manager (Experion): The configuration Tool for Experion
FDT	Field Device Tool: An application program technology for a host that allows a user to navigate between devices for configuration purposes using a device driver called DTM
FI	Field Instrumentation
GF (Greenfield)	Greenfield (GF) is a description of a customer order segment type. Greenfield orders refer to orders that are placed from customer plants that are newly constructed.
HART 7.x	HART release 7.x Specification, includes Wireless HART option
HART® Protocol	HART Communications Protocol: Created by Rosemount and now supported by the FieldComm Group, previously, HART® Communications Foundation (HCF).
LEAP	Lean Execution of Automation Projects

MTC	Minimum To Compete
Parameter "Selected" In Offline view	This means, in FDM offline view, only if the checkbox next to the parameter is checked, this parameter will be included in the offline download. If this parameter is not Selected, and is part of a multiple parameters command, then the host will use the last value read from the device for that parameter while sending the relevant command to the device.
SmartLine device or Transmitter	Honeywell Pressure, Temperature, Level and Multivariable Transmitters – Only HART devices are in scope for this project
STAC	Smart Test and Automated Commissioning
VEP	Virtual Engineering Platform that supports Testing virtually

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1 Introduction

1.1 Overview

This document assumes that the User is familiar with the FDM Tool, Online and Offline Configuration, Creation of Templates, Import and Export.
Section 1.2 gives a brief overview of FDM offline feature. Section 1.2.2 and above provide guidelines to follow for individual SmartLine devices while creating Offline Configuration Templates.

1.2 FDM Offline Configuration overview

1.2.1 Offline Configuration Creation / Import / Export

After the FDM tool is Installed, Launch FDM.

Select the Offline View, right click on the HART Node, and select Create Configuration

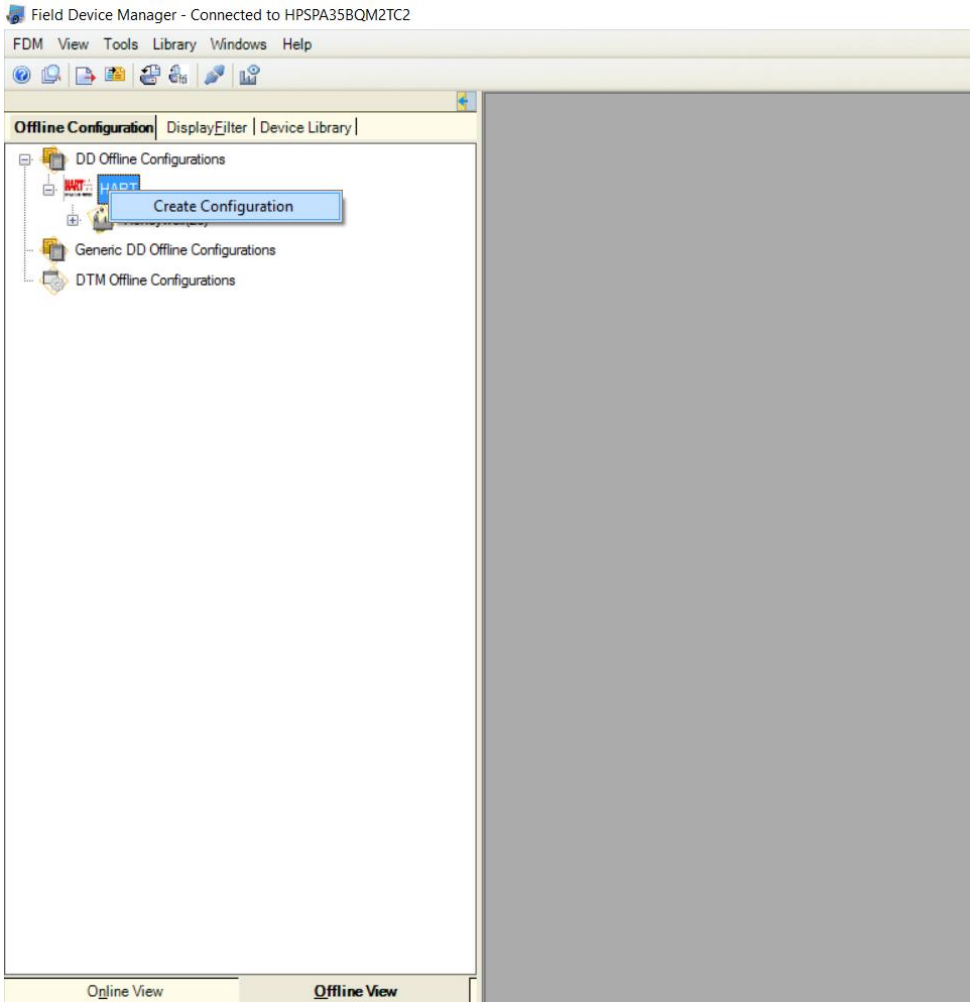

Figure 1 - FDM Offline User Interface

Select the Protocol, Manufacturer, Device Type, Device Revision for this device, select Create

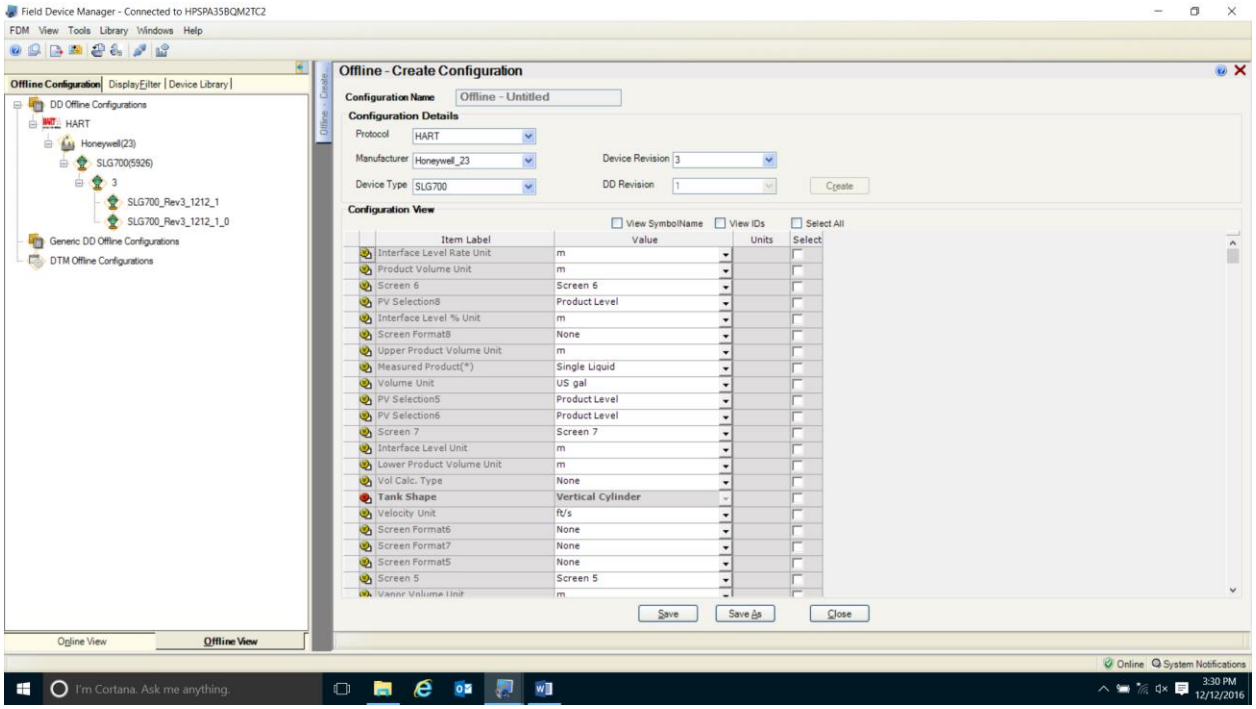

Figure 2 - FDM Offline parameter listing for selected device type

Offline configuration screen areas are labelled below:

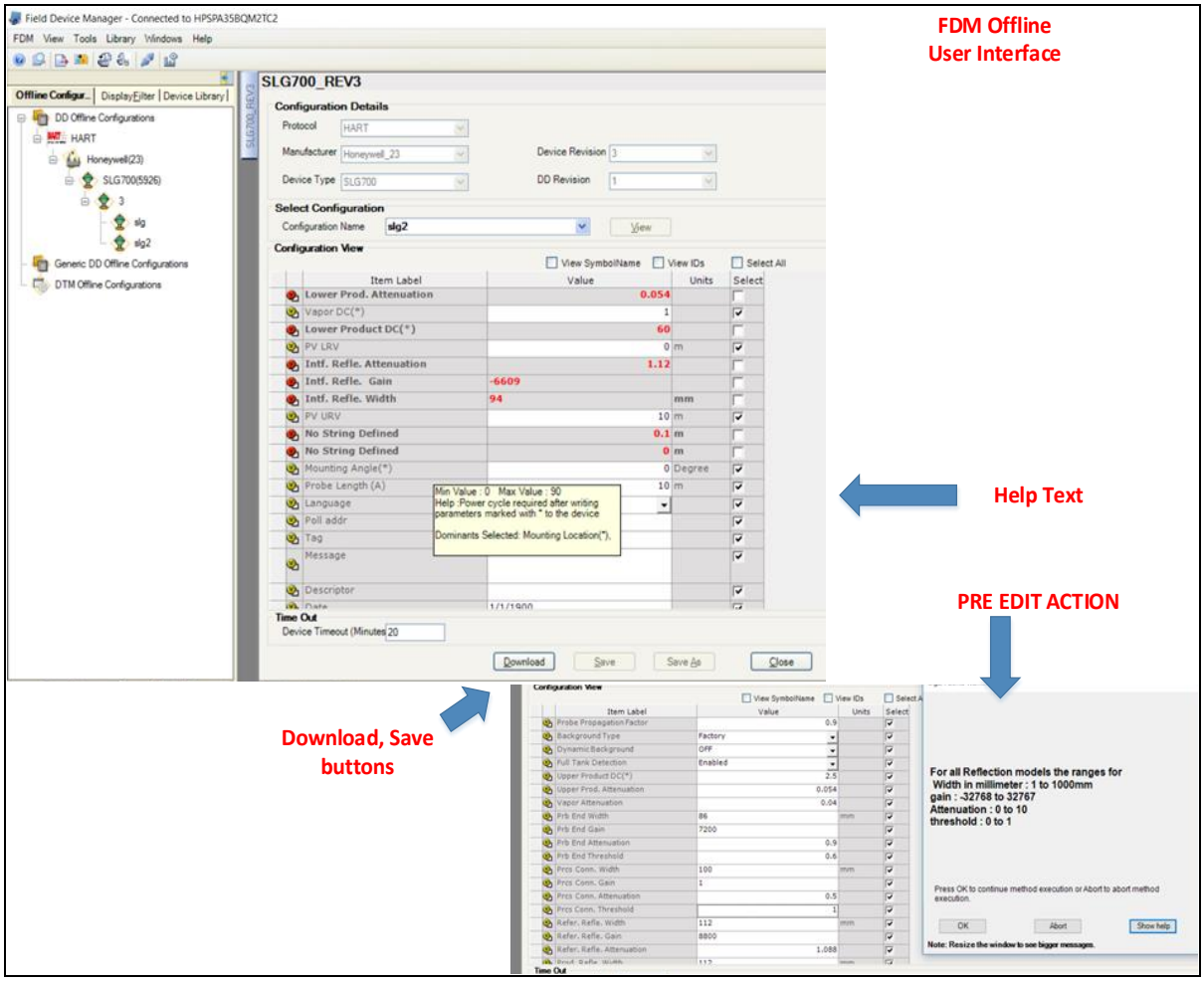

Figure 3 - FDM Offline parameter editing, and saving

Make sure you select only needed parameters when creating FDM Offline Templates.
If you use the Select All feature in Offline Template creation, make sure to unselect the listed parameters per the Design requirement of the individual SmartLine device as detailed in section 1.2.2 and above.

Help Text: Hover the mouse over the parameter to see brief help

Download and Save buttons: In Offline mode, the selected configuration can be saved to the database that can be exported to an external file. This file is the Input for one of the steps in Experion Auto Device Commissioning.

In Online mode, selected configuration can be downloaded to the connected device by selecting Download button. Based on the Context whether the mode is Online or Offline, the button shows Download or Save.

PRE EDIT ACTION: On some parameters a helpful tip will appear to guide the user on accepted values for that parameter.

1.2.2 Common parameters to unselect for all SmartLine

Table 1 - Common Parameters across SmartLine devices

Parameter to Unselect in Offline Configuration	Details
Long Tag	Factory ordered device should already have the Long Tag name programmed into it. Experion Channel Name would already match this Long Tag Name. This will help automatically match the channel name with the Long Tag name in the device during Auto Device Commissioning. Selecting this parameter in offline Template will download this parameter and thus, will overwrite the device Long Tag. If the new Log Tag is different from the Channel name, then the device will not be found during Commissioning step.
Loop current	Loop Current parameter used during Loop Test / Output Mode to set the value other than 4 or 20mA. Device will reject this parameter download in other scenarios.
• Install Date • Transmitter Install Date • Pressure Sensor Install Date • Temperature Sensor Install Date • Communication Module Install Date Note: Depending upon the SmartLine device type, any or all of the above Install Dates might be supported. Unselect them all.	This parameter is Writable only once (usually factory configures it to start accruing advanced diagnostics). So in the field user cannot configure this anymore. Write of this parameter 2nd time on will fail. Tooltip provided on this parameter.
Poll Addr	During auto detection of device in ADC, polling address has to be 0. Unselect this parameter from inadvertently setting a different polling address to the device during download.
% Unit	Unselect this parameter in Offline Template. This unit is applicable for download % type of device variables, and unit itself is not writable to the device. However, Unit relationship with device variables makes this parameter show up in Offline.

1.3 SLG700 device

Follow the guidelines below while configuring the device specific offline parameters

1.3.1 Unit Relations

When changing any or all of the parameters listed below, follow the hierarchy as shown below and make sure valid selections are made or valid values are entered:

- Measured Product
  - Volume Calc. Type
    - Change the units if needed. Mapped variables to PV, SV, TV, QV will inherit one of the units listed here based on the type of the mapped variables
      - Length Unit or
      - Volume Unit or
      - Velocity Unit
        - PV LRV (for the mapped PV)
        - PV URV (for the mapped PV)
        - Note: If you are not sure about mapped PV, unselect PV LRV, URV in offline template to avoid any out of range values during download.
          The Unit of Measurement for PV LRV, URV will not be downloaded regardless of what variable is mapped to the PV.
          Unit 'ft (feet)' appearing next to PV LRV, PV URV is just an indication that the default length unit is ft (feet), but this unit is not downloaded to the device therefore the user should ignore this unit while entering PV LRV, URV values.

Allowed selections for the above listed parameters are given in Table 2.

Note that Table 2 includes the changing parameter lists based on Measured Product and Volume Calculation parameter selections.

Table 2 - Parameter Relationships

Measured Product	**Volume Calculation Type**	**Variables that are allowed for mapping to PV, SV, TV, QV** (Note that variable mapping is not supported for download from Offline Template)	**URV, LRV of mapped PV**
Single Liquid	None	Product Level	Must be within the upper/ lower limits of mapped variable
		Product Level %	Same as above
		Distance To Product	Same as above
		Product Level Rate	Same as above
		Vapor Thickness	Same as above
		Vapor Thickness %	Same as above

Measured Product	Volume Calculation Type	Variables that are allowed for mapping to PV, SV, TV, QV (Note that variable mapping is not supported for download from Offline Template)	URV, LRV of mapped PV
Single Liquid	Ideal Tank Shape or Strapping Table Calculation	Product Level	Must be within the upper / lower limits of mapped variable
		Product Level %	Same as above
		Distance To Product	Same as above
		Product Level Rate	Same as above
		Vapor Thickness	Same as above
		Vapor Thickness %	Same as above
		Product Volume	Same as above
		Vapor Volume	Same as above
Two Liquids, Flooded	None	Interface Level	Must be within the upper / lower limits of mapped variable
		Interface Level %	Same as above
		Distance To Interface	Same as above
		Interface Level Rate	Same as above
		Upper Product Thickness	Same as above
Two Liquids, Flooded	Ideal Tank Shape Or Strapping Table Calculation	Interface Level	Must be within the upper / lower limits of mapped variable
		Interface Level %	Same as above
		Distance To Interface	Same as above
		Interface Level Rate	Same as above
		Upper Product Thickness	Same as above
		Lower Product Volume	Same as above
		Upper Product Volume	Same as above

Measured Product	Volume Calculation Type	Variables that are allowed for mapping to PV, SV, TV, QV (Note that variable mapping is not supported for download from Offline Template)	URV, LRV of mapped PV
Two Liquids, non-Flooded	None	Product Level	Must be within the upper / lower limits of mapped variable
		Product Level %	Same as above
		Distance To Product	Same as above
		Product Level Rate	Same as above
		Vapor Thickness	Same as above
		Vapor Thickness %	Same as above
		Interface Level	Same as above
		Interface Level %	Same as above
		Distance To Interface	Same as above
		Interface Level Rate	Same as above
		Upper Product Thickness	Same as above
Two Liquids, non-Flooded	Ideal Tank Shape Or Strapping Table Calculation	Product Level	Must be within the upper / lower limits of mapped variable
		Product Level %	Same as above
		Distance To Product	Same as above
		Product Level Rate	Same as above
		Vapor Thickness	Same as above
		Vapor Thickness %	Same as above
		Interface Level	Same as above
		Interface Level %	Same as above
		Distance To Interface	Same as above
		Interface Level Rate	Same as above
		Upper Product Thickness	Same as above
		Product Volume	Same as above
		Vapor Volume	Same as above
		Lower product volume	Same as above
		Upper Product Volume	Same as above

1.3.2 Power Cycle requirement on the device on downloading some parameters

Parameters with "*": Power cycle required after writing these parameters to the device. So, if the Offline Template had these parameters selected, after the Configure Step in ADC, device power cycle is required to clear the Critical status. Device will be in burnout (output at 21.5mA and all device variables reading NaN). If it is not required to change these parameters during ADC Configure step, unselect these parameters while creating the offline template.

Parameters are listed below:

Table 3 – Parameters that require device power cycling when updated

Measured Product(*)
Vapor DC (*R)
Upper Product DC (*R)
Lower Product DC(*)
Mounting Height(*)
Mounting Location(*)
Mounting Diameter(*)
Mounting Angle (*)
Probe Type(*)
Probe End Type(*)
Centering Disc Material(*)
Centering Disc Diameter(*)

If you have to make changes to the parameters listed in section 1.3.3 in addition to the parameters in section 1.3.2, follow the sequence below. But, do not download the parameters in section 1.3.2 and 1.3.3 together in one download.

Note1: Parameters in section 1.3.3 should not be changed/sent unless you have a known valid set from an installed transmitter on the same process

Follow this sequence:

1. Change any of the parameters in section 1.3.2
2. Download parameters to the device
3. Power cycle the device
4. Change any of the parameters in section 1.3.3 (Follow Note 1. If not sure, do not perform step 4 and 5)
5. Download parameters to the device

1.3.3 Reflection Model parameters and Measurement related parameters

Select the below listed parameters for download only under special circumstances where you need to preserve non-default values. These should not be changed/sent unless you have a known valid set from an installed transmitter on the same process.

Table 4 – Reflection model parameters

Reference Model Width
Reference Model Attenuation
Reference Model Gain
Reference Model Objective Threshold
Process Connector Model Width
Process Connector Model Attenuation
Process Connector Model Gain
Process Connector Model Objective Threshold
Surface Model Width
Surface Model Attenuation
Surface Model Gain
Surface Model Objective Threshold
Interface Model Width
Interface Model Attenuation
Interface Model Gain
Interface Model Objective Threshold
End Of Probe Model Width
End Of Probe Model Attenuation
End Of Probe Model Gain
End Of Probe Model Objective Threshold

When the user downloads any of the parameters listed in section 1.3.2, sensor automatically calculates the Reflection parameters and user does not need to adjust the above parameter values manually.

1.3.4 Mounting Location and dependent parameters

Based on the Mounting Location, relevant dependent parameters will be made Read only or Read Write as applicable.

Table 5 – Mounting Location and dependent parameters

Mounting Location	Dependent parameters that will be Read/Write
Tank	Mounting Angle
Bracket	Mounting Angle
Nozzle	Mounting Angle Mounting height Mounting diameter
Bypass	Mounting Angle Mounting height Mounting diameter
Still Well	Mounting Angle Mounting height Mounting diameter

1.3.5 Probe Type and dependent parameters

Based on the Probe Type, Centering Disk Material, Disk Diameter is made Read only or Read/Write as applicable.

Table 6 - Probe Type and dependent parameters

Probe Type	Centering Disk Material	Dependent parameters
Wire, Rod, Custom, Multi Twist Wire	None	Centering disk diameter is N/A, so this will be shown as read only in Offline configuration
	316/316L Stainless Steel	Centering disk diameter applicable
	PTFE	Same as above
	C-276 Nickel Alloy	Same as above
Coax	All disk materials N/A	Centering disk diameter N/A, so this will be shown as read only in Offline configuration

1.3.6 Latching Mode or Latching Alarm

Set Latching mode parameter value to: Non-Latching so that during the configuration download any device statuses are not Latched.

1.4 ST 700 standard and ST 700 basic Models

1.4.1 ST 700 Standard and Basic models

Follow the table below to select the right Display Type, Meter Body (MB) Type and dependent parameters based on the ST 700 model

NOTE: The distinctions between 2 display models here:

- ST 700 Standard Model (HART Device Revision 5): Supports Basic Display with 3 External buttons or Standard Display with 2 internal or 2 external buttons
- ST 700 Basic Model (HART Device Revision 4): Supports Standard Display with 2 internal or 2 external buttons.

Table 7 – ST 700 Pressure device model, Display type and dependent parameters

For either of ST 700 models, Advanced Display is not applicable

ST 700 Model	Display Type (None, Basic, Standard)	MB Type	Screen Format	PV Selection (Disp. PV Type)	Units and related parameters	PV Scaling
ST 700 Standard Rev 5 & ST 700 Basic Rev 4	**None**	N/A	N/A	N/A	N/A	N/A
ST 700 Standard Rev 5	**Basic Display**	DP	PV	Pressure	Pressure units	Linear
				Percent Output	% (auto selected, nothing to configure in Offline)	N/A
				Loop Output	mA (auto selected, nothing to configure in Offline)	N/A
				MBT	degC	N/A
				Static Pressure	Psi	N/A
		AP or GP	PV	Pressure	Pressure Units	Linear
				Percent Output	% (auto selected, nothing to configure in Offline)	N/A
				Loop Output	mA (auto selected, nothing to configure in Offline)	N/A
				MBT	degC	N/A

ST 700 Model	Display Type (None, Basic, Standard)	MB Type	Screen Format	PV Selection (Disp. PV Type)	Units and related parameters	PV Scaling
ST 700 Standard Rev 5 & ST 700 Basic Rev 4	**Standard Display**	DP	N/A	Pressure	Pressure Units	N/A
				Percent Output	% (auto selected, nothing to configure in Offline)	N/A
				Loop Output	mA (auto selected, nothing to configure in Offline)	N/A
				Flow	Disp. Scaling High Disp. Scaling Low Disp. Flow Units	N/A
		AP or GP	N/A	Pressure	Pressure Units	N/A
				Percent Output	% (auto selected, nothing to configure in Offline)	N/A
				Loop Output	mA (auto selected, nothing to configure in Offline)	N/A

1.5 STT850/750/700

STT700 does not support mixed sensor types: TC/RTD, RTD/TC. Both the types should be the same such as TC/TC or RTD/RTD.

1.5.1 Latching

Set Latching Alarm parameter value to: Disabled so that during the configuration download any device statuses are not Latched.

1.5.2 Parameters that can be downloaded from Offline template

Please refer the table below while creating Offline templates in FDM. Parameters that are not listed here are not supported for download during Auto device commissioning and thus, user should not select these parameters in offline template.

Offline parameters that are supported in STT850/750/700			
STT850	**STT750**	**STT700**	
			Remarks
tag	tag	tag	
long tag	long tag	long tag	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1
date	date	date	
desc	desc	desc	
PV unit	PV unit	PV unit	
pv damp	pv damp	pv damp	
SV unit	SV unit	SV unit	
Loop current mode	Loop current mode	Loop current mode	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1
Sensor scratch pad	Sensor scratch pad	Sensor scratch pad	
Message	Message	Message	
Tamper mode	Tamper mode	n/a	
Tamper Latency	Tamper Latency	n/a	
Max allowable attenpts	Max allowable attenpts	n/a	
NAMUR selection	NAMUR selection	NAMUR selection	
poll addres	poll addres	poll addres	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1
Rotation Time	Rotation Time	n/a	

Offline parameters that are supported in STT850/750/700			
STT850	**STT750**	**STT700**	
Screen Rotation	Screen Rotation	n/a	
Contrast level	Contrast level	n/a	
Sesnor1 Bias	n/a	Sesnor1 Bias	
PV Delta	n/a	Delta	
Delta Limit	n/a	Delta Limit	
Sensor scratch pad	Sensor scratch pad	n/a	
Damp bumpless transfer	n/a	Damp bumpless transfer	
Loop Control Mode	n/a	n/a	
Excess delta detect	n/a	Excess delta detect	
Hysterisys band	n/a	n/a	
Breakdetect	Breakdetect		
Lead wire	n/a	n/a	
Match PV	n/a	n/a	
Compansation external	n/a	n/a	
Latching Alarm	Latching Alarm	n/a	
Alarm 1 type	n/a	n/a	
Alarm 2 Type	n/a	n/a	
Alalrm Latching	Alalrm Latching	n/a	
Allarm Blocking	Allarm Blocking	n/a	
Advance diag option	n/a	n/a	
Deviation limit	n/a	n/a	
n/a	Sensor Bias	n/a	
n/a	n/a	Sensor 2 Bais	
n/a	n/a	Sensor1 Install Date	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1
n/a	n/a	Sensor2 Install Date	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1

1.6 SMV800

1.6.1 Parameters that can be downloaded from Offline template

Please refer the table below while creating Offline templates in FDM. Parameters that are not listed here are not supported for download during Auto device commissioning and thus, user should not select these parameters in offline template.

Parameters	Remarks
Tag	
Descriptor	
Long Tag	Do not select this parameter in FDM Offline template. Refer section 1.2.2 Table 1
Message	
Final asmbly num	
Namur Selection	
PV is	If you select this parameter, select SV is, TV is, QV is parameters also in the offline Template.
SV is	If you select this parameter, select PV is, TV is, QV is parameters also in the offline Template.
TV is	If you select this parameter, select PV is, SV is, and QV is also in the offline template
QV is	If you select this parameter, select PV is, SV is, and TV is also in the offline template
SP Unit	If you select this parameter, select all 4 device variable parameters: PV is, SV is, TV is, and QV is.
DP Unit	If you select this parameter, select all 4 device variable parameters: PV is, SV is, TV is, and QV is.
DP LRV	
DP URV	
SP LRV	
SP URV	
Flow Damp	
Sensor Scratch Pad	
Break Detect	
Latching Alarm	Set this Disabled or unselect it in offline Template so that any intermediate statuses during bulk download are not Latched
Lower Calib Point	
Upper Calib Point	
Sensor Bias	

KUser/Flow Coeff/Fc	
Pipe Diamter_D	
Bore Dia_d/APT Prob Width d	
Pipe Dia Mes Temp	
Bore Dia Mes Temp	
Atmospheric Pressure	
Max Flow Rate	
Max Diff Pressure	
Flow Cutoff Low	
Flow Cutoff High	
Tamper Mode	
Tamper Latency	
Max Allowable Attempts	
Language	
Rotation Time	
Screen Rotation	
Contrast Level	

2 Security

2.1 How to report a security vulnerability

For the purpose of submission, a security vulnerability is defined as a software defect or weakness that can be exploited to reduce the operational or security capabilities of the software or device.

Honeywell investigates all reports of security vulnerabilities affecting Honeywell products and services.

To report potential security vulnerability against any Honeywell product, please follow the instructions at:

https://honeywell.com/pages/vulnerabilityreporting.aspx

Submit the requested information to Honeywell using one of the following methods:

Send an email to security@honeywell.com.

or

Contact your local Honeywell Process Solutions Customer Contact Centre (CCC) or Honeywell Technical Assistance Centre (TAC) listed in the “Support and Contact information” section of this document.

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For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

ASIA PACIFIC

Honeywell Process Solutions,
Phone: + 800 12026455 or
+44 (0) 1202645583
(TAC) hfs-tac-support@honeywell.com

Australia
Honeywell Limited
Phone: +(61) 7-3846 1255
FAX: +(61) 7-3840 6481
Toll Free 1300-36-39-36
Toll Free Fax:
1300-36-04-70

China – PRC - Shanghai
Honeywell China Inc.
Phone: (86-21) 5257-4568
Fax: (86-21) 6237-2826

Singapore
Honeywell Pte Ltd.
Phone: +(65) 6580 3278
Fax: +(65) 6445-3033

South Korea
Honeywell Korea Co Ltd
Phone: +(822) 799 6114
Fax: +(822) 792 9015

EMEA

Honeywell Process Solutions,
Phone: + 800 12026455 or
+44 (0) 1202645583

Email: (Sales)
FP-Sales-Apps@Honeywell.com
or
(TAC)
hfs-tac-support@honeywell.com

AMERICAS

Honeywell Process Solutions,
Phone: (TAC) (800) 423-9883
or (215) 641-3610
(Sales) 1-800-343-0228

Email: (Sales)
FP-Sales-Apps@Honeywell.com
or
(TAC)
hfs-tac-support@honeywell.com

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For more information
To learn more about LEAP
visit www.honeywellprocess.com
Or contact your Honeywell Account Manager

Process Solutions
Honeywell
1250 W Sam Houston Pkwy S
Houston, USA, TX 77042

Honeywell Control Systems Ltd
Honeywell House, Skimped Hill Lane
Bracknell, England, RG12 1EB

Shanghai City Centre, 100 Jungi Road
Shanghai, China 20061

www.honeywellprocess.com

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