

# SCU

## SIGNAL CONDITIONING UNIT

### TI.40.100.GE



#### INTRODUCTION

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*The Wallace & Tiernan microprocessor-based SCU (Signal Conditioning Unit) is designed for automatic flow pacing of chemical dosage. It provides accurate control of gas feed equipment positioners and variable speed drives. Solenoid operated pulse pumps can also be controlled from the SCU. The unit is operator friendly using a message capable LCD display and a six button keypad to allow simple set-up and calibration through menu-driven selections.*

#### ADVANTAGES

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- Reliable microprocessor design
- Large easily read display with selectable brightness
- Menu driven for easy operation
- Selectable output display in g/h, kg/h or %
- Five point calibration to match rotameter indication
- Galvanic isolation of inputs and outputs
- Protection to IP65 in panel mounted enclosure with transparent cover
- Operation function selectable via an external input
- Diagnostic menu for assistance at installation and during maintenance
- EMC tested
- CE marked

## OPERATION

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An external milliamp command signal, typically flow measurement, has a dosage factor applied to it that is set by the operator, allowing dosage variations of between 10% and 400% of input. In the AUTO mode, the SCU adjusts the output signal based on the input signal multiplied by the set dosage rate.

This can be used to control:

- A chlorinator or pump dose rate positioner. (increase/decrease signal)
- An AC or DC variable speed pump motor. (mA signal)
- A solenoid pulse pump. (pulse/min output)
- Stop/start variable duration operation for a constant speed. (PWM output)
- Pumps with both variable stroke and speed. (positioner & mA signal)

For positioner applications, the SCU provides a switched 115/230 VAC signal for operating the positioner drive motor. A precision potentiometer in the positioner supplies an accurate feedback signal to the SCU for exact control. The position can be displayed on the SCU in %. For chlorinators, the V-notch plug position can also be displayed as feed rate in g/h or kg/h.

Any non-linearity in gas feed is compensated by a unique 5 Point Calibration Function built into the SCU. For pump application, using a variable speed drive motor, a 0...10/4...20mA output signal is available from the SCU to control the pump speed. Operation parameter, dosage rates and all the other settings are entered using the keypad with menu guidance.

There are five top level menus (Main, Set-Up, Set I/O, Calibration & Diagnostics) logically arranged to prompt the operator for easy selection of individual menu steps. Settings can be protected against unauthorised changes with a user selectable security code number. In addition to the display of operational information, all alarm or error messages are displayed as long as the alarm or error conditions exist.

The operator can acknowledge the alarm, thereby cancelling the flashing alarm display. Remote control inhibit of the SCU can be accessed through a digital input contact. Depending on the user selection, the contact can switch off the SCU, drive the positioner to one of 6 positions and cause the display to flash.

## SPECIFICATION

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The SCU is available with panel or wall mounted housings up to IP65 protection. The unit itself is built in an enclosed metal housing, 20 TE large, which can be installed in all standard 19" installation frames.

The front panel includes the key pad and the window for the LCD alphanumeric display as well as an LED to indicated automatic operation. The panel is acid and solvent resistant. The display is operator selectable for the following five languages: English, German, French, Spanish or Italian.

The unit performs self tests during operation and displays any errors in full text on the LCD display.

The unit is designed to European regulations and carries the CE mark. The mains voltage, as well as all inputs and outputs, are connected via screw terminal blocks. Ground protection is fixed with a screw connection to the housing.

**DIMENSIONS**

(Electronic Module only)  
 102mm x 129mm x 175mm (L x H x D)  
 Depth including terminal block from front panel

**WEIGHT**

(Electronic Module only) 1.3 Kg

**PROTECTION DEGREE OF ENCLOSURE**

<i>Housing</i>	<i>Protection</i>
For Wall Mounting:	IP65
For Panel Mounting:	IP65

Flammability to UL94 = HB1.6

**TEMPERATURE RANGE**

Operation 0...50°C (rel. humidity 90% max, non condensing)  
 Storage -20...70°C

**MAINS SUPPLY**

230V ± 10%, 50-60Hz  
 5.5VA, fuse T100mA, 5 x 20mm  
 or  
 115V ± 10%, 50-60Hz  
 5.5VA, fuse T200mA, 5 x 20mm

**STANDARD ENCLOSURE**

Wall Mounting Enclosure (with cable assembly)  
 Enclosure size -  
 208mm x 237mm x 235mm (L x H x D)  
 (excluding cable glands)

**OPTIONAL ENCLOSURE**

Panel Mounting Enclosure  
 Cut out - 139 x 139mm  
 Enclosure size -  
 144mm x 144mm x 250mm (L x H x D)

**OPERATOR INTERFACE**

Ergonomic membrane keypad with 6 keys.  
 8 character alphanumeric LCD, 11mm high, contrast selectable (10% - 90%)

**RELAY OUPUTS, MAXIMUM RATING**

3A, 1/6 HP, 250 VAC, 750 VA max  
 3A, 125 VDC, 30 W max  
 1A, 30 VDC - 0.24A, 125 VDC  
 Shortest switch-on time 300ms  
 Shortest switch-off time 200ms  
 Protection with suppression diodes

**ANALOGUE OUTPUT A**

0...10/4...20mA,  
 Accuracy 0.1% FS  
 Load maximum 500Ω  
 Galvanically isolated from earth to 500V.

**ANALOGUE INPUTS E1**

0...20/4...20 mA ,  
 Input impedance 47Ω,  
 Galvanically isolated from earth to 100V.

**ANALOGUE INPUT E2**

For positioner transducer signal and switch for manual positioner operation  
 potentiometer 1 KΩ (factory setting)  
 100Ω, 5KΩ, 1V, 5V, 0...20/4...20 mA setting.

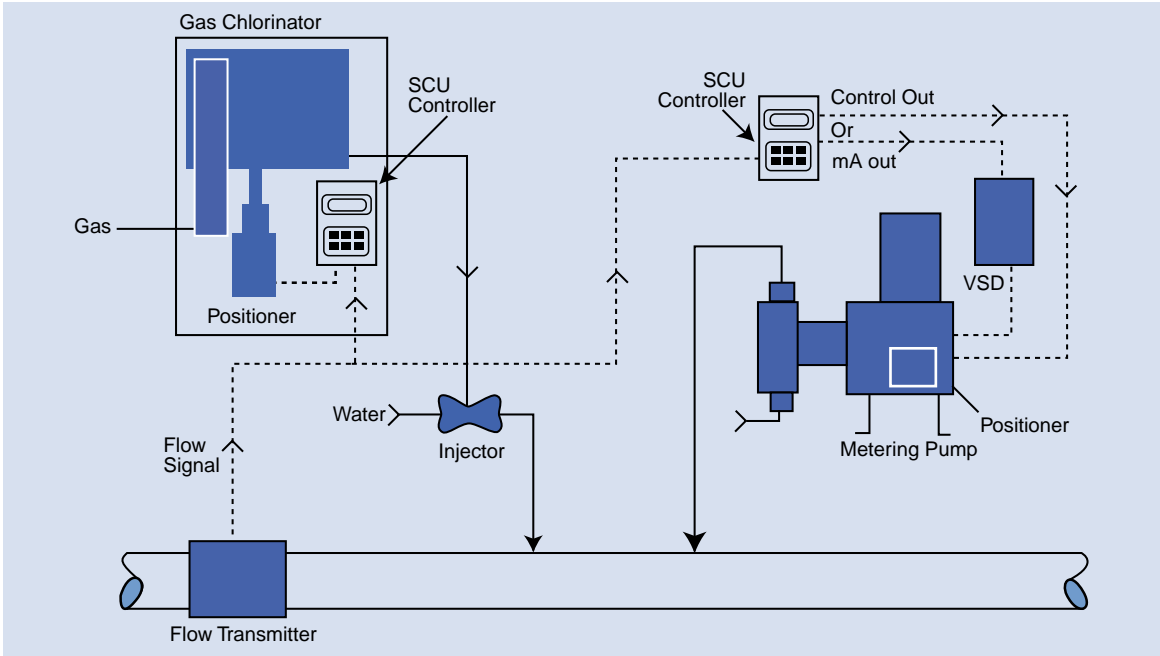
**DIGITAL INPUT**

Control inhibit - 230 VAC/DC,  
 115 VAC/DC, 24 VAC/DC.  
 Galvanically isolated from earth to 500V.

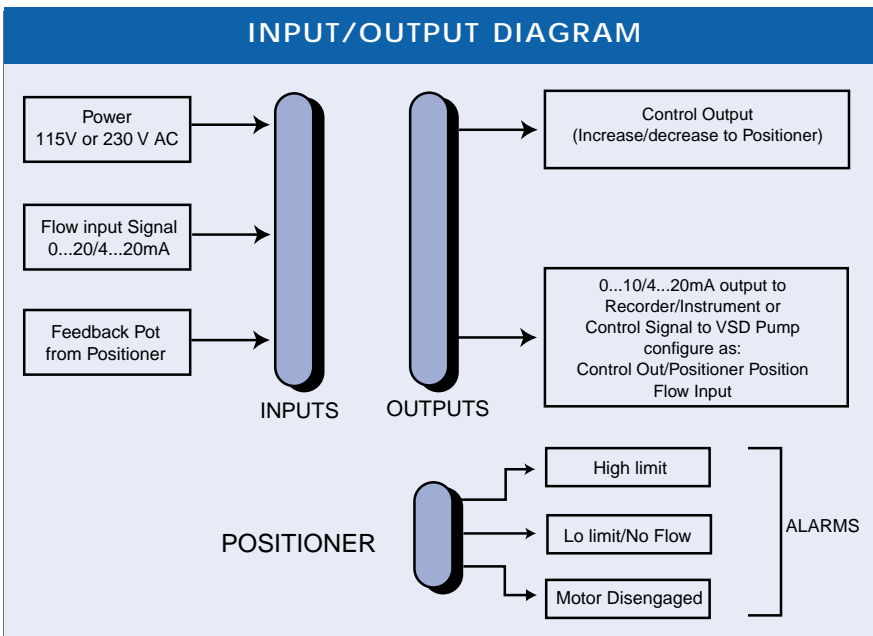
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Typical Process Layout



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PRODUCTS**

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MEETING QUALITY STANDARDS

In the continued development and improvement of our products certain specifications may be altered without prior notice.



FM53933

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