

STARLOG

Flow Transducer & Interface

**Model 6532
Model 6115A**



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1. INTRODUCTION

The Signet Flow Transducer Interface (Model 6115A) is designed to connect a Flow Transducer (Model 6532) to a STARLOGGER, MACRO or Portable Data Logger. It can also be used to connect a Rotor-X Flow Transducer (Model MK 515/415 manufactured by Signet Scientific) to these Data Loggers.

This supplement describes both the Model 6532 Flow Transducer and the Model 6115A Flow Transducer Interface.

The Model 6532 Flow Transducers are precise reliable and rugged sensors to measure the flow rate of a liquid medium in a pipe. They are well suited for fluids which contain sulphur.

The Model 6115A Interface amplifies signals from the Flow Transducer for recording by a Data Logger. It consists of a small module with five "flying" leads.

The Flow Transducer produces an output signal which is proportional to the flow rate in both frequency and voltage. The interface uses only the frequency of the output signal to produce a signal compatible with the Logger's counter channels, i.e. the frequency of the transducer output is monitored by the Logger.

The following models exist:

Model	Description	Requires
6532A	Flow transducer with 1/2 to 4" pipe	Model 6115A Flow Transducer Interface
6532B	Flow transducer with 5 to 8" pipe	
6532C	Flow transducer with 10" & up pipe	
6532E	Flow transducer with high clearance for 2" and up	

Choosing a Model

Models 6532A/B/C are designed for fluids containing particulate matter up to 1% of volume. Model 6532E can be used with fluid volumes containing up to 10% particulate matter as it provides more clearance between the rotor and the housing.

2. STARLOG SCHEME INFORMATION

The following information will help you to use a Signet Flow Transducer in a STARLOG Data Logging System. When the Signet Flow Transducer is connected to a STARLOGGER, MACRO or Portable Data Logger, data sensed by the instrument is logged and stored according to a program you define using the STARLOG Software Package.

The STARLOG Software Package runs on a computer compatible with IBM systems (PC/XT/AT, PS/2). The package includes a menu-driven program so that you can easily generate a data logging program – called a Scheme – then load the Scheme into a Data Logger. To discover how to use this program see the STARLOG User's Manual.

This section explains how to use the Signet Flow Transducer in a scheme.

2.1. Which Logger to Use

The Signet Flow Transducer can be used with either a STARLOGGER or MACRO Data Logger. A STARLOG Portable Data Logger (superceded by the STARLOGGER) may also be used (see Appendix A).

2.2. Using a Macro Data Logger

In order to use the Signet Flow Transducer Interface with the MACRO Data Logger, a separate power supply is needed. The MACRO Data Logger's external power sources cannot be used with this interface.

You will want to set the Counter Channel Prescale equal to the Scan Rate. The MACRO Data Logger's prescale and scan rate are set using the software menus. This process differs depending on which version of software you use.

Using Version 3 Software

To set the Scan Rate:

1. In the **Scheme Editor**, open the **Program** window.
2. Next to **Scan Rate**, open the drop down list and select a number, for example, select 5 (for 5 seconds).

Version 3 automatically prescales data if necessary based on the amount of counts during the scan and the size of the channel used. If you use a 16 bit counter, then data would not be prescaled.

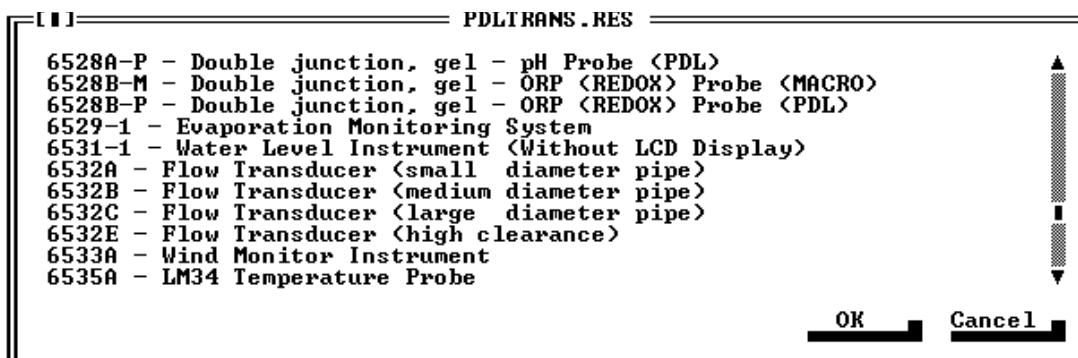
Using Version 2 Software

The MACRO Data Logger Scan Rate is set in two menus: one for the Scheme and the other for the Logger. To set the **Scheme's Scan Rate** (5 seconds) use the **Hardware Details** and **Data Logger** menus. Use the **Maintain MACRO Loggers** menu to **Edit a Configuration** and set the **Scan Rate** in the **General Details** menu.

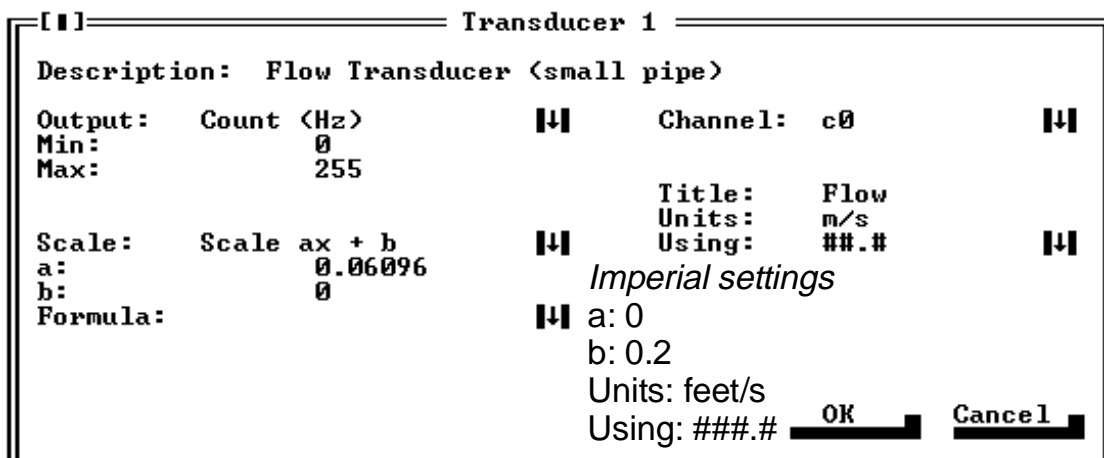
To set the Prescale (5) use the **Maintain MACRO Loggers** menu to **Edit a Configuration** and set the **Prescale Divide** in the **Counter Prescale Table**.

2.3. Creating a Scheme (Version 3 Software)

Using the **Scheme Editor**, set the **Hardware, Program** and **Communication** details for this Scheme. The default Logger Scan Rate of 5 seconds can be used for this instrument. The Log Interval must be equal to or greater than the Scan



Rate.



Then, using the **Instruments** window, select the Flow Transducer listed which matches the instrument used.

The Flow Transducer's attributes are:

Once you've added the Signet Flow Transducer to this scheme, you need to define what to log using the **Log Buffer** window.

2.4. Creating a Scheme (Version 2 Software)

Using the **Hardware Details** option ensure that the **Communication**, **Site Identification** and **Data Logger** details are correct for the hardware you are using in this Scheme. The default Logger Scan Rate of 5 seconds can be used for this instrument.

Then, using the **Maintain Instruments** command in this menu, add this instrument to your scheme.

Once you've added the Signet Flow Transducer to this scheme, you need to define when and what to log using the **Program Details** menus.

2.4.1. Adding the Instrument to a Scheme

Select a Model 6532 option from the Instrument List. Schemes which use a Model 6115A Signet Flow Transducer Interface with either a Model 6532 Flow Transducer or a Signet Flow Transducer use one of these options. If these options do not appear in the Instrument List of your software, use the **Create an Instrument** option in the **Maintain Instruments** menu. The Flow Transducer has the following attributes:

Imperial settings

Transducer Description	Flow Transducer	small pipe
Input Channel	c0	counter 0 (8-bit)
Input Channel Range counts	0 to 255	feet/s
Transducer Range counts	0 to 255	
Transducer Scaling/Formula	0 gain 0.06096	
Title for Reports	Flow	
Units of Result	m/s	
Using String	##.#	

Refer to the connections information in the next section for the Data Logger pin and Field Termination Strip terminal assignments for Counter channels.

2.4.2. Program Details

Ensure that the Logger Program Type is correct for this scheme. Then define when to log data from this instrument. (Note that the log interval must be equal to or greater than the scan rate.)

Then, add a log entry. Select the channel you are using (c0 is the default) then select the log action. If you have chosen Event Based Logging as the Log Program Type, then you need to add an event (or events).

2.5. Scaling Formula

The flow rate range maximum is 15.5448 metres per second.

The maximum count is 255.

$$\frac{15.5448}{255} = 0.06096$$

Each count is 0.06096 of fullscale. Thus, the formula is: 0 gain 0.06096.

3. INSTALLATION & CONNECTION

3.1. Using a STARLOGGER or Macro Data Logger

The five flying leads are connected as follows:

Signet Flow Transducer		STARLOGGER		Macro Data Logger	
Colour	Function	Pin	FTS	Pin	FTS
Brown	Data Logger Ground	23	8	28	2
White	Power from Data Logger	18	43	18	49
Yellow	Data Logger Counter Channel 0*	11	9	11	1
Blue	Flow Transducer output (+ve)	Transducer			
Brown	Flow Transducer output (-ve)	Transducer			

- » Pin : Input Signals Connector Pin
- » FTS : Field Termination Strip Terminal

* To use another Counter Channel, consult your Logger's Hardware Supplement for connection information.

3.2. Using a Portable Data Logger

Signet Flow Transducer		Portable Data Logger	
Colour	Function	Pin	FTS
Brown	Data Logger Ground	23	8
White	Data Logger battery	16	1
Yellow	Data Logger Counter Channel 0*	11	9
Blue	Flow Transducer output (+ve)	Transducer	
Brown	Flow Transducer output (-ve)	Transducer	

4. SPECIFICATIONS

Model 6115A Interface

Output: 1 counter, 8 bits
Cable: 5-core, 0.2 metre
Power: 5V DC, 20 μ A from Logger
Size/Weight: 30mm L x 20mm W x 15mm H, 50 grams

Model 6532 Flow Transducer

Flow Rate Range:	0.3 – 15.2 m/s	Models 6532A/B/C
	0.5 – 15.2 m/s	Model 6532E
Linearity:	$\pm 1\%$ of fullscale	
Accuracy:	$\pm 1\%$ of fullscale	
Pressure Rating:	1380 kPa at 20°C, 690 kPa at 60°C	
Temp. Range:	–18°C to 60°C	
Material:	Shaft, Titanium; Housing, glass-filled polypropylene	
Diameter:	26.6 mm	Models 6532A/B/C
	34.5 mm	Model 6532E
Length:	100 mm	Model 6532A
	132 mm	Model 6532B
	209 mm	Model 6532C
	107 mm	Model 6532E

Appendix A

Using a Portable Data Logger

4.1. Using a Portable Data Logger

To use a Portable Data Logger with this instrument, you will need to ensure that the scan rate and counter channel switches are set correctly.

4.1.1. Scan Rate

This switch is set at 5 seconds when delivered from the factory. If this scheme uses a different scan rate or you have changed the switch setting since your logger arrived from the factory, remember to set the switch.

4.1.2. Counter Channel Prescale & Bit Capacity

The Signet Flow Transducer uses an 8-bit counter with a prescale equal to the Scan Rate (i.e. prescale of 5 for a 5 second scan rate). Set the Counter Switches accordingly. These switches and the settings for a prescale of 5 are shown below.

To locate these switches, see the Portable Data Logger Hardware Supplement 6200.

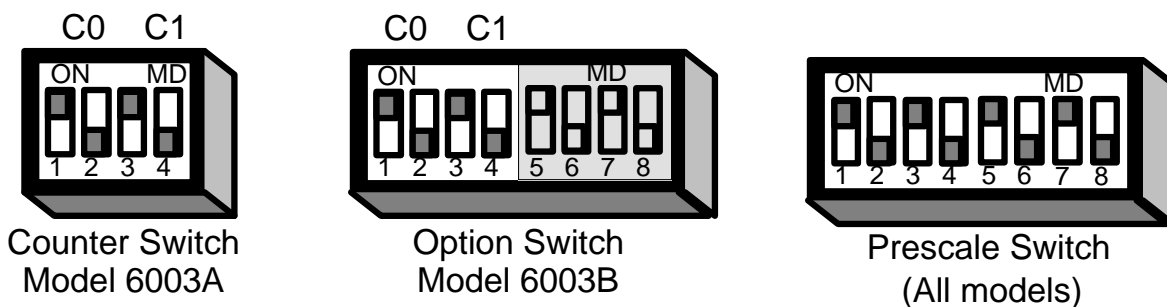


FIGURE 2.1 - Switch Settings for Counter Channels