



600/700 Series Profibus DP

Instruction Manual

Profibus DP Device Specification for Models: 640S, 760S, 780S, and 780S-UHP Thermal Mass Flow Meters



Part Number: IM600/700 ProfibusDP Rev.V1 May 2013



GLOBAL SUPPORT LOCATIONS: WE ARE HERE TO HELP!

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Sierra Instruments, Inc. is not liable for any damage or personal injury, whatsoever, resulting from the use of Sierra Instruments standard mass flow meters for oxygen gas. You are responsible for determining if this mass flow meter is appropriate for your oxygen application. You are responsible for cleaning the mass flow meter to the degree required for your oxygen flow application.

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Warnings and Cautions



Warning! Agency approval for hazardous location installations varies between flow meter models. Consult the flow meter nameplate for specific flow meter approvals before any hazardous location installation.

Warning! Hot tapping must be performed by a trained professional. U.S. regulations often require a hot tap permit. The manufacturer of the hot tap equipment and/or the contractor performing the hot tap is responsible for providing proof of such a permit.

Warning! All wiring procedures must be performed with the power off.

Warning! To avoid potential electric shock, follow National Electric Code safety practices or your local code when wiring this unit to a power source and to peripheral devices. Failure to do so could result in injury or death. All AC power connections must be in accordance with published CE directives.

Warning! Do not power the flow meter with the sensor remote (if applicable) wires disconnected. This could cause over-heating of the sensors and/or damage to the electronics.

Warning! Before attempting any flow meter repair, verify that the line is de-pressurized.

Warning! Always remove main power before disassembling any part of the mass flow meter.



Caution! Before making adjustments to the device, verify the flow meter is not actively monitoring or reporting to any master control system. Adjustments to the electronics will cause direct changes to flow control settings.

Caution! All flow meter connections, isolation valves and fittings for hot tapping must have the same or higher pressure rating as the main pipeline.

Caution! Changing the length of cables or interchanging sensors or sensor wiring will affect the accuracy of the flow meter. You cannot add or subtract wire length without returning the meter to the factory for re-calibration.

Caution! When using toxic or corrosive gases, purge the line with inert gas for a minimum of four hours at full gas flow before installing the meter.

Caution! The AC wire insulation temperature rating must meet or exceed 80°C (176°F).

Caution! Printed circuit boards are sensitive to electrostatic discharge. To avoid damaging the board, follow these precautions to minimize the risk of damage:

- before handling the assembly, discharge your body by touching a grounded, metal object
- handle all cards by their edges unless otherwise required
- when possible, use grounded electrostatic discharge wrist straps when handling sensitive components

Note and Safety Information

We use caution and warning statements throughout this book to drawyour attention to important information.



Warning!

This statement appears with information that is important to protect people and equipment from damage. Pay very close attention to all warnings that apply to your application.



Caution!

This statement appears with information that is important for protecting your equipment and performance. Read and follow all cautions that apply to your application.

Receipt of System Components

When receiving a Sierra mass flow meter, carefully check the outside packing carton for damage incurred in shipment. If the carton is damaged, notify the local carrier and submit a report to the factory or distributor. Remove the packing slip and check that all ordered components are present. Make sure any spare parts or accessories are not discarded with the packing material. Do not return any equipment to the factory without first contacting Sierra Customer Service.

Technical Assistance

If you encounter a problem with your flow meter, review the configuration information for each step of the installation, operation, and setup procedures. Verify that your settings and adjustments are consistent with factory recommendations. Installation and troubleshooting information can be found in the <u>SteelMassTM 640S</u> and <u>FlatTrakTM 780S</u> (includes 760S and 780S-UHP) Series product manuals.

If the problem persists after following the troubleshooting procedures outlined in the 640S or 780S product manuals, contact Sierra Instruments by fax or by E-mail(see inside front cover). For urgent phone support you may call (800) 866-0200 or (831) 373-0200 between 8:00 a.m. and 5:00 p.m. PST. In Europe, contact Sierra Instruments Europe at +31 20 6145810. In the Asia-Pacific region, contact Sierra Instruments Asia at +86-21-58798521. When contacting Technical Support, make sure to include this information:

- The flow range, serial number, and Sierra order number (all marked on the meter nameplate)
- The software version (visible at start up)
- The problem you are encountering and any corrective action taken
- Application information (gas, pressure, temperature and piping configuration)

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Chapter 1: Introduction

This manual will explain how to add a Sierra flow meter to a Profibus DP network using the Profibus DP interface. The interface allows access to all relevant data available in the flow meter.

Set Up Quick Step Plan

To successfully add the flow meter to a Profibus DP network you need the following:

- Profibus network with a DP master
- GSD file
- Bitmap files
- Connection cable
- Power supply (for the flow meter)

Setup steps:

- Load GSD
- Copy bitmaps
- Add slave device to system
- Set slave configuration
- Set slave station address
- Download configuration
- Test configuration

Chapter 2: Field bus installation

All fieldbus connection for your Smart Meter is made on the right side:



Fieldbus Connector

The Profibus DP network is connected to the chassis female M12 connector (B-coded). The connector has the following pin configuration:



(Front view)

The Profibus DP network can be connected with a special terminal block connection. This must be requested at the time of ordering. The down side of this is the PB-5V and PB-GND will not be available to power a terminator. You should also pull 2 Profibus cables to maintain the daisy chain topography, to avoid spur lines.



Cable

Profibus cables are shielded twisted-pair copper cables which differ from each other in the type of wire (fixed/flexible) and/or sheath. The two inner cores of a Profibus cable have green and red insulation. The specifications in this chapter are primarily intended to provide a general introduction and describe the cable properties to be considered (see also IEC 61784-5-3). A good cabling guide can be found online at: http://verwertraining.com/wp-content/uploads/InstallationGuideV9_2.pdf.

The cable must conform to the following specifications:

- Impedance: 150 Ohm (nominal) at frequencies from 3 to 20 MHz.
- Cable capacitance: < 30 pF per meter.
- Core diameter: $> 0,34 \text{ mm}^2$, corresponds to AWG 22.
- Cable type: twisted pair cable. 1x2 or 2x2 or 1x4 lines.
- Resistance: < 110 Ohm per km.
- Signal attenuation: max. 9 dB over total length of line section.
- Shielding: CU shielding braid or shielding braid and shielding foil.
- Max. Bus length: 200 m at 1500 Kbit/s, up to 1,2 km at 93,75 Kbit/s.

Termination

The Profibus physical layer is based on RS-485, and therefore termination resistors are needed at both ends of the network. The image below shows how to connect the terminators:



Ready-made terminators are available for easy installation.

Status Leds

The interface has two multi-color LED's mounted inside the enclosure to indicate the status. To access the LED's, remove the front cap.



The left LED shows the status of the interface, the right LED shows the network status.

Status LED:

Status	Description
Flashing green/red	Initializing
Steady green	Device operational
Flashing red	Recoverable hardware failure
Steady red	Hardware failure – attention required

Network LED:

Status	Description
Off	Not online – waiting for configuration
Steady green	Data exchange
Flashing red	Connection lost

Slave Address

Once the interface is installed, the slave address of the interface can be set. Default instruments will be delivered with slave address 126. This address has been agreed by the Profibus organization to be free for installing new devices to the bus. Changing the station address is done in two ways, either through a dip switch or through the master.

Dip Switch

The dip switches are located inside the meter. Remove the display cover to expose the switches:



The dip switch is binary encoded with the LSB (lowest bit) on the left side. The switch is only read during power-up.



The switch becomes active when the slider is moved upwards. Here some examples of some addresses (1 = on/up, 0 = off/down):

Address	Dip Switch			
ID	1 2 3 4 1 2 3 4			
1	1 0 0 0 0 0 0			
14	0 1 1 1 0 0 0 0			
60	0 0 1 1 1 0 0			
125	1 0 1 1 1 1 0			

<u>Note:</u> An address set with the dip switch has the highest priority and the slave address will use this address when powering up!

Server Assigned Address

It is possible to change the address of the unit through the server. Perform the following steps to change the address:

- 1. Assign a new address from the server
- 2. Set the dip switch to 128 (pin 8 on) or higher.

The assigned address will be used each time that the unit is powered.

Set Address (126)

It is possible to force the address of the unit to 126. Set the dip switch to zero and power cycle the unit. The address is set to 126. The address can be changed by the server if needed. Do keep in mind that if the dip switch remains set to zero, the address will be set to 126 at each power-up.

Chapter 3: Configuration

GSD File

Each Profibus DP instrument comes with its own GSD-file. The GSD file can be obtained from the documents and downloads page (<u>http://www.sierrainstruments.com/products/downloads/profibus-dp</u>). The GSD file contains the instrument specifications telling the master configuration software which facilities/features the instrument offers to the Profibus system.

The GSD-file is a text-file containing:

- Identification info:
 - Model name: "SteelMassTM 640S Profibus"
 - Vendor name: "Sierra Instruments Inc."
 - o Identification number: 0x013E
 - Bitmap device: "640S_dev"
 - Bitmap diagnostics: "640S dia"
 - Bitmap SF: "640S_spf"
 - (Bitmap files are used in configuration software to indicate instrument status)
- Revision numbers
 - Hardware characteristics:
 - VPC3+C dependable properties
- Software characteristics:
 - Supported features of Profibus: Freeze, Sync, auto baud rate detection
- Maximum bus data lengths
- Size of used data buffers
- Modules with cyclic input / output variables for the instrument.

Cyclic Data Overview

The following table shows the cyclic input & output buffer supported by the device. Module 1 has 42 bytes in of process data in, and 12 bytes out. The actual data address will depend on preceding devices on your bus. The matrix example below shows the actual data addresses, assuming the 640S/780S is the first device on your Profibus network.

Data	Description	Size	Format
Address		(bytes)	
0	Flow	4	REAL
4	Totalizer	4	REAL
8	User full scale	4	REAL
12	Factory full scale	4	REAL
16	K-factor	4	REAL
20	Serial number	12	ASCII
32	Flow unit	5	ASCII
37	Totalizer unit	3	ASCII
40	Status	2	INT

Incoming Cyclic Data (Slave To Master Module 1)

42 bytes

Data Address	Description	Size (bytes)	Format
0	Reset totalizer	4	REAL
4	User full scale	4	REAL
8	K-factor	4	REAL
		12 bytes	

Outgoing Cyclic Data (Master To Slave Module 1)

Cyclic Data Explained

Flow (R):

Data type: 32 bit floating point (LSB – MSB) Description: The actual flow as measured by the instrument

Totalizer (R):

Data type: 32 bit floating point (LSB – MSB) Description: Accumulated flow

User full scale (R):

Data type: 32 bit floating point (LSB – MSB)) Description: The user full scale value allows you to re-range the instrument. Any value between

50% and 100% of the factory full scale is allowed. The new value will also redefine the analog outputs of the instrument (when used). The 20mA/5 VDC will represent the new full scale value.

Factory Full Scale (R):

Data type: 32 bit floating point (LSB – MSB) Description: Factory full scale value of the instrument.

K-Factor (R):

Data type: 32 bit floating point (LSB – MSB) Description: K-factor which can be used to adjust the flow reading

Serial Number (R):

Data type: 16 bits ASCII Description: Serial number of the instrument (12 characters).

Flow Unit (R):

Data type: 16 bits ASCII Description: Flow unit of the instrument (5 characters).

Totalizer Unit (R):

Data type: 16 bits ASCII Description: Totalizer unit of the instrument (3 characters).

Status (R):

Data type: 16 bit integer Description: Status indicates if the quality of the data in the registers (0 = bad, 1 = good).

Reset Totalizer (W):

Data type: 32 bit floating point (LSB – MSB) Description: Accumulated flow

K-Factor (W):

Data type: 32 bit floating point (LSB – MSB) Description: K-factor which can be used to adjust the flow reading

User Full Scale (W):

Data type: 32 bit floating point (LSB – MSB)) Description: The user full scale value allows you to re-range the instrument. Any value between

50% and 100% of the factory full scale is allowed. The new value will also redefine the analog outputs of the instrument (when used). The 20mA/5 VDC will represent the new full scale value.

Syscon Software

Sycon is a tool for the configuration of a Fieldbus network using a Hilscher CIF50-PB master. You may be using different configuration software and hardware Master. However you will need to accomplish the same functions. No specific slave DTMs of the equipment are available, which are generated from the device description files, called generic slave DTMs.

Online diagnostic indicators and auto-scan function for the reading of network participants assist in the commissioning of the network.

This guide will explain step by step how to configure the system to support various fieldbus slaves on a Hilscher CIF50-PB master.

Before starting make sure that the necessary device description files (GSD & bit maps) are available in your device catalog. These are available on our web site.

Import Device Description Files

In order to use a fieldbus device its properties need to be added to the server. This is done by importing the device description files into Sycon.

• Start Sycon and create a new document (File -> New)

A dialog window appears asking to select a fieldbus. For this example select Profibus:

률 SyCon - [Network View]	
着 File View Online Settings	Window Help
Select fieldbus	
AS-Interface CANopen DeviceNet Ethernet / Protocol InterBus PROFIBUS	OK Cancel

The main window is loaded. Go to the file menu and select "Copy GSD":

🚅 S	yCon - [Uni	named2]						
۲ <mark>ور</mark> ا	ile Edit Vie	w Insert	Online	Settings	Tools	Window	Help	_ 8 ×
	New			Ctrl+N				
_	Open			Ctrl+0				
-1	Close							
	Save			Ctrl+S				
	Save As				<u> </u>			
	Export			•	I			
	Copy GSD							
-	Print			Ctrl+P				
	Print Preview	v			I			
	Print Setup.							
	1 Unigate m	ain board v	0.9.pb					
	2 Testing 10	OS_EDS_2.	dn		I			
	3 Master+si	inigate.pb			I			
	4 Master+si	inigate.pb						
	Exit				I			
Copie:	s a GSD file int	o the GSD (directory	,			PROFIBUS	Config Mode

Locate the desired GSD file and load it. The GSD data is added to the Sycon library but it isn't available yet. Quit the program and restart it to make it available.

Configure A Slave



Create A New Document And Insert A Master:

Place the master at the top of the line. A dialog window appears where a master needs to be selected from a list. The list shows every type of master supported by Sycon. Select the Profibus master which has been installed on the PC:

Insert Master		X
Available masters CIF100-PB CIF104-DP-AB CIF104-FMS CIF104P-PB / CIF104C-PB CIF104P-PB / CIF104C-PB	Selected masters CIF50-PB Add >>	<u>O</u> K <u>C</u> ancel
CIF30-FMS CIF30-PB / CIF104-PB CIF50-PB CIF60-PB CIFPS1-DPM CIFPS1-DPM	<< R <u>e</u> move All << <u>R</u> emove	
Vendor name Hilscher GmbH Ident number 0x1645 GSD file name HIL_1645.GSD	Station address 0 Description Master0	

Leave the station address set to zero. Press the "Add" button and then the "OK" button.

A window pops up showing the driver linked to the selected master. Press "Yes" to use the hardware.

Questio	n 🛛 🔀
2	The configurator has detected a suitable hardware on your system.
~	Driver name 'CIF Device Driver' Board ID '1'
	Do you want to assign the hardware?
	<u>Yes</u> <u>N</u> o

<u>Note</u>: The board ID number changes when extra PCI cards are added to the PC. Older configurations must be checked before trying to run them.

Auto Addressing

The master needs to be set to auto addressing. Click on the master and from the file menu select "Settings -> Master configuration":

💣 SyCon - [100S + 640S.pb]		
දී File Edit View Insert Online	Settings Tools Window Help	_
	Device Assignment Ctrl+B	1
	Bus Parameter	
	Master Settings	
	Master Configuration	
	Group Membership	
PROF	Slave Settings	
6655	Slave Configuration	000
	Parameter Data	
	FMS Settings	

Make sure the "Auto addressing" is checked:

Master Configur	ation			X
General Description Station address Device DP Support	Master0 CIF50-PB			<u>O</u> K <u>C</u> ancel
<u>D</u> P Master S	ettings	🔽 Auto addressing	\langle	
-FMS Support				
<u>F</u> MS Setti	ngs	C <u>R</u> L		
		<u>O</u> D		<u>A</u> ctual Master

Insert A Slave To The System.

File menu: Insert -> Slave. Place it below the master:

SyCon - [Unnamed2]		3
12 File Edit View Insert	Online Settings Tools Window Help _ a	×
🗋 🗃 🖬 🏂 🔤		
Com Prec	fined Slave	-
	Master0	
	Station address 0	
	FMS/DP Master CIF50-PB	
	Add slave here	

Set the slave filter to "Sierra Instruments Inc.". Select the desired GSD file, press the "Add" button, set the slave address and description to match the slave and press the "OK" button.

Insert Slave						×
Slave Filter Vendor Sie Slave type All Available slaves	erra Instruments, Inc.	•	Master	0 / CIF50-PB	•	<u>OK</u> <u>C</u> ancel
MAX-TRAK Smart Meter 640 Smart Trak - Pro Smart Trak - Pro Smart Trak - Pro Smart Trak - Pro Smart Trak - 1005	<mark>S - Profibus</mark> fibus fibus fibus fibus - Profibus	<u>A</u> dd >> A <u>d</u> d All >> << R <u>e</u> move All << <u>R</u> emove				
Vendor name Ident number GSD file name GSD Revision	Sierra Instruments, Inc. 0x0E13 SIER0E13.GSD V1.0		Station add Descriptior	dress		

Note: If no slave device appears in the window then the GSD file hasn't been copied into Sycon.

Double click on the added slave in the main window. The slave configuration window appears:

Slave Configuration	I			X
General Device Smart Description Slave	Meter 640S - Profibu 1 actual configuration	s Statior	n address 1	<u>Cancel</u>
Max. length of in-/output Max. length of in-/output Max. length of input dat Max. length of output dat Max. number of module:	control It data 54 Byte a 42 Byte ata 12 Byte s 1	GSD file SI Length of in-/outp Length of input d Length of output Number of module	EROE13.GSD but data 54 B ata 42 B data 12 B es 1	Byte <u>D</u> FV1 Settings Byte Assigned master Station address 0 Master0
Module 42 bytes in, 12	Inputs	Outputs In/Out 12	Identifier 0xC0, 0x8B,	O / CIF50-PB Actual slave Station address 1 Slave1 1 / Smart Meter 640S - Prol
Slot Idx Module	Symbol Type Modulel IB	I Addr. I Len. 7 0 42	Type 0 Addr. 0 QB 0 1	D Len. ▲ <u>Append Module</u> 12 <u>B</u> emove Module <u>Insert Module</u> Predefined <u>M</u> odules ▼ <u>Symbolic Names</u>

Select the desired modules by double clicking on the module name. Press the "OK" button.

When done save the new configuration to disk (File -> save as).

Download Configuration

The configuration needs to be downloaded to the master (Online -> Download):

💣 SyCon - [100S play a	ound.pb]	
File Edit View Insert	Online Settings Tools Window Help	
	Download Ctrl+D	
	Start Debug Mode	
	Device Diagnostic FMS Diagnostic	
ener Sust	Firmware Download Image Download Firmware / Reset Extended Device Diagnostic Ctrl+T	D is 0 w CIF50-PB
	Global State Held Live List I/O Monitor Message Monitor FMS Monitor	s 1 _ Smart Meter 640S - Profibus
	Automatic Network Scan	

A pop-up may appear warning you that the communication may stop:



Press "Yes" to continue. The data is downloaded to the master:

💣 SyCon - [640S.pb]			
File Edit View Insert Online Settings Tools	Window Help		
📩 🛍 😼 PDD			
PROF.	Master0 Station address	0	
	FMS/DP Master	CIF50-PB	
A	Slave1		
- 🏆 🚳	Station address	1	
	DP Slave	Smart Meter 640S - Profibus	
		Download Station Address 0	
		· · · · · · · · · · · · · · · · · · ·	
		Data base 6405.pb Length of data base 3454	
		Error 0	
		0 1980	

The system is ready to be used.

Check The Configuration

To make sure things are working start the debug mode:



If everything is working correctly then the line between the master and the slave will be green and the bit map shows a green check:

💣 SyCon - [640S.pb]		
🚡 File Edit View Insert Online Settings Tools V	Vindow Help	
	Master0	
	Station address	0
	FMS/DP Master	CIF50-PB
📙 🐫 🗸 Diag	Slave1	
	Station address	1
	DP Slave	Smart Meter 640S - Profibus

Double click on the slave to see the diagnostic status:

Diagnostic Station Address	1		
Station Status 1 Master Lock Parameter Fault Invalid Slave Response Not Supported Extended Diag Configuration Fault Station Not Ready Station Not Ready	Station Status 2 Slave Deactivated Sync Mode Sync Mode Freeze Mode Vatchdog On Slave Device Static Diag Parameter Req used	Station Status 3 Ext Diag Overflow reserved reserved reserved reserved reserved reserved reserved reserved 0 reserved	<u>©</u> K <u>Ext. Diagnostic</u> <u>Compare Configuration</u>
Assigned Master Address 0	Real Ident Number GSD Ident Number	0x0E12 0x0E12	Error 0

Press the "OK" button and leave the debug mode (Online -> Stop Debug Mode).

Should the line be red (error) then double click the slave to find out what the problem is:



The diagnostic window gives an indication of a problem, wrong address here:

Diagnostic Station Address	1		\mathbf{X}
Station Status 1 Master Lock Parameter Fault Invalid Slave Response Not Supported Extended Diag Configuration Fault Station Not Ready Station Non Existent	Station Status 2 Slave Deactivated Sync Mode Sync Mode Freeze Mode Vatchdog On Slave Device Static Diag Parameter Req used	Station Status 3 Ext Diag Overflow reserved reserved reserved reserved reserved reserved reserved reserved	<u>OK</u> Ext. Diagnostic Compare Configuration
Assigned Master Address 0	Real Ident Number GSD Ident Number	0x0E13 0x0E13	Error 0

In this case the slave is deactivated. Check the address of "Slave1" to see if it matches with the physical address of the hardware slave.

Correct any error. If the slave address in the configuration is incorrect, adjust it and download the configuration.

Kepserverex 4.0

You may be using different server software or a PLC. This example shows how to use the KepserverEx 4.0 free demo software on a windows PC. For your convenience we put a copy on our web site.

After you have installed the KepserverEx software start a new project.

Click to add a channel.



Give the channel a name. Click Next.

Channel na		
profibus m	ame: aster	

Choose a Master, we are using a Hilscher CIF50 master. Click, Next.

rrie unvers mat are instaneu on your system.
vice driver: Ischer Universal Enable diagnostics

The defaults will work, click Next.

You can control how the server processes writes on this channel. Set the optimization method and write-to-read duty cycle below. Note: Writing only the latest value can affect batch processing or the equivalent.	
Optimization Method Write all values for all tags Write only latest value for non-boolean tags Write only latest value for all tags	
Duty Cycle Perform 10 🔹 writes for every 1 read	

Chose the board and type, click next.

New Channel - Board Se	lection	
	Select the board through which communications will occur. To access data from a local slave board, select the board corresponding to that slave and select the appropriate slave board type. Otherwise select a local master board and type.	
	Board: Board 1 Type: Profibus DP Master	
	<back next=""> Cancel H</back>	felp

You'll need to import the setup .pb file that we created earlier in Syscon. You may browse to the location where you saved it. Click on the Browse button.

Set the location of the SyCon Configuration Database file to be used in tag database creation. The file's extension is representative of the fieldbus in question. For example, myconfig.dn is a DeviceNet database. Tag Import File:	
Enter or Browse for SyCon Database File	
 < Back Next > Cancel H	lelp

Browse the 640S flowmeter.pb you just created in Sycon. Once highlighted, click Open.

Import Tags	from SyCon Database	? 🔀
Look in: 隘	Sycon	 * 📰 •
<pre>// 1005 flow // 1005_1 + // 6405 flow</pre>	controller.pb 6405_2.pb neter.pb	
File name:	100S flow controller	Open
Files of type:	SyCon ProfiBus Database (*.PB)	Cancel
	🔽 Open as read-only	

You should see this warning.

KEPServ	verEx
	'Synchronize' must be performed to synchronize with and regenerate tags based on the currently selected database.
	ОК

You can review the summary of the new channel you just created.

Name: 640_1 Modet: Hilscher Universal ID: 1	-
Request Timeout: 2000 ms Fail after 2 attempts	
Auto-Demotion: Disabled	
Device Type: Profibus DP Slave	
Channel Assignment: DP Master Driver Name: Hilscher Universal	Ţ

You may now add your first slave device. Click on "Click to add a device"

A KEPServeri	x - [untitled.op	f *]				
File Edit View	Users Tools He	lp				
0 🖻 🔒 🖗	2 🛅 🖆 🖆 😭	い % 国 窟	× 2 6 3	8		
E- 22 profibus	master o add a device.	Tag Name	e Addr	ess Data Type	Scan Rate	Scaling
				1		
	P	<u> <</u>		1		>
Date		User Name	Source	Event		<u> </u>
02/20/2013	1:36:10 PM	Default User	KEPServerex	Triceney Ethernet d	r device ariver io ouico drivor lood	aded successful
A 2/20/2013	1:36:10 PM	Default User	KEPBerverEx	Uni-Telway device d	evice univer loads hiver loaded cucc	ea successifully.
C 2/20/2013	1:36:10 PM	Default User	KEPBEIVEIEX KEDServerEv	User Configurable D	river Ioaueu SUCC river device drive	essi ully. ex loaded succes
02/20/2013	1:36:10 PM	Default User	KEPServerEv	Yaskawa Memobus (Plus device driver	Inaded success
<		Der dalt Obor	HE DOITOILX	and the monorest	as as not arrest	
Deady				Clien	ts: 0 Active ta	ac: 0 of 0

Give your new device a name.

A device name can be from 1 to 256 characters in length. Names can not contain periods, double quotations or start with an underscore.	
Device name: 640_1	
 Back Next > Cancel Help	17

Set the device ID. ID# 0 was already used for the master, so chose #1.

The device you are defining may be multidropped as part of a network of devices. In order to communicate with the device, it must be assigned a unique ID. Your documentation for the device may refer to this as a "Network ID" or "Network Address."
Device ID:
(Back Next) Cancel Help

The next 2 screens will be fine as default, click next. Choose the device type. Click next.

	Select a type that best describes the device you are defining.	
	Type: Profibus DP Slave	
< B;	ack Next > Cancel Help	

Review the new device summary, click next.

New Device - Summary		X
New Device - Summary	If the following settings are correct click 'Finish' to be using the new device. Name: 640_1 Model: Hilscher Universal ID: 1 Request Timeout: 2000 ms Fail after 2 attempts Auto-Demotion: Disabled Device Tune: Profibus DP Slave	gin
	Channel Assignment: DP Master Driver Name: Hilscher Universal	
· · · · ·	KBack Finish Cancel Help	

Click Finish, you have now created a new device for your network.

You will now need create a Tag to access each piece of Cyclic data, as specified in chapter 3.2. Click on "Click to add a static tag" and fill in the boxes as above.

Tag Properties						X
General Scaling						
-Identification-					1	
Name:	Flow			8		
Address:	IODOS			?		
Description:	Flow Rate					
Data properties	Data type: 🛐 lient access: R Scan rate: 10	oat ead Only 10 🕂	▼ ▼ millisecon	ds		
		OK	Car	ncel	Apply	Help

The example above is for the flow:

Flow (R):

Data type: 32 bit floating point (MSB – LSB) Should this be LSB-MSB? Description: The actual flow as measured by the instrument

Because you only have one device on your network, and the Flow is "Instance ID1", the Data Address would be 0. If there were other save devices in your network you would need to add the last Address of the previous device to the starting address of the new device.

Add a tag name. Address 0 with the data type, in this case IO D 0 S. (32 bit float, byte swapped). Add a description. Set the Client access to Read Only. Click OK.

Kepserver has a very simple Quick Client that can be used to read and write to device tags. Click the Hammer icon to start the quick client. When you highlight the profibus master.C100_1 tag, you can read the flow data (4.756) and quality of the communications.

GSD File

GSD File Text:

#Profibus_DP ; Sierra Instruments Inc. ; Version 1.0 ; This GSD-File is intended for the Smart Meter 640S ; This Unit supports DPV0 ; Outgoing Cyclic data (slave to master) ; Instance ID | Description | Size (bytes) | Format -----+------:----+-;1 | Flow |4 | REAL ; 2 | Totalizer |4 | REAL ; 3 User full scale 4 | REAL :4 | Factory full scale REAL |4 ; 5 K-factor |4 REAL ;6 | Serial Number | 12 ASCII ;7 | Flow unit | 5 | ASCII | ASCII ; 8 | Totalizer unit | 3 ;9 Status | 2 | INT ; Incoming Cyclic data (master to slave) ; Instance ID Description | Size (bytes) Format :----+ | Reset totalizer | 4 | REAL ; 10 User full scale 4 | REAL ;11 ; 12 |K-factor |4 | REAL = 4 GSD_Revision Vendor_Name = "Sierra Instruments, Inc." Model Name = "Smart Meter 640S - Profibus" = "V1.0" Revision Ident_Number = 0x0e13= 0 Protocol_Ident Station_Type = 0= 0 FMS_supp Hardware_Release = "Revision H" Software_Release = "V6.0" 9.6_supp = 1 19.2_supp = 145.45_supp = 1 93.75_supp = 1 187.5_supp = 1 500_supp = 1 1.5M_supp = 1 3M_supp = 1 6M_supp = 1 12M_supp = 1

;

MaxTsdr_9.6 = 60MaxTsdr_19.2 = 60 MaxTsdr_45.45 = 60 = 60 MaxTsdr_93.75 MaxTsdr_187.5 = 60 = 100 MaxTsdr_500 MaxTsdr_1.5M = 150 MaxTsdr_3M = 250 MaxTsdr_6M = 450 MaxTsdr_12M = 800Redundancy = 0 Implementation_Type = "VPC3+C" Bitmap_Device = "640S_De" Bitmap_Diag = "640S_Di" Bitmap_SF = "640S_Sf" Freeze_Mode_supp = 1 Sync_Mode_supp = 1 Auto Baud supp = 1 $Set_Slave_Add_supp = 1$ Min_Slave_Intervall = 1 Modular_Station = 0Fail Safe = 0= 0 Slave_Family ; General $Max_Diag_Data_Len = 6$ DPV1_Slave = 1 C1_Read_Write_supp = 0 Max_Initiate_PDU_Length = 52 C2_Read_Write_supp = 1 C2_Max_Data_Len = 80 $C2_Response_Timeout = 300$ $C2_Read_Write_required = 1$ $C2_Max_Count_Channels = 2$ DPV1_Data_Types = 0Max_User_Prm_Data_Len = 0; < Module-Definition-List> Module = "42 bytes in, 12 bytes out" 0xc0,0x8b,0xa9 1 EndModule

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Confirmation

Registration of a PROFIBUS Device

Model name :	640 Compod Profibus DP
Release :	1
Manufacturer :	Sierra Instruments Inc.

The following details have been registered by PNO for the device mentioned above:

GSD file :	SIER0E13.GSD
ID Number :	0E13 HEX
Protocol type:	☑ DP-V0 □ DP-V1 □ DP-V2
Device type:	Master 🗹 Slave

<u>Contact person:</u> Sierra Instruments Inc. Mr. Evaristo Westplate Engineering Bijlmansweid 2 1934RE Egmond aan den Hoef NIEDERLANDE Tel.: 31 7250 71400 Fax: 31 7250 71401 E-Mail: e_westplate@sierrainstruments.nl

M. Schell

Business office of the PROFIBUS Nutzerorganisation e.V.

Place, Date

Karlsruhe. 2012-08-14