



# Series 80 & 80-SC

## ITSC Option

Integrated Technologic® with Sensorless Control

B-111A

# ITSC for Series 80 & 80-SC Pumps

## Integrated Technologic® with Sensorless Control



The ITSC option makes it easy to design, install, and commission a variable flow Hydronic Pumping System. Available from Bell & Gossett® on both Series 80 closed-coupled and Series 80-SC split-coupled vertical in-line pumps, the Integrated Technologic variable frequency drive combines the energy savings of variable flow with sensorless technology to eliminate the cost and time of using wired transducers.

- Series 80 sizes from 1½ x 7B to 8 x 8 x 11
- Series 80-SC sizes from 2½ x 9½B to 10 x 10 x 13½
- ODP or TEFC motors up to 60HP
- Compatible with 200/208/230, 460/480, and 575 VAC power
- Fully supported with Bell & Gossett's ESP PLUS Pump Sizing Software

### Features and benefits:

#### Energy savings with variable flow pumping

Many of today's systems operate at less than full capacity. By reducing motor speed to match flow and head to the system load, you can significantly reduce your electrical power as compared to full speed operation. When combined with a NEMA Premium efficiency motor, the ITSC is a best-in-class solution that fully meets the requirements of ASHRAE 90.1.

#### Field-proven Technologic pump controller

For over twenty years, Bell & Gossett has set the benchmark for variable speed pumping with the Technologic series of Intelligent Pump Controls. With this latest release, the ITSC is configured with a NEMA 12 enclosure rating, temperature controlled cooling fan, and an advanced power system design, to ensure your HVAC pumps operate efficiently and reliably.

- Dual DC link reactors and EMI/RFI filters
- Built-in BACnet, Modbus RTU, N2 Metasys
- 2 analog inputs, 1 analog output
- 4 digital inputs, 2 digital outputs
- 2 programmable relays
- Mains disconnect with optional fuses

#### Factory configured intelligent pump is ready to install

Given the time constraints of today's HVAC projects, why bother with the extra effort of selecting, mounting, wiring, and configuring a variable speed drive? The ITSC is mounted and configured in our factory by trained technicians. It is fully tested and optimized under load in our advanced pump testing facility.



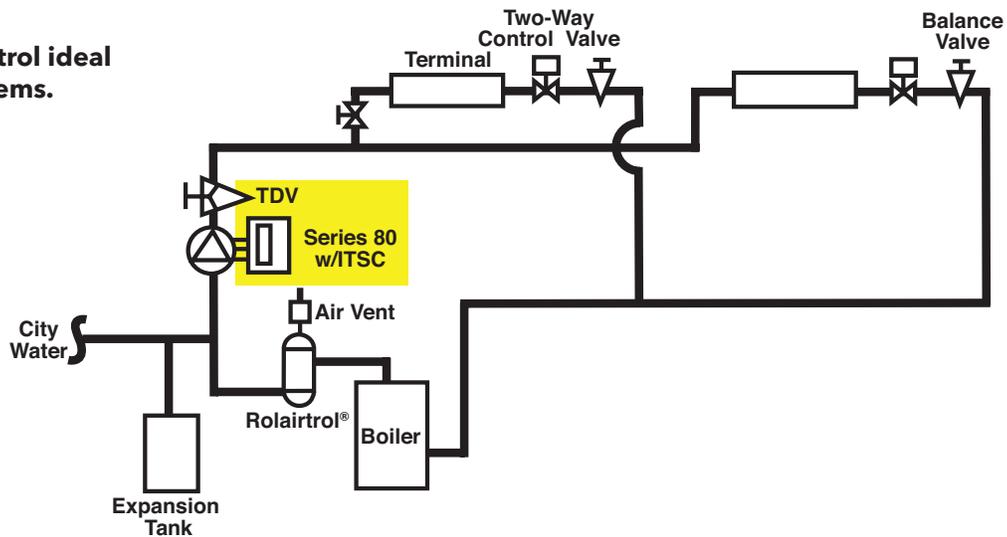
# Bell & Gossett is your one-stop shop for Intelligent Variable Speed HVAC Pumping Systems.

## Hydronic sensorless control

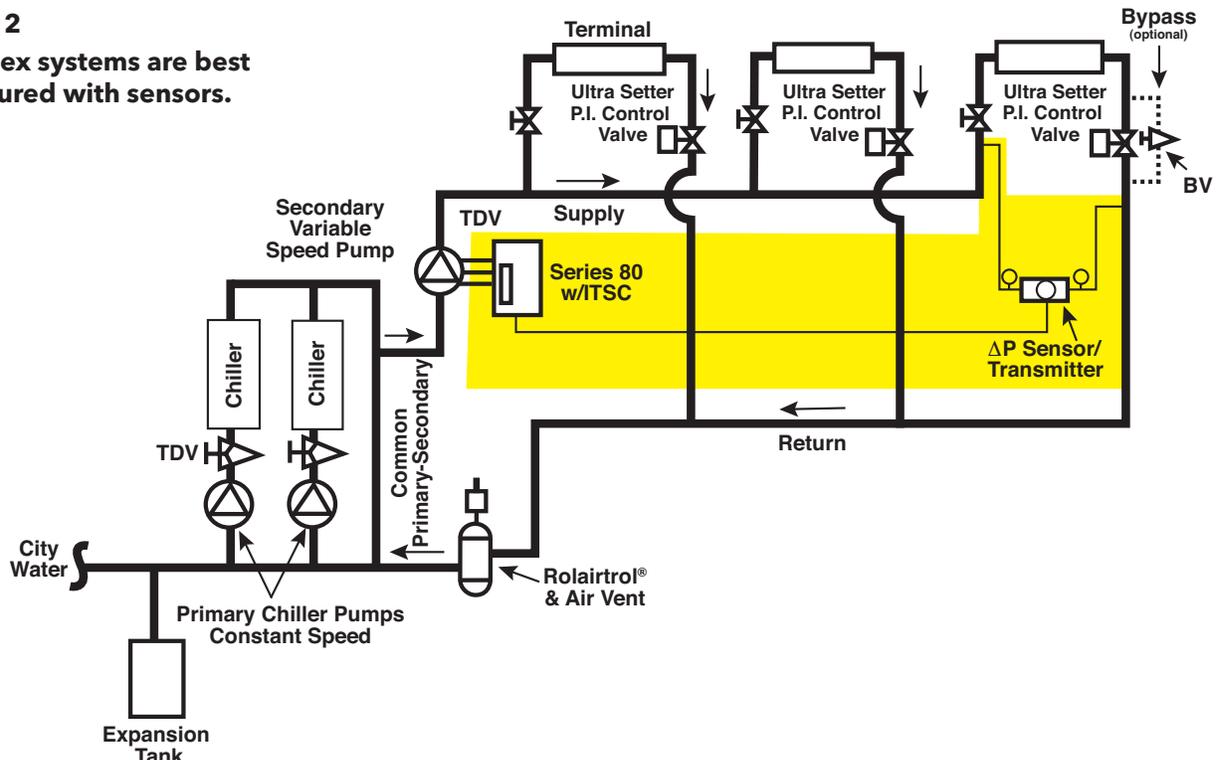
In simple hydronic systems (**Figure 1**) with quadratic friction losses, the ITSC emulates a differential pressure transducer across the load by monitoring the pumps speed and torque characteristics.

In more substantial systems (**Figure 2**) where the differential pressure losses across the loads are more complex using a differential pressure transducer on the furthest load is the preferred solution. In challenging system designs, the ITSC is also an ideal choice because of its built-in support for wired pressure or flow transducers.

**Figure 1**  
Sensorless control ideal for simple systems.



**Figure 2**  
Complex systems are best configured with sensors.





## Sensorless technology at work

The ITSC sensorless technology is made possible by two simple principles of variable flow systems. The first is the universal application of the affinity laws to centrifugal pumps. This enables the ITSC to model the pump performance very accurately.

Also essential to Sensorless control is the ability of today's variable speed drives to accurately measure and control a motor's speed and torque. By tightly integrating both of these elements the ITSC supports high performance variable flow Hydronic systems without the hassles of mounting, installing, and wiring a separate VFD on a wall or a wired transducer across the load furthest from the pump.

## The right solution for any job

The ITSC ships configured for Sensorless operation out of the box. Using the advanced User Interface and pre-configured setups, an installer can readily change the mode of operation as needed for the site:

- Sensorless Pressure control
- Sensorless Flow control
- Wired Differential Pressure Transducer
- Wired Flow Transducer

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,900 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

**For more information on how Xylem can help you, go to [www.xylem.com](http://www.xylem.com)**



Xylem Inc.  
8200 N. Austin Avenue  
Morton Grove, Illinois 60053  
Phone: (847) 966-3700  
Fax: (847) 965-8379  
[www.bellgossett.com](http://www.bellgossett.com)

Bell & Gossett is a trademark of Xylem Inc. or one of its subsidiaries.  
© 2013 Xylem Inc. B-111A October 2013