## SmartLink

**Configuration Manual** 

October 2012 Part No. 4417554 Revision 2



Enraf B.V. P.O. Box 812 2600 AV Delft Netherlands

**Honeywell Enraf** 

 Tel.
 : +31 15 2701 100

 Fax
 : +31 15 2701 111

 E-mail
 : enraf-nl@honeywell.com

 Website
 : http://www.honeywell.com/ps

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## 1 Scope of this Manual

This Configuration manual describes the configuration of the SmartLink system by means of Engauge service tool.

The Engauge service tool (version 2.2 and higher) is required for SmartLink modules delivered from September 2007 with software version:

- HCM-GPU A1002 (and higher)
- FCM-BPM A1002 (and higher)

For the previous SmartLink versions, refer to the SmartLink Configuration Tool User Manual revision 1.

### 2 Configuration of the SmartLink system

#### 2.1 The connection between the computer and the SmartLink

Before you can start to configure the SmartLink you have to connect the SmartLink to your computer with the service tool Engauge installed. The communication between the computer and the SmartLink takes place by means of a serial connection. The user must select a free serial port on the computer. The chosen port must be set in Engauge (refer to section 2.2), the maximum comport number is COM24. On the SmartLink side the communication takes place by using the Non Isolated RS232 interface on the HCM-GPU module (refer to figure 1).



Figure 1 HCM-GPU Module / SmartLink

#### 2.2 Making new Site in Engauge

Start up the service tool Engauge on the PC to which the SmartLink is connected.

If Engauge starts up with a site (a tree in the left part), then close that site by: **File** and **Close Site** (refer to figure 2).

Open a new site by: **File**, **New** and **Site**. In the Site control-Engauge window select **New**, enter the Site name and press the OK button (refer to figure 3).



Figure 2 Close site



Figure 3 Site Database

Select the dimensions as required and press the OK button and confirm.

Level dimension:     m       Temperature dimension:     'C       Density dimension:     kg/m*       Pressure dimension:     kPa       Flow dimension:     m*       Volume dimension:     m*       Volume dimension:     kg       Std. ambient air pressure:     101325       Air density:     1226	Global Settings		
Temperature dimension:     'C       Density dimension:     kg/m*       Pressure dimension:     MPa       Flow dimension:     m*/min       Volume dimension:     m*       Mass dimension:     kg       Std. ambient air pressure:     101.325       Air density:     1226	Level dimension:	m	•
Density dimension:     kg/m <sup>4</sup> Pressure dimension:     MPa       Flow dimension:     m <sup>3</sup> /min       Volume dimension:     m <sup>4</sup> Mass dimension:     kg       Std. ambient air pressure:     101.325       Air density:     1226	Temperature dimension:	°C	•
Pressure dimension:     kPa       Flow dimension:     m³/min       Volume dimension:     m²       Mass dimension:     kg       Std. ambient air pressure:     101.325     kPa       Air density:     1226     kg/m²	Density dimension:	kg/m*	•
Flow dimension: m <sup>1</sup> /min  Volume dimension: kg Std. ambient air pressure: 101.325 kt <sup>p</sup> a Air density: 1226 kg/m <sup>1</sup>	Pressure dimension:	kPa	•
Volume dimension: Mass dimension: Std. ambient air pressure: Air density: 1226 kg/m <sup>2</sup>	Flow dimension:	mª/min	-
Mass dimension:         kg           Std. ambient air pressure:         101.325         ktPa           Air density:         1226         kg/m²	Volume dimension:	mª	•
Std. ombient oir pressure:     101.325     kPa       Air density:     1.226     kg/m*	Mass dimension:	kg	•
Air density: 1.226 kg/m*	Std. ambient air pressure:	101.325	kPa
	Air density:	1.226	kg/m

Figure 4 Global Settings

Select the site icon by the mouse and click the right mouse button (refer to figure 5).

Select: Add Device

Select: COM and select the Comport to which the SmartLink is connected.

Toolt Life Sue Tielt			_
	Properties site: West-site		ú.
	Properties		
	Site Nome: West-site	Created: 2012-09-18	
	Site properties Location Customer Contect		
	Enrof Maarten van de	r Sloat	
	Bernarka:		

Figure 5 New Engauge Site

Select the com-port icon by the mouse and click the right mouse button Select: Add FieldConnector

Select: SmartLink and enter a name; for instance: SmartLink-0 Press: OK

🔏 Engauge - Explorer			- O <b>- X</b> -
File Tools Tree Device He	elp		
₩ West-site	Properties Device: CC 우리	DM3	
	Name/Port	Сома	•
	Fixed Protocol Settings:	True	-
	Boud Rate:	38400	• boud
	Boud Rate HART:	1200	beud
	HART:	Parity Odd Data Bits: 8 Stop Bits: 1	
	FlexConn:	Parity None Data Bits: 8 Stop Bits: 1	
	GPU:	Parity Odd Data Bits: 7 Stop Bits: 1	
	Modbus:	Parity Odd Data Bits: 8 Stop Bits: 1	
	Time Out:	3000	ms
	Turn Around Delay:	10	ms
	Retries:	0	
			Apply
Honeywell Enral Device COM	1		V2.5.4552.0 Professional

Figure 6 Com port settings

The default baud rate setting for the HCM-GPU module is: 38400

**Note:** If the Baudrate needs to be changed, first change in the Board Specific TAB of the HCM-GPU module, then on this TAB. Do not alter the fields for Databit, Parity and Stopbits.

Die Tools life Heio?onnector	Teb	
e de Cong	Properties fieldConnector: SmartLink-0, address 0	
	Properties	
	Site	
	Nome: West-site Created: 2012-09-18	
	Field Connector	
	Name: SmartLink-0	
	Address 0	
	FlexConn Address: 1900	
	Apply	
	Password	
	Password:	

Figure 7 SmartLink properties

The SmartLink address ranges from 0 till 9 and is default set to 0. Each SmartLink, connected to the PC, must have a unique address. The FlexConn Address is default 1900 and ranges from 1900 till 1999. Each FlexConn device, connected to the PC, must have a unique FlexConn address.

- **Note:** If the addresses are to be changed, first change on the TAB GPU Slave of the HCM-GPU module.
- Note: An alternative way for the manual site built-up is to 'scan' the field (refer to description below).
   As soon as the new site is created (after the selection of the Global Settings), select the site icon by the mouse and click the right mouse button (refer to figure 8).
   Select: Site Scan and press the 'Scan' button
- **Note:** If the scan button is not visible, maximize the Site Scan window ( $^{\square}$ ).

Westster	Properties site: We	est-site	
	🖇 Site Scan - Engauge		
		18	
	West-site		
	Honeywell Erraf Sile scan	V 25 4552 0	

Figure 8 Site Scan

Continue with Scan FlexConn boards (refer to figure 9):

Select the SmartLink icon by the mouse and click the right mouse button Select: Scan FlexConn boards.

🖌 Engauge - Explorer		
Ele Icols Tree FieldConnector H	elp	
	Properties fieldConnector: SmartLink-0, address 0	
an frank i soon oo	Properties	
	Ste	
	Name: West-site Created: 2012-09-18	
	Field Connector Name: SmartLink-0	
	FilesConn Address: 1900	
	booly	
	Poseword	
	Password:	
Honeywell Enrol Fieldconnector Smart	Link-0, address: 0. Connected to: COM3, 38400, 7, Odd, One.	V2.5.4552.0 Professional

Figure 9 SmartLink modules

### 2.3 HCM-GPU Module

e Iools Trge FlexConn H	lelp		
West-site     de COM3     de SmartLink-0     de SmartLink-0     de (000,4) HCM-GPU     (002,1) FCM-8PM     (002,2) FCM-8PM     de (002,2) FCM-8PM	Selected FlexConn Module:	[001,4] HCM-GPU	
[002.3] FCM-BPM	Statut Generic Board Specific (GPL)	Itime	
	Basic Configuration	20070	
	Commissioned [Board]	True	The other sector water and
	Commissioned [GPU slave]	True	and a state of the same
	Health (Board)		
	- Status:	Good	<b>出行</b> 自己的错误,"三个
	Status category:	Status category good actual	
	- Status code:	No error	Concession of the local division of the loca
	Health [GPU slave]		and the second se
	- Status:	Good	
	- Status category	Status category good actual	and a state
	- Status code:	No error	the state of the s
			Honoreal Energy
			Honeywea Errai
			Rend + Send
			Diano 1 Sterro

Figure 10 HCM-GPU Status

Select the HCM-GPU icon by the mouse and double click the left mouse button. The proper board descriptor will appear. To read the current data of this TAB sheet, press the Read button. Instead, you can also select to press the Read All button (available when extending the read function by the arrow at the right side of the read button). Then the current data of all TAB sheets are read.

The TAB sheet **Status** gives information about the health of the HCM-GPU module (refer to figure 10).

The TAB sheet **Generic** gives information on the installed software version and from there two commands can be given (refer to figure 11).



Figure 11 HCM-GPU Generic

Reset device button:	all modules of the SmartLink are reset
Reset board button:	only the HCM-GPU module is reset
Software version:	current installed software version for the HCM-GPU
	module.

The TAB sheet **Board Specific** provides host communication information as baud rate and turn around delay time (refer to figure 12).



#### Figure 12 HCM-GPU Board Specific

Baud rate: Host communication baud rate of the SmartLink. The default setting is 38400. When required, the baud rate can be changed. The following settings are possible:

- 38400
- 19200
- 9600
- 4800
- 2400
- 1200

To make the change effective, press the Send button. When the baud rate is changed, also change the baud rate at the COM port icon (two levels higher).

Turn around delay:

This setting is used for host systems that cannot switch directly from sending to receiving. The delay time can be set between 0 and 2000 msec.

On the TAB sheet **GPU-slave** communication parameters can be set such as: GPU and FlexConn interface addresses, parity and modem control type (refer to figure 13).

🔏 Engauge - Explorer			
Eile Iools Trge FlexConn Hel	p		
K West-site     ## COM3     ## SmartLink-0     # SmartLink-0     # [001,4] HCM-GPU     # [002,2] FCM-BPM     # [002,2] FCM-BPM     # [002,2] FCM-BPM	Selected FlexConn Module: [001	,4] HCM-GPU	
- Downey Constraint	Status Generic Board Specific GPU slave		
	Basic Configuration Identification: GPU interface address:	0	and the second second
	FlexConn interface address:	1900	and the second se
	Password	Odd	and the second second
	Modem control type:	Non isolated RS232	
	ACK mechanism:	Disable	and the second se
	Function identification:	GPU-sleve	
			Honeywell Enraf
			Bend + Send +
Honeywoll Enrol Read all 19 mess	age(s) , Errors: 0		V2.5.4552.0 Professional

Figure 13 HCM-GPU slave

Identification:	An 8 character long name for the HCM-GPU board.
GPU interface address:	The address of the SmartLink, ranging from 0 till 9 (similar as the CIU address). Each SmartLink, connected to the same PC ComPort, must have a unique address. If the GPU interface address is changed from default, and the new address has been sent to the HCM-GPU module, then also change the address at the SmartLink icon Properties TAB sheet (one level higher).
FlexConn interface addres	ss: The address for FlexConn communication, ranging from 1900 till 1999. Each SmartLink, connected to the same PC ComPort, must have a unique address. Similar as with the GPU interface address, if changed from default, also alter this FlexConn address at the SmartLink icon (one level higher).

Password:	6 alpha-numerical characters. Changing of some entities requires a password. Default, ENRAF2 (or with newer software versions: AAAAAA) is used as password. Unless it is changed in this entity; then is requested for the password.
Parity:	Can be set to: Odd, Even or None. Standard Enraf GPU protocol (and FlexConn protocol) uses Odd parity.
Modem control type:	Can be: - Isolated RS232 (uses connector CN2, marked 1 to 4) - Isolated RS485 (uses connector CN3, marked 5 to 8) - Non isolated RS232 (uses 9 pin D-type connector) - Non isolated RS422 (uses 9 pin D-type connector) - Non isolated RS232 (handshake) (uses 9 pin D-type connector) When changed from default, make sure to adapt the communication line according to the new setting.
ACK mechanism:	Can be set to Enable or Disable. When enabled, the SmartLink transmits ACK characters about every 50 msec. after a host request is received and the reply message is not yet ready.
Function identification:	In the SmartLink, the HCM-GPU module has the function of: GPU-slave (the host is the GPU-master).

#### 2.4 FCM-BPM Module

Die Toos life Mexcoli Dei		***			
West-site West-site West-site GotA3 GotA9	Selected FlexConn Module:	[002,1] FCM-BPM			
In forest comprise	Status Generic Board Specific BPM master				
	Basic Configuration Commissioned [Board]	True	Transfer State		
	Commissioned [BPM master]: Health [Board]	True			
	- Status:	Good			
	- Status category:	Status category good actual			
	- Status code:	No error	State of the second		
	Health [BPM master]		COLUMN TWO IS NOT		
	- Status:	Good			
	- Status category:	Status category good actual	and the second second		
	- Status code:	No error			
			Honeywell Enraf		
			Bend • Send •		
Honoywell Erraf Read all 19 messa	ige(s) , Errors: 0		V2.5.4552.0 Professional		

Figure 14 FCM-BPM Status

Select the FCM-BPM icon by the mouse and double click the left mouse button. The proper board descriptor will appear. The TAB sheet **Status** gives information about the health of the HCM-GPU module (refer to figure 14).

The TAB sheet **Generic** gives information on the installed software version, the board instance number and from there three commands can be given (refer to figure 15).

ile Iools Trge FlexConn Hel	P		
Westsite     Westsite     # cOM3	Selected FlexConn Module: [002,1] FCM-BPM		<b>21</b> 🕅 <b>2</b> 5
- I (UZ3) FCMBPM	Status Generic Board Specific BPM mas	tor	
	Basic Configuration		11
	Reset device		THE OWNER WATCH DESIGNATION OF
	Reset board		STATE OF THE OWNER
	Test LED's		
	Board instance:	1	
	Board name:	FCM-BPM	and the second se
	Board hardware version:	0	THE REPORT OF
	FlexConn and application SW version		And the second se
	- Identification:	Α	
	- Main:	1	
	- Major:	0	
	- Minor:	0	and the second s
	- Revision:	3	
	- Prelimenery:		Honeywell Enraf
	Board descriptor version:	0	
			Bead - Send -

Figure 15 FCM-BPM Generic

Reset device button:	All modules of the SmartLink are reset
Reset board button:	Only the FCM-BPM module is reset
Test LED's button:	The TxD and RxD led's are switched on for 10
	seconds. The selected FCM-BPM Module is
	identified. This is useful incase more than one FCM-
	BPM Module is present.
Board Instance:	If more than one FCM-BPM Module is present in the
	SmartLink, each FCM-BPM Module needs to have a
	unique board instance number. Range: 0 till 9.
Software version:	Current installed software version for the FCM-BPM
	module.

The TAB sheet **Board Specific** provides field communication information as baud rate and sensitivity (refer to figure 16).



#### Figure 16 FCM-BPM Board Specific

Baudrate:

The field baud rate on the BPM transmission line (Enraf field bus) can be set to:

- 1200
- 2400
- 4800
- **Note:** Baud rate selection of 4800 is only possible with 990 SmartRadar FlexLine connected to the Enraf Fieldbus.
- BPM receiver sensitivity: This entity ranges from 1 to 8, whereby 8 represent the highest receiver sensitivity (5 mV). Each step down represents an attenuation of approximately 5 to 6 dB.

On the TAB sheet **BPM-master** communication parameters can be set such as: GPU and FlexConn instrument start and stop addresses and a time-out (refer to figure 17).



#### Figure 17 FCM-BPM master

Identification:

An 8 character long name for the FCM-BPM board.

GPU instrument start address:

GPU instrument stop address:

When one FCM-BPM Module is used in the SmartLink, the default start and stop addresses (0 and 99) can be used.

When two or three FCM-BPM Modules are used in the SmartLink, a division must be made of the full range; for instance:

0 till 49 for the first FCM-BPM Module 50 till 99 for the second FCM-BPM Module or

0 till 29 for the first FCM-BPM Module 30 till 59 for the second FCM-BPM Module 60 till 99 for the third FCM-BPM Module FlexConn instrument start address:

FlexConn instrument stop address:

When one FCM-BPM Module is used in the SmartLink, the default start and stop addresses can be used.

When two or three FCM-BPM Modules are used in the SmartLink, a division must be made, like described above.

**Note:** This is only required when FlexConn gauges are connected (like the SmartRadar FlexLine).

Time-out GPU instrument reply:

A time-out can be specified on the instrument's reply record. The time-out can be set between 10 and 2000 msec.

- Password: Refer to the password description of the HCM-GPU module.
- Function identification: In the SmartLink, the FCM-BPM module has the function of: BPM-master (the instrument is the BPM-slave).

#### 2.5 Configuring a service (second) HCM-GPU module

A second HCM-GPU can be installed as a service port. For instance, a PC with the service tool Engauge can be connected, for all service purposes, without interrupting the Host computer.

🔏 Engauge - Explorer						
<u>File Tools Tree FlexConn Help</u>						
West-site     Government SmartLink-0     Government SmartLink-0     Government Geven     Government Geven     Government Geven     Government Geven     Government Geven     Government Geven	Selected FlexConn Module: [001	,0] HCM-GPU				
Board ID Board instance	Status Generic Board Specific GPU slave Basic Configuration Reset device Reset board Test LED's	•				
	Board instance:	0				
	Board name:	HCM-GPU				
	Board hardware version:	1				

Figure 18 Board instance number

With identical boards installed, each HCM-GPU board must have a unique Board instance number.

The recommended way is to alter the Board instance number from the first HCM-GPU module (the one which is connected to Engauge at the moment), from default (0) to for instance: 1.

Then the second (service) HCM-GPU module can be installed (refer to installation guided HCM-GPU module). As this will have the default number, the two board instance numbers are unique.

Continue to configure all required entities as explained in section 2.3.

The test LED's button now has a function to identify the module. (the TxD and RxD led's are switched on for 10 seconds, thereby identifying the selected HCM-GPU module).

Via the service HCM-GPU module, the first (main) HCM-GPU module (and also the FCM-BPM modules) can be reset in case that is required.

Notes:

#### Notes:

#### Notes:

# **Honeywell Enraf**

Delftechpark 39 2628 XJ Delft

Tel. :+31 15 2701 100 E-mail : <u>enraf-nl@honeywell.com</u> Website: <u>http://www.honeywellenraf.com</u>

PO Box 812 2600 AV Delft The Netherlands

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