

# **SPARTAN CONTROLS**

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Spartan Pocket FloBoss User's Manual **Document Version 2.0** 

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## Spartan Pocket FloBoss - User's Manual

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## PREFACE

Pocket FloBoss is a Windows CE application written to interface a PocketPC 2002 with the Fisher FloBoss 103. It does this using a RS-232 serial port of a PDA (Personal Digital Assistant) to communicate with the FloBoss using ROC protocol. The FloBoss 103 calculates Gas Flow for one flow run. Pocket FloBoss is programmed to retrieve current operating parameters, modify operating parameters, view and chart hourly history data from the past 35 days, view, chart and save daily history data for the past 35 days, save alarm log, save event log, and save meter data for the single flow run. All data displayed is assumed to be in metric units.

## 1. INSTALLATION OF POCKET FLOBOSS APPLICATION

#### 1.1 DOWNLOAD POCKET FLOBOSS APPLICATION

The Pocket FloBoss application can be downloaded from the Spartan Controls website at <u>http://www.spartancontrols.com/downloads/downloads.asp?CSS=spartan</u>. The Pocket FloBoss application will be a set of zipped archive setup files. Once the application is downloaded to your PC, create a folder and unzip the setup files.

#### 1.2 INSTALL POCKET FLOBOSS

Using your Pocket PC cradle or sync cable, connect the Pocket PC to your PC. Make sure you are using Microsoft's Active Sync 3.5 or later software. Once you have connected to the PC, execute the Setup.exe file that was unzipped from above. Proceed through the following:

- The setup application will want to store setup files in a default folder on the PC. Change this default folder(C:\Program Files\Pocket FloBoss) if required. Click OK.
- 2. The setup application will now display "Receiving application data from the mobile device...". If the Pocket FloBoss was already installed previously, you will receive a message asking if you want to re-install/upgrade. Click **YES**.
- 3. If you are installing Pocket FloBoss for the first time, you will see a message asking you if you want to install the Pocket FloBoss in the default application install directory. Click **YES**.
- 4. A status bar will appear to show how much of the application is installed on the Pocket PC.
- 5. Once complete a message will ask you to "Please check your mobile device screen to see if any additional steps are necessary to complete this installation" Click **OK**.

6. Check the PDA screen and follow on screen prompts. Clicking **YES** to the screen prompts to replace existing files is ok, the Pocket FloBoss application needs these files to execute properly.

#### 1.3 EXECUTING POCKET FLOBOSS

To start up the Pocket FloBoss application Tap on **START**, select **PROGRAMS**, scroll down if necessary until you see an icon named **Pocket FloBoss**. Tap once on the **Pocket FloBoss** icon, wait a few seconds for the application to load. You may see an animated timing icon while application is loading.

To exit the Pocket FloBoss application, tap on the **OK** icon on the top right of the screen. You may need to tap on more then one **OK** icon, as the available Pocket FloBoss screens are layered one over the other.

#### 1.4 RUNNING POCKET FLOBOSS ON A POCKET PC 2003

Running this application on a Pocket PC 2003 requires the installation of the "eMbedded Visual Basic Runtime for Pocket PC 2003" software from Microsoft. It can be downloaded from.

#### http://msdn.microsoft.com/en-ca/library/ms838188.aspx

These runtime files must be installed prior to installing the Pocket FloBoss application.

## 2. OPERATION – OPERATOR DISPLAYS

🎊 FloBoss 103 Ma	ain	<b>4</b> € 11:01 🛛 🚯
11/13/03 11:01:12 AM		About
Comm. Status	Normal	
Meter Name	Case 1	
FloBoss Time	11/13/03	11:01:04 AM
Current Flow	3.32	KM3/Day
Curr. Dly. Accum.	1.523	КМЗ
Prev. Dly. Accum.	3.322	КМЗ
Curr. Dly. Flowtime	660.0	Mins.
Prev. Dly. Flowtime	1440.0	Mins.
Curr. Diff. Press.	12.66	KPA
Curr. Static Press.	2818	KPA
Curr. Temperature	20.0	Deg. C.
Curr. Mly. Accum.	40.52	КМЗ
Hr Hist Dly Hist Comm. AGA	Report	Sd. Time Off
		<b>=</b>

#### 2.1 MAIN DISPLAY

When the application Pocket FloBoss is started, the FloBoss 103 Main display will appear. The current PDA time should appear in the top left hand corner of the display. The only buttons enabled will be About, Comm., and On. The Comm. Button should be tapped to verify the parameters used for communication with the FloBoss 103 (see Comm. display section). If the communication parameters are correct, a cable should be connected from the PDA serial port to the FloBoss 103 serial port (null modem) and the **On** button tapped. Once this is done, polling of the FloBoss commences. The On button text will change to Off and the button background will turn green. The Comm. Button will be disabled. If communications cannot be established with the FloBoss, a popup window will appear indicating this condition. If communications is established (the application successfully logged on to the FloBoss and obtained the time), the Hr Hist, Dly Hist, Report, AGA, and Sd. Time buttons will be enabled and the Comm. Status will go to Normal and be colored green. The Meter Name, FloBoss time, and the current operating parameters will now be updating. If the FloBoss time differs from the PDA time by more than 5 minutes, the background color of the FloBoss time will be red. The current PDA time can be sent to the FloBoss by tapping the Sd. Time button. Once this is done, the button color will change to yellow until the command has been successfully sent to the FloBoss.

On some units, the serial port is also used for Auto Syncing with a PC. In this case, Auto Sync must be turned Off, when the FloBoss application is active. If not, the application will pop up a window indicating that the serial port cannot be opened. In addition, the pop up window can also occur if the application has not been allowed to exit properly (bombs) and is subsequently restarted. The only way correct this condition is to invoke a soft reset of the PDA. After this is complete, the application can once again be invoked.

#### 2.2 ABOUT DISPLAY



When the **About** button is tapped on the Main display, the FloBoss 103 About display appears. The information displayed is self-explanatory. To return to the Main display, tap the **OK** icon in the top right hand corner.

🎊 FloBoss 103 Comm. 🛛 🔫	11:05	œ
11/13/03 11:05:28 AM		
Comm. Port 🚺	•	
Baud Rate 9600	•	
No Resp. T.O. (ms) 1000		
Retry Count 3		
RTS Delay (ms) 0		
FloBoss 103 Unit No. 240		
FloBoss 103 Grp. No. 240		
Login: LOI		
Password: 1000		
Save		
	E	四 -

#### 2.3 COMM. DISPLAY

The **Comm.** Button on the Main display can only be tapped when the application is not polling the FloBoss 103. It allows the communication parameters to be modified and saved. Parameters are as follows.

- 1. **Comm. Port.** Only ports 1 and 2 can be selected and port 1 is the only valid choice for most PDAs.
- 2. **Baud Rate** This is the communication baud rate from the PDA to the FloBoss. Valid selections are 600, 1200, 2400, 4800, 9600, and 19200.
- 3. **No Response T.O.** The no response time out is a value in milliseconds that a valid poll (from PDA) and response (from FloBoss) is required. If this time out value is exceeded, the poll is deemed to have failed and a retry occurs (see below). Valid entries are from 10 to 5000 milliseconds.
- 4. **Retry Count.** This number is the number of attempts by the application to obtain a valid response from the FloBoss before a pop up window occurs flagging a communication problem. Valid entries are from 1 to 10.
- 5. **RTS Delay.** The application has the capability of raising RTS and waiting awhile before sending out a message to the FloBoss. After the message is sent, RTS is dropped. If the RTS Delay is set to 0, RTS is always raised. Valid entries are from 0 to 5000 milliseconds.

- 6. **FIoBoss 103 Unit No**. This is the FIoBoss address used to poll the attached FIoBoss. Valid entries are from 1 to 255. The universal polling address is 240.
- FloBoss 103 Grp No. This is the FloBoss group used to poll the attached FloBoss. Valid entries are from 1 to 255. The universal polling group is 240.
- 8. **Login.** This is the login ID used to access the FloBoss 103. The Login consists of 1 to 3 characters. Default login is "LOI". The login must be set up in the FloBoss 103 configuration.
- 9. **Password.** This is the password for the login ID used above. The Password must be a number from 0 to 9999. Default password is "1000" The password must be set up in the FloBoss 103 configuration.

The items on this display can be saved by tapping the **Save** button. If there is an error in the configuration the errant value will be colored red and the **Save** button will be disabled. If the entries are valid, the **Save** button will be enabled and when tapped, the parameters will be saved and the Main display will appear. To not save the configuration, the **OK** icon on the top right hand corner of the display should be tapped.

🍠 FB10	3 Hourly H	list 📢	11:01	•
11/13/03 1	1:01:59 AM			
Comm. Stal	tus <mark>Norma</mark>	al		
Meter Nam	e Case 1			
Hourly	y Data for	11/13 - D.P	. (KPA)	
Hour 1	12.66	Hour 13	0.00	
Hour 2	12.66	Hour 14	0.00	
Hour 3	12.66	Hour 15	0.00	
Hour 4	12.66	Hour 16	0.00	
Hour 5	12.66	Hour 17	0.00	
Hour 6	12.66	Hour 18	0.00	
Hour 7	12.66	Hour 19	0.00	
Hour 8	12.66	Hour 20	0.00	
Hour 9	12.66	Hour 21	0.00	
Hour 10	12.66	Hour 22	0.00	
Hour 11	12.66	Hour 23	0.00	
Hour 12	0.00	Hour 0	0.00	
0 🔻	D.P.	•	Chart	
Viewing D	ay Sele	ection	18	
			E	- 12

#### 2.4 HOURLY HISTORY DISPLAY

The FloBoss 103 Hourly History display appears when the Hr Hist button on the Main display is tapped. It allows the 24 hourly readings for either D.P., Press., Temp., or Flow Accumulation for any of the past 35 days to be viewed. Two drop down menus allow the day and the parameters to be viewed and selected. Each time the Viewing Day or

Selection is changed, the application sends a message out to the FloBoss to retrieve the required data. It is possible that no data exists for a selected day. In that case the request will fail and a pop up window will occur requiring acknowledgement. Then a valid day can be selected. The header above the data should be checked to see that the day matches the expected viewing day. The first entry in the first column is always the data for the first hour after the start of the contract day on the day selected (i.e. If 8 am is contract hour, the first hour displayed will be 9). The 24 values can be viewed graphically by tapping the **Chart** button. To return to the Main display, the **OK** icon in the top right hand corner of the display should be tapped.



#### 2.5 HOURLY HISTORY CHART DISPLAY

The FloBoss 103 Hourly History Chart display is obtained by tapping the **Chart** button on FloBoss 103 Hourly History display. It shows the 24 hourly values for the Viewing day and Parameter Selection. The first entry is always the value for the first hour after the start of contract day. To return to the Hourly History display, tap the **OK** icon in the top right hand corner of the display.

#### 2.6 DAILY HISTORY DISPLAY

omm. Status No	ormal		
Data for 200	3/11/13 0	0:00	[Chart ]
Meter Name Ca	se 1		
Dly. Accum.	3.322	КМЗ	
Dly. Flowtime	1440.0	Mins.	Ó
Av. Diff. Press.	12.66	KPA	Ó
Av. Static Press.	2818	KPA	Ó
Av. Temperature	20.0	Deg C.	Ó
-1 🔻	Up	odated	
Viewing Archive		Status	Chart

The FloBoss 103 Daily History display is obtained by tapping the Dly Hist button on the Main display. It allows the daily values for the previous 35 days to be viewed for the Flow Accumulation, Flowtime, D.P., Press., and Temp. When the display first appears, the application polls the FloBoss for all the data. Subsequent changing of the Viewing Day drop down menu is for data display only. The complete data can also be saved in a comma separated variable (CSV and TXT) file on the Report display (see section 2.9). Selecting the parameter radio button and tapping the Chart button can graph the 35 days of daily data for a specific parameter. To return to the Main display, tap the **OK** icon in the top right hand corner of the display.

#### 2.7 DAILY HISTORY CHART DISPLAY



The FloBoss 103 Daily History Chart display is obtained by tapping the **Chart** button on FloBoss 103 Daily History Display. It shows the 35 previous daily values for the Parameter Selection. The first entry is always the value for the oldest daily entry – namely 35 days ago. To return to the Daily History display, tap the **OK** icon in the top right hand corner of the display.

#### 2.8 AGA DISPLAY

🎊 FloBo	ss 103 AG/	×	11:03	œ			
11/13/03 1	1:03:57 AM						
Comm.	Normal						
Mtr. Name	Case 1	Status	Updated	ł			
Orf. (mm)	9.525	Pipe (mm)	52.370				
S.G.	0.779	Total (%)	100.000				
N2 (%)	1.840	CO2 (%)	0.000				
C1 (%)	70.680	C2 (%)	14.140				
C3 (%)	6.740	NC4 (%)	1.900				
IC4 (%)	0.810	NC5 (%)	0.430				
IC5 (%)	0.380	NC6 (%)	0.260				
NC7 (%)	0.220	NC8 (%)	0.000				
NC9 (%)	0.000	NC10 (%)	0.000				
H25 (%)	2.600	H2O (%)	0.000				
HE (%)	0.000	02 (%)	0.000				
CO (%)	0.000	H2 (%)	0.000				
Send							
			E	×			

The FloBoss 103 AGA display is obtained by tapping the **AGA** button on the Main display. When this is done, the application obtains the data from the FloBoss. The Status will indicate "Updating" until this is done. Once it is done, the Status will indicate Updated. This display is also used to send new configuration parameters to the FloBoss. Entries are checked for validity. Any invalid entry will be colored red until corrected. The Send button will only be enabled when no parameter is colored red. The total analysis (20 parameters) must add up to 99% to 101% or the Total % parameter will be colored red and you cannot send the new values to the FloBoss. If you choose not to send gas components not totaling 100% (i.e. between 99 - 101%), the FloBoss will automatically adjust the Methane (C1) component to make the total 100%. You can read the adjusted Methane value by returning to the Main display (see below) and then reentering the AGA screen again.

The Meter name can be from 1 to 10 characters in length. The orifice and pipe size can be from 0 to 300 mm in value. The S.G. can be from .5 to .9 in value. Each analysis entry can be from 0 to 100 in value. If there are no invalid entries, the Send button is enabled. When tapped, the Status goes to Sending and is followed by Updating as the values are read back from the FloBoss for verification. To return to the Main display, tap the Ok icon in the top right hand corner of the display.

#### 2.9 REPORT DISPLAY

🎊 FloBoss 103 Report	+ <b>*</b> x <b>-</b> € 9:09	۵
12/12/03 9:09:19 AM		
Comm. Status Normal		
Meter Name 🖸	ase 1	
Alarms per Poll (1 to 10) 10	)	
Events per Poll (1 to 10)	2	
Daily Production	Saved	
Alarm Log	Saved	
Event Log	Saved	
Meter Data	Saved	
Collect All		
	E	≝ ^

There are four reports that can be generated from this display. This display is selected by tapping the Report button on the Main display. The reports can be individually obtained or all obtained by tapping the Collect All button. To the right of each button is a status display that will display either Pending, Saving, Saved, or Failed depending on the particular state of the report generation. There are 240 possible Alarms for the Alarm Log and 240 possible Events for the Event Log. Normally 10 Alarms and 10 Events are retrieved per poll for a total of 24 polls. The Alarms per Poll and the Events per Poll are changeable however.

All reports are saved in the directory "My Documents\Business". The file name is the Meter name less any trailing spaces followed by \_prod.txt and \_prod.csv for the Daily Production files, \_alm.txt for the Alarm Log file, \_evt.txt for the Event Log file, \_aga.txt for the Meter Data file.

The My Documents\Business directory can be Auto Synced with a PC and when connected to the PC, this file can be transferred automatically from the PDA to the PC.

The Daily Production Data is saved identically in two files. One is saved with the extension .csv and the other with the extension .txt. The files will contain 35 lines of comma-separated values. There are 8 values per line. The format of a line is as follows:

#### Meter Name, yyyymmdd, mmm/dd, Flow Accum., Flow Runtime, D.P., Press., Temp.

#### 2.9.1 ALARM LOG

The Alarm Log file consists of 4 lines of header followed by alarms tagged with their time as illustrated below.

Alarm Log	Roc Address		240 Roc Group	240 Flo	FloBoss 103	
	Time Do	wnloaded 11	-13-03, 11:04:20 Ope	rator LOI		
Date	Time	Tag	Set, Clear	Value	Description	
11-04-03	09:33:18	RTD	Alarm Clr	20	Rate Alarm	
11-04-03	09:33:17	RTD	Alarm Set	20	Rate Alarm	
11-04-03	09:32:25	RTD	Alarm Set	57	Hi Hi Alarm	
11-04-03	09:32:25	RTD	Alarm Set	57	High Alarm	

#### 2.9.2 EVENT LOG

The Event Log file consists of 4 lines of header followed by events tagged with their time as illustrated below.

Event Log	F	Roc Addı	ress		240 Roc Grou	up 240	FloBoss 103
	Time	Downlo	aded	11-13-	03, 09:36:05 C	perator LOI	
Date	Time	Туре	Pt	ID	Old Value	New Value	Description
11-06-03	14:58:11	CLK	1	LOI	11	2	Seconds
11-05-03	17:02:41	MCFG	1	ROC	0	1	Full Recalculation Flag
11-05-03	17:02:26	MCFG	1	LOI	0.779200017	0.778999984	Specific Gravity
11-04-03	09:33:16	AI	3	LOI	57	20	Filtered EUs
11-04-03	09:32:24	AI	3	LOI	128	144	Mode
11-04-03	09:31:58	AI	2	LOI	2700	2701	Hi Hi Alarm EU
11-04-03	09:31:45	AI	2	LOI	38060.87109	2700	Hi Hi Alarm EU

Note: Some of the descriptions will be displayed as a parameter number. If you want to find what that particular parameter is, first look at the "Type" in the event file. Next, you can match the "Type" to a "Short Description" using the table below. Note the point type number immediately to the left. Using Emerson Process Management's "ROC Protocol User Manual" Form A4199 (http://www.emersonprocess.com/flow/Emerson/documentation\_index.html), you can reference the point type with the parameter number. For your convenience all AGA flow related parameters have been cross-referenced for you.

Point Type	Short Description	Long Description
0	OPC	Configurable Opcode
1	DI	Discrete Inputs
2	DO	Discrete Outputs
3	AI	Analog Inputs
4	AO	Analog Outputs
5	PI	Pulse Inputs
6	PID	PID Control
7	AGAP	AGA Flow Parameters
8	HIST	History Parameters
10	AGAV	AGA Flow Values
12	CLK	ROC Clock
13	SFLG	System Flags
14	СОМ	Communication Ports
15	SVAR	System Variables

Point Type	Short Description	Long Description
16	FST	FST Parameters
17	SFP	Soft Points
19	DB	Database Setup
21	IUDP	Information for User Defined Points
22-23	UDP	User Defined
25-31	UDP	User Defined
32	UDP	User Defined – Typically Modem config for Com1
33	UDP	User Defined – Typically Modem config for LOI & Com2
34	UDP	User Defined – Typically Modbus config for Com1
35	UDP	Used Defined – Typically Function config for Com1
36	UDP	User Defined – Typically Host config for Com1
37	UDP	User Defined – Typically Modbus config for LOI & Com2
38	UDP	User Defined – Typically Function config for LOI & Com2
39	UDP	User Defined – Typically Host config for Com1
41	RUN	AGA Run Parameters
42	ERUN	Extra Run Parameters
43	ULST	User List
44	PWR	Power Control
45	MCAL	Meter Calibration & Sampler
46	MCFG	Meter Configuration Parameters
47	MFLW	Meter Flow Values
48	PID	PID Control Parameters
52	BAT	Battery Parameters
53	MOD	Modbus Configuration Parameters
54	MOD	Modbus Function Tables
55	MOD	Modbus Special Function Table
56	AI	AI Calibration
57	KEY	Keypad/Logon Parameters
58	REV	Revision Information
59	PGM	Program Flash Parameters
86	XHIST	Extended History Parameters

#### 2.9.3 METER DATA

The Meter Data file contains all relevant data pertaining to the AGA flow.

Meter Data	Roc Address	240 Roc Group 240	FloBoss 103					
Tin	ne Downloaded 11-1	3-03, 09:36:21 Operator LC	)					
Meter Name Case	1							
Meter Identification EUB Case #1								
Current Time & Dat	e 11/13/03 9:36:15 A	M						
Instantaneous Flow	Rate 3.32 KM3/d							
Instantaneous Diffe	rential Pressure 12.6	66 KPA						
Instantaneous Stati	c Pressure 2818 KP/	A						
Instantaneous Temp	perature 20.0 DEG. (	C.						
Contract Hour 0								
Atmospheric Pressu	ure 95.699 KPA							
Base Pressure 101	.325 KPA							
Base Temperature	15.0 Deg. C.							
Upstream Pipe ID 5	52.370 mm							
Pipe Material is CS								
Orifice Plate ID 9.52	25 mm							
Orifice Material is S	ST							
Static Pressure Mea	asurement is Absolut	te with an Upstream Tap						
Calibrated Static Pr	essure Range Min. E	EU 0 KPA						
Calibrated Static Pr	essure Range Max.	EU 38061 KPA						
Calibrated Different	ial Pressure Range I	Min. EU 0.00 KPA						
Calibrated Different	ial Pressure Range I	Max. EU 15.48 KPA						
Calibrated Tempera	iture Range Min. EU	-40.0 Deg. C.						
Calibrated Temperature Range Max. EU 37.8 Deg. C.								
Low Differential Cutoff 1.00 KPA								
Specific Gravity 0.7	79 Measured							
Compressibility (Zfl	) 0.88777							
N2 1.840%								
C1 70.680%								
C2 14.140%								

C3 6.740% NC4 1.900% IC4 0.810% NC5 0.430% IC5 0.380% NC6 0.260% NC7 0.220% NC8 0.000% NC9 0.000% NC10 0.000% O2 0.000% CO 0.000% H2 0.000% HE 0.000% CO2 0.000% H2S 2.600% H2O 0.000%

## 3. APPENDIX A - TROUBLESHOOTING

Make sure to read the Comm Display section if you are experiencing any communication related problems. Check for correct Baud rate, Address, Group, and Login/Password.

Additional technical support may be obtained by calling Spartan Controls (403-207-0700) during normal business hour Monday to Friday 8:00am to 5:00pm and asking for SCADA service.

## Please note that technical support will be charged at the current Spartan Controls Service hourly rates.

The Pocket FloBoss program a Freeware program and subject to the software license agreement found on Spartan Controls' website <u>www.spartancontrols.com</u>.