

*Setting the Standard for Automation™*



# Instrument Specification Forms: An ISA20 Industry Implementation-

Developed for Use in Pharmaceutical  
and Similar Industry Applications-  
CD-ROM

Standards  
Certification  
Education & Training  
Publishing  
Conferences & Exhibits



## **Presenter: Bret Fisk, P.E., Eli Lilly and Company**

*Bret A. Fisk, P.E. (Automation/Control Engineering) has been a significant contributor to Lilly's automation strategic initiatives since joining the company as a M.S. Electrical Engineering graduate of the University of Michigan in 1981. He continues to provide worldwide design consulting for Lilly's large capital projects. He is an active member of JETT, ISPE, and ISA.*

The Lilly logo is the word "Lilly" written in a red, cursive script font.

**Answers That Matter.**

**Session: Instrument Specification Forms:  
An ISA20 Industry Implementation**

- 1. History of Spec Form Development**
- 2. How Publication was Developed**
- 3. Features**
- 4. Advantages**
- 5. Discussion**

# Specification Development History

## 80's

- Manually filling out ISA20 Spec forms
- Covered general categories (Flow, Temp, Valves, Trans....)
- Labor intensive
- Excessive data fields on forms
- Many applications without forms

## Mid 80's – 1990's

- "Free-form" specs using remark fields in a database (VAX)
- "Multi-Item Specificatons" (one spec for a list of instruments)

## Late 90's -- Present

- EPC ACCESS Implementation of "ISA20 like" specifications
- "Multi-Item Specificatons" (one spec for a list of instruments)
- Field pick-lists for data integrity

# Publication Features

- Implementation of ISA20 tailored for the pharma industry (& useful for other industries)
- Single or “Multi-Item Specifications”  
(1 spec for a list of instruments)
- Additional pick-lists for efficient data entry & data integrity
- 73 Forms in Excel, but could be implemented in other databases (eg. ACCESS or SmartPlant® Instrumentation)
- Blank fields in each section for the flexibility
- Footer for revision & project management data

# How Publication was Developed

Several Months of Weekly Webex working sessions with:

- Eli Lilly & Company
  - Bret A. Fisk, P.E.
  - Vince P. Salupo, P.E.
  - Wm. Glenn Blackwelder, P.E.
- Intergraph Corporation
  - Alex Koifman
  - Ron Williams
- Jacobs Engineering
  - Brett Boyd
  - Michael A. Gordon, P.E.
  - Craig Linhardt, P.E.
- Process Automation Sourcing Solutions, Indianapolis, IN
- Fluor Corporation, SC, Control Systems Department

# Form Index:



| SPEC_FORM_NUMBER | SPEC_FORM_NAME                  |
|------------------|---------------------------------|
| 1101             | Orifice Plate                   |
| 1102             | Annubar                         |
| 1103             | Rotameter                       |
| 1104             | Venturi Tube                    |
| 1201             | Temp. TW/TE/TT                  |
| 2201             | DP Transmitter                  |
| 2202             | Pressure Transmitter            |
| 2401             | DP Instrument Level             |
| 2402             | Displacer Level Transmitter     |
| 2405             | Level Instrument Capacitance    |
| 2406             | Nuclear Instrument              |
| 2407             | Ultrasonic/Radar Transmitter    |
| 2501             | Coriolis Mass Flowmeter         |
| 2502             | Magnetic Flowmeter              |
| 2503             | Thermal Mass Flowmeter          |
| 2504             | Turbine Flowmeter               |
| 2505             | DP Transmitter (flow)           |
| 2506             | Positive Displacement Flowmeter |
| 2507             | Vortex Flowmeter                |
| 2508             | Ultrasonic Flowmeter            |
| 2509             | Thermal Mass Flow controller    |
| 2601             | PH Transmitter                  |
| 2603             | Conductivity/Resistivity Trans  |
| 2605             | Analyzer - Gas Concentration    |
| 2607             | LEL Analyzer                    |
| 2608             | Humidity Analyzer               |
| 2609             | Optical Density Analyzer        |
| 2610             | TOC Analyzer                    |
| 2611             | Turbidity Analyzer              |
| 2614             | Dissolved CO2 Analyzer          |
| 2615             | Dissolved O2 Analyzer           |
| 2620             | Analytical Measurement - Misc   |

| SPEC_FORM_NUMBER | SPEC_FORM_NAME (continued)  |
|------------------|-----------------------------|
| 2701             | Weigh Systems, Load Cell    |
| 2702             | Weigh Bench/Floor Scales    |
| 2703             | Weigh Precision Scales      |
| 4101             | Temperature Switch          |
| 4102             | Pressure Switch             |
| 4104             | Flow Switch                 |
| 4105             | Proximity for Bubble Trap   |
| 4107             | Level Switch                |
| 4111             | Level Switch Float Type     |
| 4112             | General Limit Switch        |
| 5101             | Bi-metallic Temp. Indicator |
| 5201             | Pressure Gauge              |
| 5701             | Level Gauge                 |
| 5702             | Sight Glass                 |
| 7101             | Temperature Regulator       |
| 7102             | Pressure/Flow Regulator     |
| 7103             | Blanketing Regulator        |
| 7201             | Ball Valve                  |
| 7202             | 4 Way Valve                 |
| 7203             | 3 Way Valve                 |
| 7204             | Diaphragm Valve             |
| 7205             | Butterfly Valve (On/Off)    |
| 7206             | 3 Way Diverter Valve        |
| 7207             | Sanitary Multiport Valve    |
| 7301             | Globe Valve                 |
| 7302             | Sanitary Control Valve      |
| 7303             | Butterfly Control Valve     |
| 7304             | V-Ball Valve                |
| 7401             | Rupture Disk                |
| 7402             | Conservation Vent           |
| 7403             | Pressure Safety Valve       |
| 7404             | Flame Arrestor              |

# Form Index: (continued)

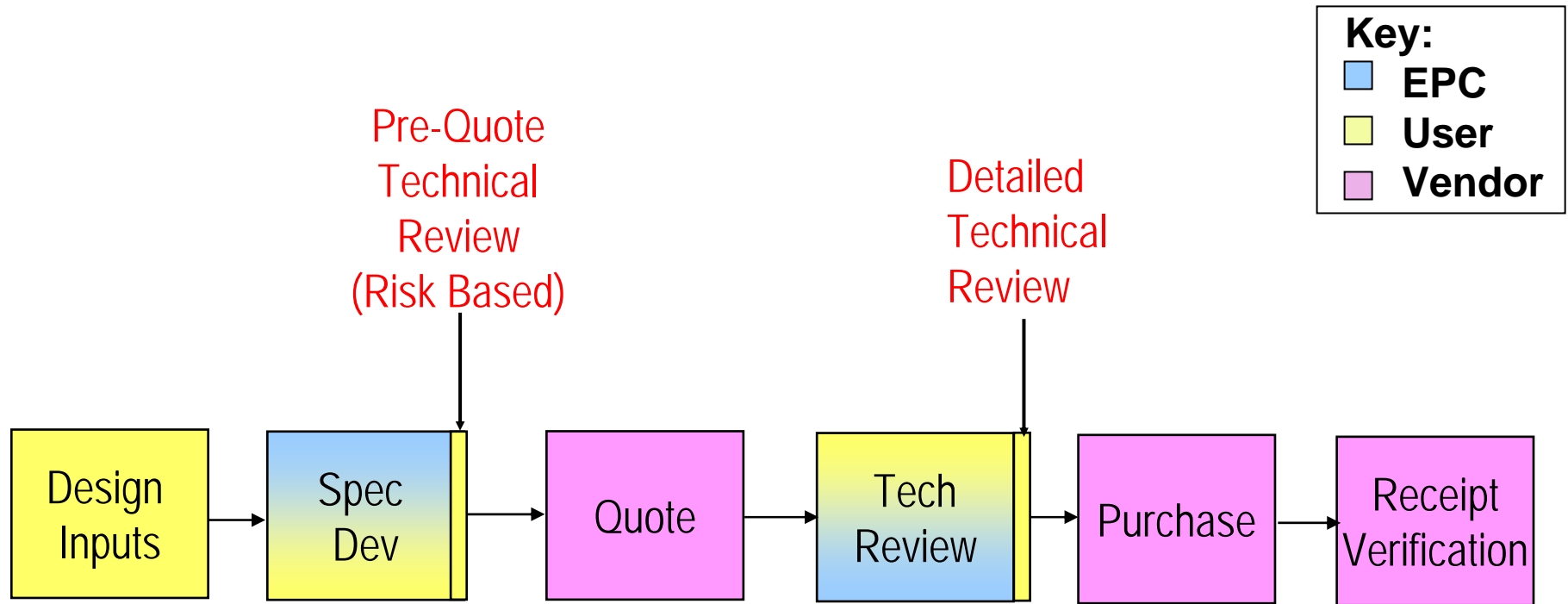
| <b>SPEC_FORM_NUMBER</b> | <b>SPEC_FORM_NAME (continued)</b> |
|-------------------------|-----------------------------------|
| 7601                    | Solenoid Valve                    |
| 7602                    | Solenoid Valve (in-line)          |
| 9101                    | Signal Conv./Transmitter          |
| 9301                    | Fieldbus Page                     |
| 9302                    | Receiver/Controller/Recorder      |
| 9303                    | Electronic Indicator              |
| 9304                    | Test Support Equipment            |
| 9305                    | Speed Transmitter                 |
| 9306                    | Power Supply                      |



As with ISA-20, use of these forms by users and manufacturers offers the following advantages:

- Assists in preparation of complete specifications by listing and providing space for all principal descriptive options
- Promotes uniform terminology across the pharmaceutical industry and similar applications, streamlining:
  - interdepartmental and cross-functional communications
  - communications between companies
- Promotes uniform application development of instrument design tools.
- Facilitates quoting, purchasing, receiving, accounting and ordering procedures by uniform display of information
- Provides a useful permanent record and means for checking the installation
- Improves efficiency from the initial concept to the final installation

# Instrument Delivery Process



## Discussion:

# Instrument Specification Forms: An ISA20 Industry Implementation- Developed for Use in Pharmaceutical and Similar Industry Applications- CD-ROM



Show sample form in publication