

This worksheet is designed to aid in the determination of the I/O count and the model number of the SyberTrol Flow Computer.

## Section 1 - Pulse Inputs

- A. \_\_\_\_ How many meter runs are monitored by the SyberTrol? (This total cannot exceed 6.)
- B. \_\_\_\_ Number of pulse inputs from each of the meters, single pulse or dual pulse?  
(For a single pulse, enter 1; for a dual pulse, enter 2.)
- C. \_\_\_\_ Multiply the number of meter runs (A) by the number of pulse inputs (B). (This total cannot exceed 6.)
- D. \_\_\_\_ Number of Frequency Density Inputs (0, 1, or 2).
- E. \_\_\_\_ Add the Frequency Density Inputs (D) to the meter runs multiplied by the pulse inputs (C).  
(This total cannot exceed 6.)

## Section 2 - Analog I/O

Use the analog inputs and outputs checklist to determine the number of each that is required for your application. Then enter the number of each in the blank at the right of each type.

### Analog Inputs Checklist

#### General

- |                          |                       |
|--------------------------|-----------------------|
| ____ Temperature         | ____ Density Pressure |
| ____ Pressure            | ____ BS&W             |
| ____ Density             | ____ General          |
| ____ Density Temperature |                       |

#### Prover (Bi-Di, Uni, SVP, Master Meter)

- |                         |                      |
|-------------------------|----------------------|
| ____ Inlet Temperature  | ____ Inlet Pressure  |
| ____ Outlet Temperature | ____ Outlet Pressure |

### Analog Output Checklist

#### Valves

- \_\_\_\_ Flow Control Valve

#### General

- |                     |                          |
|---------------------|--------------------------|
| ____ Flow Rate Echo | ____ Skid Flow Rate Echo |
| ____ General        |                          |

- F. \_\_\_\_ Enter the number of RTD temperature inputs required (maximum is 8).
  - G. \_\_\_\_ Enter the number of 4-20 mA inputs required (maximum is 12).
  - H. \_\_\_\_ Enter the number of 1-5 Vdc inputs required (maximum is 12).
  - I. \_\_\_\_ Enter the number of 4-20 mA outputs required (maximum is 12).
  - J. \_\_\_\_ Enter the number of 1-5 Vdc outputs required (maximum is 12).
  - K. \_\_\_\_ Total the number of Analog I/O required. (Add F + G + H + I + J. Maximum cannot exceed 12.)
- Yes If this total is greater than 4, the expanded I/O board is required for this application. Check the appropriate box.
- No

### Section 3 - Digital I/O

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Use the digital inputs and outputs checklist to determine the number of each that is required for the application. Enter the number in the blank. Note that one digital I/O board includes eight I/O points and is supplied with each unit.

#### Digital Input Checklist

##### Valves

- |       |                                   |       |                        |
|-------|-----------------------------------|-------|------------------------|
| _____ | Flow Control Digital Valve Status | _____ | Two Stage Valve Status |
| _____ | Motorized Valve Open Status       | _____ | Analog Valve Status    |
| _____ | Motorized Valve Close Status      |       |                        |

##### General

- |       |                  |       |                            |
|-------|------------------|-------|----------------------------|
| _____ | Remote Start     | _____ | Product Detect 4           |
| _____ | Remote Stop      | _____ | End of Batch               |
| _____ | Product Detect 1 | _____ | Security Switch            |
| _____ | Product Detect 2 | _____ | Delta-P Strainer           |
| _____ | Product Detect 3 | _____ | BS&W Diverter Valve Status |
| _____ | General          |       |                            |

##### Prover

##### Bi-Di

- |       |                             |       |                             |
|-------|-----------------------------|-------|-----------------------------|
| _____ | Prover 4-way Status Forward | _____ | Prover 4-way Status Reverse |
|-------|-----------------------------|-------|-----------------------------|

##### Bi-Di and Uni

- |       |                           |       |                           |
|-------|---------------------------|-------|---------------------------|
| _____ | Seal Status               | _____ | Prover Volume             |
| _____ | Prover Detector Switch #1 | _____ | Prover Detector Switch #2 |

##### Bi-Di, Uni, SVP and Master Meter

- |       |               |       |                    |
|-------|---------------|-------|--------------------|
| _____ | Prover Status | _____ | Prover Pump Status |
|-------|---------------|-------|--------------------|

#### Digital Output Checklist

##### Valves

- |       |                                       |       |                                  |
|-------|---------------------------------------|-------|----------------------------------|
| _____ | Upstream Flow Control Digital Valve   | _____ | Command to Close Motorized Valve |
| _____ | Downstream Flow Control Digital Valve | _____ | Two Stage Valve Upstream         |
| _____ | Command to Open Motorized Valve       | _____ | Two Stage Valve Downstream       |

##### General

- |       |              |       |                         |
|-------|--------------|-------|-------------------------|
| _____ | Pulse        | _____ | BS&W Diverter Valve     |
| _____ | Sampler      | _____ | General                 |
| _____ | Pump Control | _____ | SyberTrol Status        |
| _____ | Alarm        | _____ | Skid (Combinated) Pulse |

##### Prover

##### Bi-Di

- |       |                       |       |                       |
|-------|-----------------------|-------|-----------------------|
| _____ | 4-way Command Forward | _____ | 4-way Command Reverse |
|-------|-----------------------|-------|-----------------------|

##### Uni

- |       |               |  |  |
|-------|---------------|--|--|
| _____ | Sphere Launch |  |  |
|-------|---------------|--|--|

##### Bi-Di, Uni, SVP and Master Meter

- |       |             |  |  |
|-------|-------------|--|--|
| _____ | Prover Pump |  |  |
|-------|-------------|--|--|

- L. \_\_\_\_ Enter the number of digital inputs and outputs required. (Maximum is 32.)  
 M. \_\_\_\_ Number of digital I/O boards required. Divide "L" by 8 and round up to the next whole number.

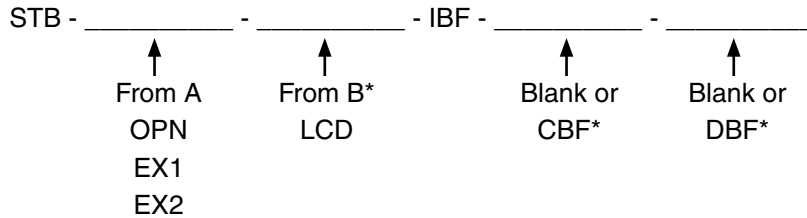
**Note:** Only the first two inputs/outputs on each board can be used for detector switch inputs or pulse outputs. Adjustment to this number must be made accordingly.

- Yes If "M" is greater than one, the expanded I/O board is required for this application. Check the appropriate box.  
 No

**Section 4 - Modeling (Stand Alone Assembly)**

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- A. Type of I/O board housing required for the application:  
 OPN - No housing; control room mounting  
 EX1 - Explosion-proof I/O housing (maximum 4 analog and 8 digital I/O)  
 EX2 - Explosion-proof I/O housing (maximum 12 analog and 32 digital I/O); required if display is included in I/O housing
- B. If local display is required in stand alone assembly; if not, go to Step C (only available in EX2 housing):  
 LCD - Liquid Crystal Display
- C. Stand alone assembly modeling:

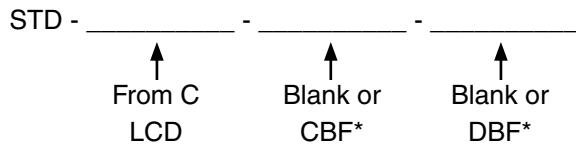


*\*Only available when using the EX2 housing and a display is included*

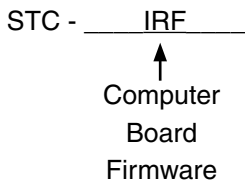
**Section 5 - Modeling (Display Unit - Non-Hazardous Mounting)**

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- D. Type of display required:  
 LCD - Liquid Crystal Display  
 ELD - Electroluminescent Display
- E. Display unit modeling:



- F. Display unit modeling:



**Section 6 - Pricing**

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**Stand Alone Assembly (from Section 4)**

STB - \_\_\_\_\_ - \_\_\_\_\_ - IBF - \_\_\_\_\_ - \_\_\_\_\_ \$ \_\_\_\_\_

**Analog I/O (from Section 2)**

RTD Inputs Qty \_\_\_\_\_ x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

Quantity of RTD inputs cannot exceed 8.

4-20 mA Inputs Qty \_\_\_\_\_ x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

1-5 Vdc Inputs Qty \_\_\_\_\_ x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

4-20 mA Outputs Qty \_\_\_\_\_ x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

Total Qty \_\_\_\_\_

Total Quantity cannot exceed 12. If quantity is greater than 4, the expanded I/O board is required for the Stand Alone Assembly.

**Digital I/O (from Section 3)**

Digital I/O Module(s) (each module includes 8 inputs/outputs, with the first module included at no charge)

Qty \_\_\_\_\_ x \$ \_\_\_\_\_ = \$ \_\_\_\_\_

Quantity = number required - 1 for pricing.

**Expanded I/O Board**

If Section 2K or Section 3N is checked "yes," the expanded I/O board is required for this application.

\$ \_\_\_\_\_

**Display Unit (from Section 5E)**

STD - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ \$ \_\_\_\_\_

**Infrared Controller (from Section 5F)**

STD - IRF \$ \_\_\_\_\_

Total Price \$ \_\_\_\_\_

**Section 7 - Related Publications**

The following literature can be obtained from FMC Technologies Measurement Solutions Literature Fulfillment at johno@gohrs.com or online at www.fmctechnologies.com. When requesting literature from Literature Fulfillment, please reference the appropriate bulletin number and title.

**SyberTrol**

Flow Computer Specification..... Bulletin SS09036
Programming Reference..... Bulletin MN09041
Operations..... Bulletin MN09045
Installation..... Bulletin MN09043
Communications..... Bulletin MN09044
Modbus Communications..... Bulletin MN09048
Infrared Controller Specification..... Bulletin SS09039

Revisions included in AB09005 Issue/Rev. 1.1 (11/06):
Page 3 Removed ELD option from Sections 4 and 5

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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Kongsberg, Norway Phone (47) 32/286-700
Buenos Aires, Argentina Phone 54 (11) 4312-4736

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