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# **GOST Measurement Application User Manual (for FloBoss™ 107)**

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This manual may be revised periodically to incorporate new or updated information. The revision date of each page appears at the bottom of the page opposite the page number. A change in revision date to any page also changes the date of the manual that appears on the front cover. Listed below is the revision date of each page (if applicable):

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## Chapter 1 – Overview

This chapter describes the structure of this manual and presents an overview of the GOST Measurement Application for the FloBoss™ 107.

### 1.1 Scope and Organization

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This document serves as the user manual for the GOST Measurement Application user program, which is intended for use in FloBoss 107 (FB107). This manual describes how to download, install, and configure the GOST Measurement Application program (referred to as the “GOST programs” or “the programs” throughout the rest of this manual). You access and configure this program using ROCLINK™ 800 Configuration Software (version 1.75 or greater) loaded on a personal computer (PC) running Microsoft® Windows® 2000 (with Service Pack 2), Windows XP (with Service Pack 3), Windows Vista™ (32-bit), or Windows 7 (32-bit and 64-bit).

The sections in this manual provide information in a sequence appropriate for first-time users. Once you become familiar with the procedures and the software running in a FB107, the manual becomes a reference tool.

This manual has the following major sections:

- *Chapter 1 – Introduction*
- *Chapter 2 – Installation*
- *Chapter 3 – Configuration*
- *Chapter 4 – Reference*
- *Appendix A – Alarm Log Entries*

This manual assumes that you are familiar with the FB107 and its configuration. For more information, refer to the following manuals:

- *FloBoss™ 107 Flow Manager Instruction Manual* (Part D301232X012)
- *ROCLINK™ 800 Configuration Software User Manual (for FloBoss™ 107)* (Part D301249X012)

### 1.2 Product Overview

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The GOST Measurement Application consists of two programs (GOST Properties and GOST Flow). The GOST Properties program enables a FB107 to calculate compressibility using the GOST 30319-96 (compressibility) standard. The GOST Flow program enables a FB107 to calculate differential flow rates according to the GOST 8563, GOST 8586, Annubar, and Venturi standards.

The GOST Properties program supports a choice of three algorithms for calculating compressibility:

- VNIC SMV(for natural gas density 0.668 to 1.00 kg/m<sup>3</sup>)
- GERG-91 (for hydrogen sulfide free gas density 0.668 to 0.70 kg/m<sup>3</sup>)
- NX19 (for natural gas density 0.668 to 0.70 kg/m<sup>3</sup>)

VNIC requires the full gas composition. NX19 and GERG-91 require N<sub>2</sub>, CO<sub>2</sub>, and density at contract conditions. Refer to GOST 30319.1, *GOST 30319.2*, and *GOST 30319.3* for specific details on the compressibility calculations and equations.

The GOST Flow program supports a choice of four algorithms for calculating flow rate:

- Annubar
- GOST 8.586-05
- GOST 8.563-97
- Venturi 8.586.04-05

### 1.3 Program Requirements

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The GOST Measurement Application version 1.01 is compatible with FB107 firmware version 1.10 and with version 1.75 (or greater) of ROCLINK 800 software. Each program requires you to install a software based license key to enable the calculations.

The downloadable program is:

File Name	Program Number	User-Defined Points	Display Number
gost_flowcalc_5.bin	5	31, 32	32, 33
gost_properties_3.bin	3	28	29

**Note:** You must connect a PC to the FB107's LOI port before starting the download.

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For information on viewing the memory allocation of user programs, refer to *ROCLINK™ 800 Configuration Software User Manual (for FloBoss™ 107)* (part D301249X012).

#### 1.3.1 License Key

Some applications require that you install a license in the CPU to run the application. This license software is specific to these applications and is the property of the individual vendor (shown in the Vendor Name field on the License Key Administrator screens).

RAS (and other authorized vendors) distributes software licenses on security-enhanced universal serial bus (USB) drives.

You must install the following license keys to use the Water and Steam Program.

- GOST\_FlowCalc License Key (1LK-5)

- GOST\_Properties License Key (1LK-6)

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## Chapter 2 – Installation

This section provides instructions for installing the GOST Measurement programs into FB107 memory. Read *Section 1.3* of this manual for program requirements.

**Note:** The program and license key can be installed in any order. The manual shows the installation of the license key first.

### 2.1 Installing the License Key

A license is required to use the Surface Control Manager program. To install a license on the FB107:

1. Insert the USB license key in a USB port on your PC.
2. Select **Utilities > License Key Administrator > Transfer Between DEVICE and KEY** from the ROCLINK 800 menu bar. The Transfer Licenses Between a Device and a Key screen displays:

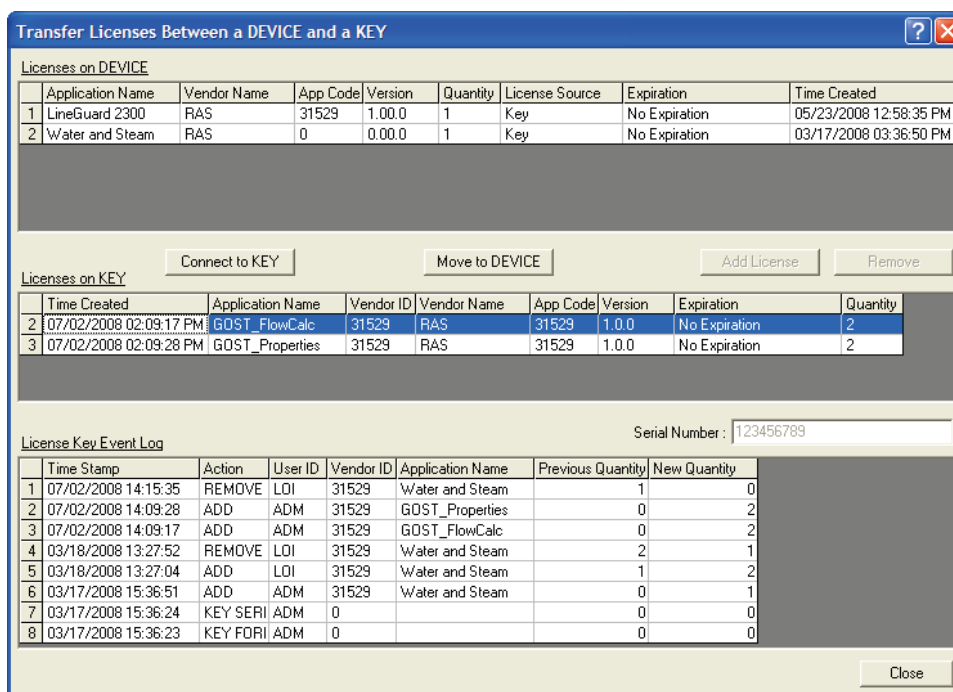


Figure 2-1. Transfer Licenses Between a Device and a Key

**Note:** This screen has three sections. The upper portion (Licenses on Device) shows any software licenses installed on the FB107. The middle portion (Licenses on Key) shows software licenses on the license key. The lower portion of the screen (License Key Event Log) provides a rolling log of the last eight events related to this license key.

3. Select the key-based licenses you want to transfer to the FB107 (GOST\_FlowCalc, as shown in *Figure 2-2*).

- Click **Move to Device**. ROCLINK moves one instance of the license from the key to the FB107 and updates the screen.

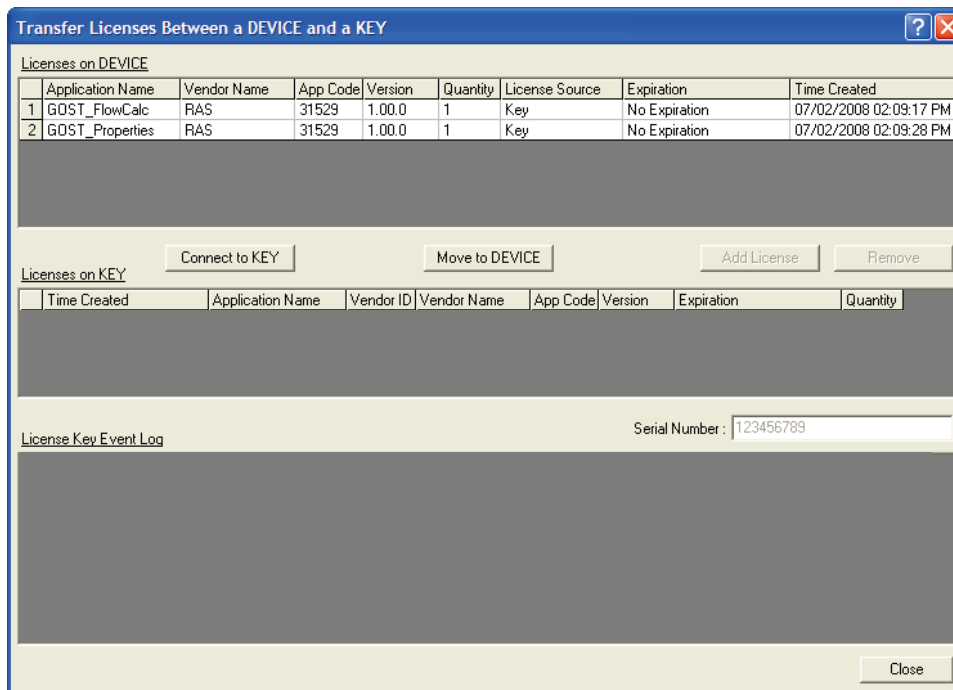


Figure 2-2. License Installed

**Note:** An FB107 can hold up to six different licenses, although you can install only one instance of each license on the FB107. When you click **Move to Device**, ROCLINK 800 moves only one instance of the license onto the FB107 and automatically decreases the license quantity on the USB key by one.

- Verify the license name displays in the Licenses on Device section of the screen. Proceed to *Section 2.2* to download the user program.

## 2.2 Downloading the GOST Flow Calculating Program

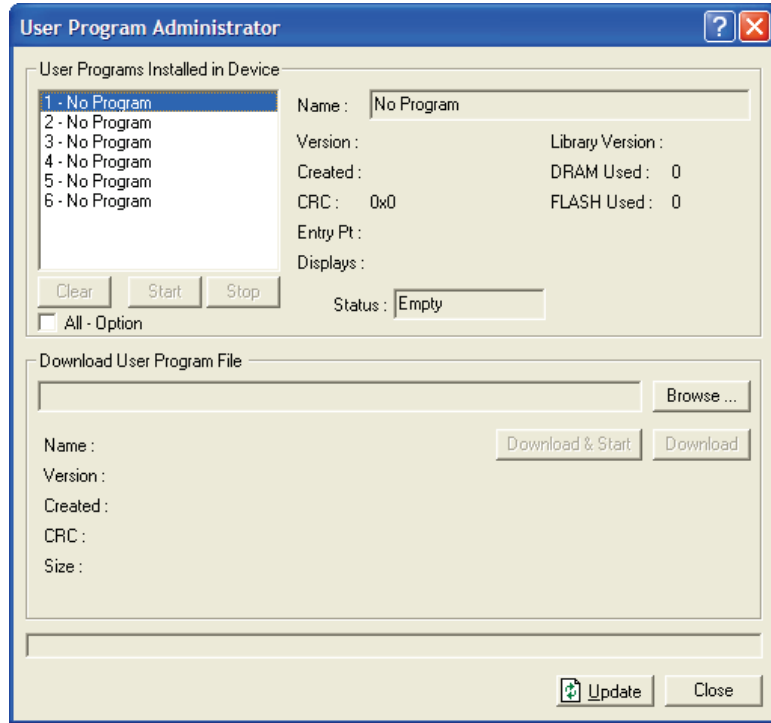
This section provides instructions for installing the GOST Measurement programs into the Flash memory on the FB107.

**Notes:**

- The GOST Measurement Application consists of two program files, GOST\_FlowCalc\_5.bin and GOST\_Properties\_3.bin. The programs may be run separately and are independent of each other. This manual assumes you are installing both programs.
- Connect a PC to the FloBoss’s LOI port **before** starting the download.

To download the user program:

1. Start and logon to ROCLINK 800.
2. Select **ROC > Direct Connect** to connect to the FloBoss unit.
3. Select **Utilities > User Program Administrator** from the ROCLINK menu bar. The User Program Administrator screen displays (see *Figure 2-3*):



*Figure 2-3. User Program Administrator*

4. Click **Browse** in the Download User Program File frame. The Select User Program File screen displays (see *Figure 2-3*).
5. Select the path and user program file to download from the CD-ROM. (Program files are typically located in the Program Files folder on the CD-ROM). As *Figure 2-4* shows, the screen lists all valid user program files with the .BIN extension:

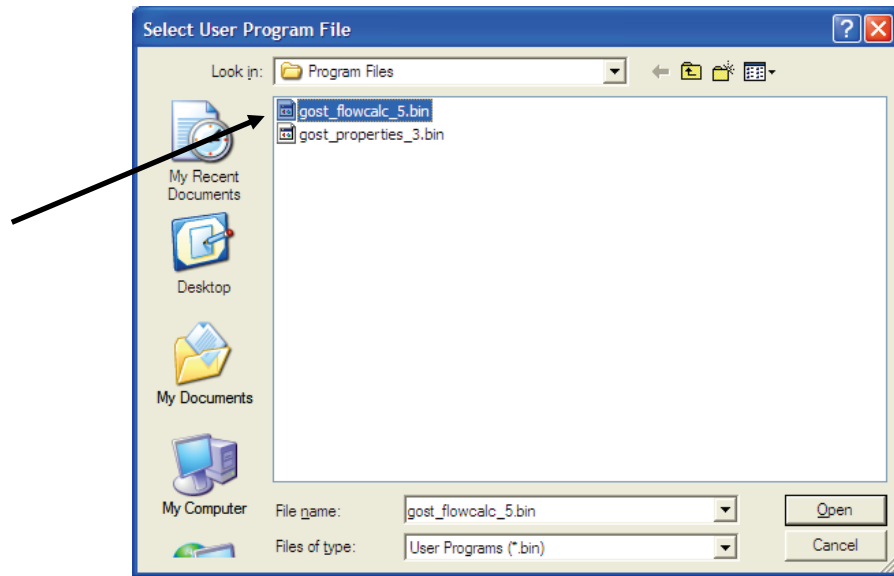


Figure 2-4. Select User Program File

6. Click **Open** to select the program file. The User Program Administrator screen displays. As shown in Figure 2-5, note that the Download User Program File frame identifies the selected program and that the **Download & Start** button is active:

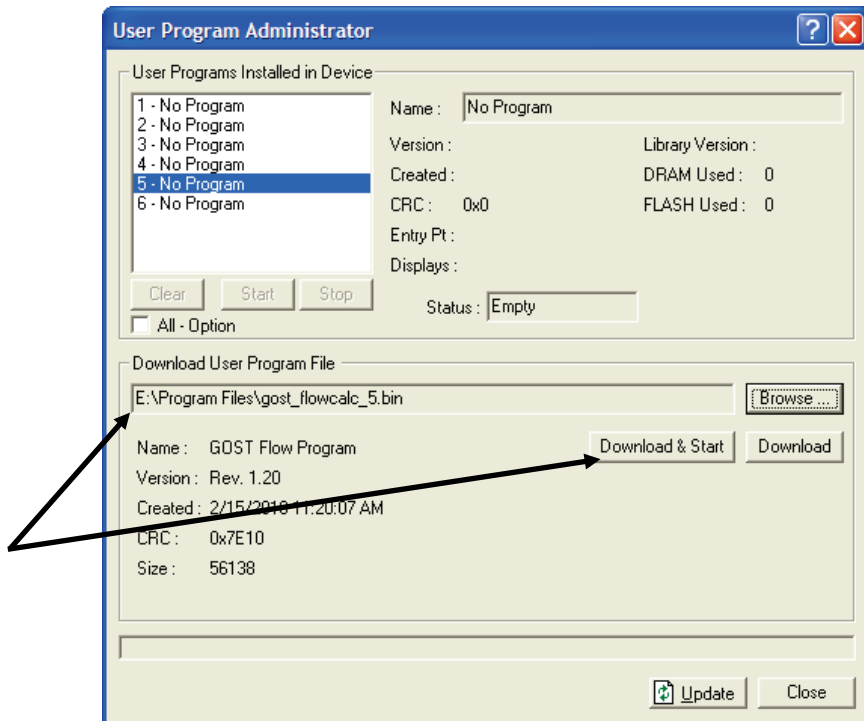


Figure 2-5. User Program Administrator

7. Click **Download & Start** to begin loading the selected programs. The following message displays:

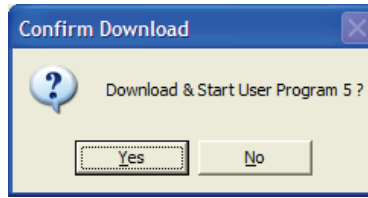


Figure 2-6. Confirm Download

**Note:** For the FB107, the factory has assigned program positions based on memory allocations. For this reason, the GOST Flow Calculation program automatically installs as program 5.

8. Click **Yes** to begin the download. When the download completes the following message displays:

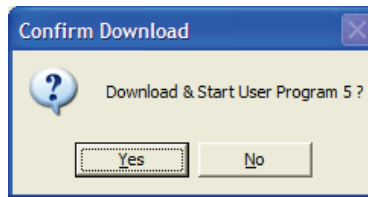


Figure 2-7. ROCLINK 800 Download Confirmation

9. Click **OK**. The User Program Administrator screen displays (see Figure 2-8). Note that:
  - The User Programs Installed in Device frame identifies the installed program(s).
  - The Status field indicates that the program is running.

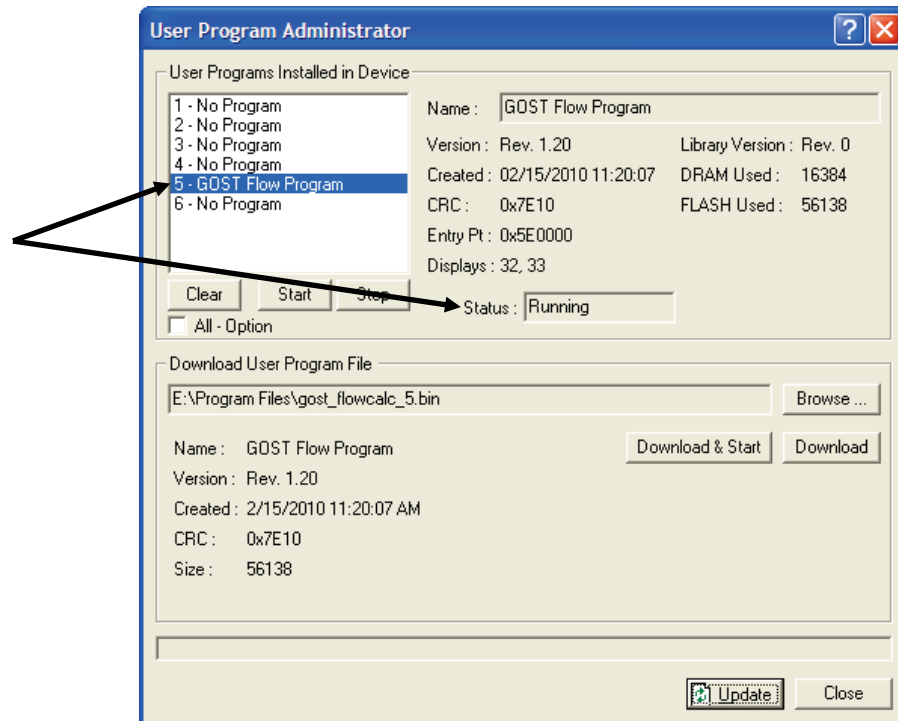


Figure 2-8. User Program Administrator

- 10.** Click **Close**. The ROCLINK 800 screen displays and the download is complete. Proceed to *Chapter 3, Configuration*.