USER MANUAL

MAR / 12 PBI-PLUS

PRQFQ BUS USB INTERFACE FOR PROFIBUS PA









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web: www.smar.com/contactus.asp

INDEX

SECTION 1 - INSTALATION	1.1
GENERAL	1.1
NETWORK WIRING	1.2
WIRING IN BENCH	1.3
PBI-PLUS DRIVER INSTALLATION	1.4
SECTION 2 - CONFIGURATION	2.1
CONFIGURATION USING ProfibusView	
CONFIGURATION USING AssetView STANDALONE	2.1
SECTION 3 - TECHNICAL CHARACTERISTICS	3.1

INSTALATION

General

PBI-PLUS is an advanced communication converter between PROFIBUS PA devices and USB ports. It is intended to interface PROFIBUS PA devices such as transmitters, controllers, sensors, actuators, converters, with devices such as PCs, notebooks, netbook or others, using their USB ports.

PBI-PLUS enable PCs and notebooks to implement high level HMI supplanting dedicated PDA (programmers). It allows device monitoring, parameterization and configuration. PROFIBUS PA network management can be implemented by using any FDT frame application. Superior performance and features can be achieved with PROFIBUSView and AssetView, the PROFIBUS configurator and asset management system from Smar, respectively.

This interface was designed to be lightweight and rugged at the same time, thus facilitates its use. **PBI-PLUS** dimensions can be seen in the Figure 1.1.



Figure 1.1 – Dimensional Drawing (mm)

Network Wiring

The interface is connected to the computer through its USB cable and then, connected to the PROFIBUS PA network through pinch connector. Refer to Figure 1.2. For this case, the side switch must be in the NETWORK position.

NOTE NETWORK option disables the power supplied by the interface, since the PROFIBUS channel is expected to be running and properly powered by the main control system.



Figure 1.2 – PBI-PLUS Interface



Figure 1.3 – Wiring diagram showing the PBI interface and PA network connection (e.g system using DF73 – PROFIBUS DP Controller)

IMPORTANT NOTE RELATED WITH DF95 AND DF97 CONTROLLERS FROM SMAR Due the fact these controllers have both DP and PA channels embedded, and also due the fact they already have the **PBI-PLUS** communication features, is NOT possible to connect this interface in any of PA channels of these controllers.

Wiring in Bench

For this case, the side switch must be in LOCAL position.

NOTE The local option enables not only the power through the interface, as well as the necessary impedance control for communication with the PROFIBUS PA.



Figure 1.4 – Interface wiring diagram for workstation to the PA device connection

PBI-PLUS Driver Installation

When the **PBI-PLUS** is connected to the computer's USB port, a screen driver installation screen will be prompted. For this installation, follow the next steps:

- 1° step: in the first installation screen, select the "Install from a list or specific location (advanced)" and click in "Advance". See Figure 1.6.

Assistente para adicionar	novo hardware
	Bem-vindo ao 'Assistente para adicionar novo hardware' Este assistente o ajudará a instalar o software para: USB <-> Serial
	Se o hardware tiver sido fornecido com um CD ou disquete de instalação, insira-o agora.
	O que você deseja que o assistente faça? O Instalar o software automaticamente (recomendável) ⓒ Instalar de uma lista ou local específico (avançado)
and the second second	Clique em 'Avançar' para continuar.
	< Voltar Avançar > Cancelar

Figure 1.5 – Step-by-step Driver Installation (Part 1)

- 2^a step: in the next screen the user shall point the driver's folder. After finding it, click in "Next" as in Figure 1.7.

Escolha a	s opçoes de pesquisa e instalação.
Proc	urar o melhor driver nestes locais.
Use cam	as caixas de seleção abaixo para limitar ou expandir a pesquisa padrão, que inclu nhos locais e mídia removível. Será instalado o melhor driver encontrado.
C	Pesquisar mídia removível (disquete, CD-ROM)
6	Incluir este local na pesquisa:
	E:\PBI\Driver Procurar
O Não	nesquisar. Escolherei o driver a ser instalado
Esci gara	lha esta opção para selecionar o driver de dispositivo na lista. O Windows não nte que o driver selecionado será a melhor escolha para o hardware.

Figure 1.6 – Step-by-step driver installation (Part 2)

- 3° step: after selecting the right directory, the driver will be installed and a conclusion message will be displayed. See figure 1.8.

Assistente para adicionar	novo hardware
	Concluindo o 'Assistente para adicionar novo hardware' O assistente terminou de instalar o software para: SMAR - USB Controller
	Clique em 'Concluir' para fechar o assistente.

Figure 1.7 – Step-by-step driver installation (Part 3)

After finishing this step and in order to proceed with installation, the initial installation message will be prompted again. No directory will need to be chosen, once the right folder path will be displayed in the prompted window.

The created virtual serial port will be same to be selected within the software application (e.g.AssetView, ProfibusView) to allow the communication with **PBI-PLUS**.

CONFIGURATION

Configuration using PROFIBUSView

 After initializing PROFIBUSView software, choose "Settings" option. In "Device" combo box, select the equipment to be configured. Insert the real device address. In the "Profibus Interface" option, "PBI-PLUS (USB)" item should be set. Choose the communication port (the installed virtual serial port) and then, choose the communication scheme: "LOCAL" option for bench use or "NETWORK" option for powered PA channels. Details about those communication types can be seen in the Chapter 1. Figure 2.1 shows the screen's configuration detail.

Settings		
Device Address	FY303	
Profibus Int	erface	
C DF73/DI	595/DF97 (7CP/IP)	
C PBI (US	8)	
PBI Plus	(USB)	
IP [111.111	.111.111	
Port 6	_	
C Local		
Network		
		Load Device

Figure 2.1 – Configuration of PROFIBUSView software

 After the initial setup done, the PROFIBUSView's communication between hardware and software is established. The device can be configured. For more details about the PROFIBUSView software, please, consult its manual.

Configuration using AssetView STANDALONE

1) After initializing AssetView SA, choose "Topology" option (step 1) to start the setup. The "Topology Management" will be prompted, the user shall select in "New" option (step 2) to create a topology. This screen can be seen in Figure 2.2.

		NOTE
	Refer to AssetView's	manual for software installation details.
	🖉 Smar AssetView F	DT - 1.2.0.42
	File Tools Wind	low Help
		Topology Manager
Sten 1		
	Topology	
	~	
	10	
	VI	
	Diagnostics	
	(90)	
	Maintenances	
	Reports	Step 2
		Topology
	Exit	
		New Open Delete Close Help

Figure 2.2 – Configuration of AssetView STANDALONE software

2) Insert a topology name and click "OK". See Figure 2.3.

📽 l opology			×
Type the Name of the	Topology:		
			_
			1
OK	Cancel	Help	

Figure 2.3 – Configuration of AssetView STANDALONE software

3) In the previous prompt window shows the topology name given: SMAR_TESTE. See Figure 2.4.

BMAR_TESTE				_ 🗆 🗙
MyNetwork				
			2	
	Save	Close	Help	

Figura 2.4 – Configuration of AssetView STANDALONE software

4) Right click in the "My network" icon, choose "Add DTM" and insert the PBI CommDTM. It will work as a communication gateway between AssetView and the device. Refer to figure 2.5 and figure 2.6 for detailed procedure.

SMAR_TESTE		
	Add DTM	
	Properties	
	Save Close Help	

Figure 2.5 – Configuration of AssetView STANDALONE software



Figure 2.6 – Configuration of AssetView STANDALONE software

5) Selecting "PBI" option and then clicking "OK", it will be prompt a screen where the PBI tag shall be attributed. See Figure 2.7.

🔡 TAG				_ _ X
TAG: PBI_SMAR_TEST Address: 126	Advanced	Description:		
	ок	Cancel	Help	

Figure 2.7 – Configuration of AssetView STANDALONE software

6) After setting the PBI's TAG, it will appear just below "MyNetwork". The next step is adding the device to be configured. To do so, just right click on PBI-PLUS and choose "Add DTM/Block..." option. See Figure 2.8. Finalize de procedure clicking "OK". See Figure 2.9.

SMAR_TEST		-	
☐ ➡ MyNetwork	Add DTM/Block Remove DTM/Block		
	Edit TAG		
	Go Online Go Offline		
	Offline Parameter Online Parameter		
	Compare Configuration Observe		
	Additional functions Channel Functions	•	
	Print		
	Description Properties		
Save	Close	Help	

Figure 2.8 – Configuration of AssetView STANDALONE software

vice Type	Version	Vendor	
303	2.00 (2008-05-01)	Smar	
103	2.00 (2008-05-01)	Smar	
303	2.00 (2008-05-01)	Smar	
303	2.00 (2008-05-01)	Smar	
03	2.00 (2008-05-01)	Smar	
293	2.00 (2008-05-01)	Smar	
303	2.00 (2008-05-01)	Smar	
303	2.00 (2008-05-01)	Smar	
303	2.00 (2008-05-01)	Smar	
423	2.00 (2008-05-01)	Smar	

Figure 2.9 – Configuration of AssetView STANDALONE software

7) Once created, the device shall have an attributed TAG. See Figure 2.10. Then, click "OK". The device will appear just below the PBI. See Figure 2.11.

🔜 TAG		<u>- 🗆 ×</u>
TAG: LD293_SMAR_TEST Address: 4 A	Description:	
	DK Cancel	Help

Figure 2.10 – Configuration of AssetView STANDALONE software

國 SMAR_TEST	
🖃 🚍 MyNetwork	
🖻 🖼 Smar Profibus Gateway - PBI_SMAR_TEST	
(Profibus Channel], <126> - LD293 - LD293 SMAR TEST	
	10
Save Close Help	
	11.

Figure 2.11 – Configuration of AssetView STANDALONE software

8) Then, an offline parameterization in PBI shall be done. Right-click on PBI and choose "Offline Parameterization" option. See Figure 2.12. Click on "Master Settings" option. It will be prompt a interface to configured the communication port ("Serial Port" option) to be used. It also be prompt the communication type ("Interface" option), that it should be set to local ("LOCAL" option) or to network ("NETWORK" option) depending on the application. See Figure 2.13.



Figure 2.12 – Configuration of AssetView STANDALONE software

FdtOfflineParameterize		
PBI PLUS Profibus PA Interface		smar
	/	
Gif-line Parameterize Master Settings DTM Slave Address	Configure Serial Port Serial Port Interface Write	
	Cancel OK	Apply
NP Disconnected		

Figure 2.13 – Configuration of AssetView STANDALONE software

Finally, set device to online mode, just right-clicking on "Go to online" option. See Figure 2.14. Then, check if both interface and device TAGs become **bold** and *Italic* formatted. See Figure 2.15. If affirmative, it indicates that device and AssetView communication is operational and ready to be started, just right-click again on device to select the desired online function. For more details about AssetView, please, consult its official manual.



Figure 2.14 – Configuration of AssetView STANDALONE software



Figure 2.15 – Configuration of AssetView STANDALONE software

Material

Dimensions

TECHNICAL CHARACTERISTICS

Functional Specifications		
Power Supply	Via USB 5 Vdc port Compatívelible with USB 1.1 and USB 2.0	
Open Voltage 15.15 Vdc	Voltage with 12 mA output 14.9 Vdc USB current 5 Vdc x 35 mA Voltage with 36 mA 13,2 Vdc USB current 5 x 80 mA Output current – 96 mA USB short current – 142 mA	
Communication Standard	IEC 1158-2, 31.25 kbits/s for Fieldbus. (Foundation Fieldbus and PROFIBUS PA).	
Indicator	ON – Led indicates the interface is connected to USB port. COMM – Led indicates the interface started the communication with the device. FAIL - Led light when the interface is in local mode and a short-circuit occurs in the device power terminals.	
Certifications in Hazardous Locations	It is not certified to be used in potentially explosive atmospheres.	
Temperature Limit	Operation: 0 a 50 °C @ 10 a 90 RH (noncondensing) Storage: -30 a 70 °C @ 5 a 90 RH (noncondensing)	
Configuration	PBI-PLUS is a device used to interface the communication between Profibus PA devices and configuration software. The software used for configuration of the devices is ProfibusView or AssetView from Smar, or any software based on FDT/DTM technology. Licenses necessary (Writing license for ProfibusView, or 4-Devices fully operational Demo license for AssetView SA or/and free comm.DTM for any other FDT/DTM based software).	
Minimum System Requirement	Processor de 1 GHz 2 GB RAM 5 GB of free disk space Windows XP 32 bits SP3 A complementary list of approved operational systems is listed below: Windows 7 64 bits Professional (running in 32 bits compatibility mode) Windows 7 64 bits Enterprise (running in 32 bits compatibility mode) Windows 7 64 bits Enterprise (running in 32 bits compatibility mode) Windows Server2008 64 bits SP2 (running in 32bits compatibility mode) Windows XP 32 bits SP3 Windows Server2003 32 bits SP2	

Performance Specifications		
Electromagnetic Interference Effect	Compatible with IEC61326-1 EMI immunity standard.	
Physical Specifications		
Cable	With USB connection at the host system side and with retractable claws at the instrumentation side.	
Insulation	Galvanic insulation between Profibus and USB port.	

Injected ABS plastic enclosure.

123 x 68 x 30 (mm)