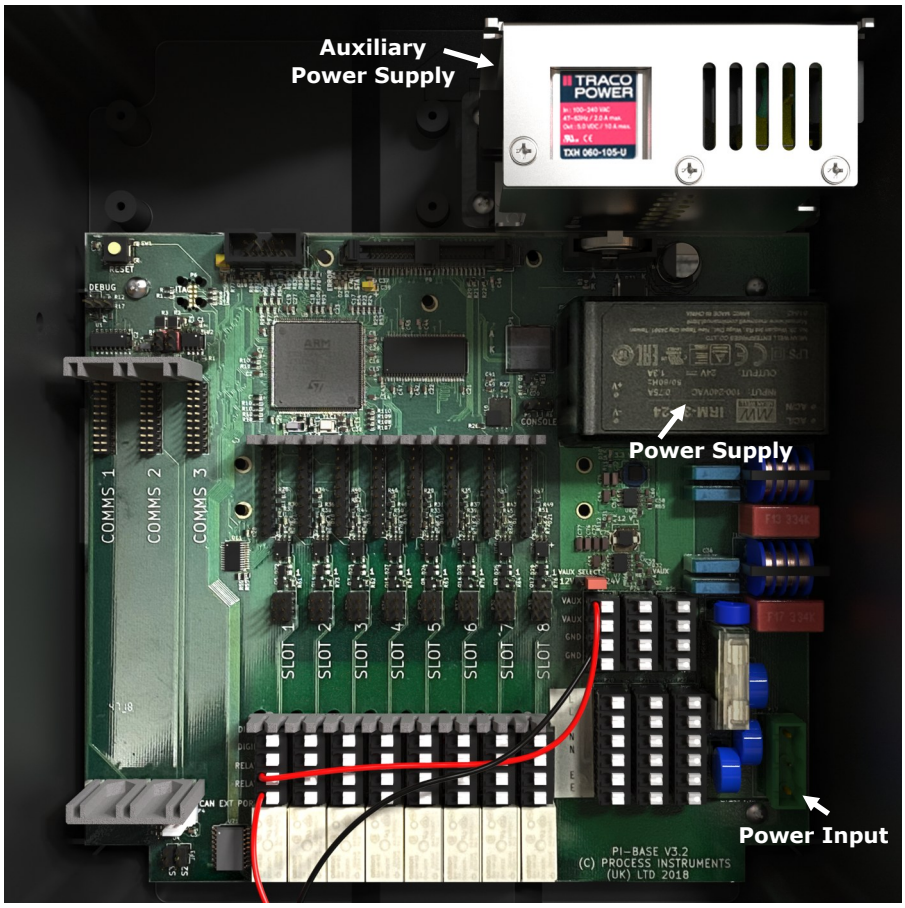
Technical Note 167

Analyser Power Consumption

Introduction

This document is to discuss the power requirements for different devices that can be connected to a CRIUS®4.0 and CRONOS® analyser, and when an auxiliary power supply should be fitted within the enclosure to ensure the power supply can cope with the power demands of the various devices connected.



Standard Configuration

A standard analyser will be supplied with a power supply that is capable of outputting 1300mA at 24VDC, marked 'power supply' above.

DC Configuration

The DC version of the analysers will be supplied with a power supply that is capable of outputting 1250mA at 24VDC.

Typical Power Consumption

The majority of equipment Process Instruments Ltd. manufacture uses far less than the maximum output of the power supplies above. An example system is shown below:

CRIUS® 4.0 TurbSense® with free chlorine and CounterSense with four relays and four 4-20mA output cards would peak at around 526mA , allowing 774mA to be used for external devices. For example, sirens, valves, flow switches, etc.

External Analyser Devices

Process Instruments Ltd. provide some equipment that will require a higher current draw than the on-board power supply can handle. An example of this is multiple Autoflush cells on a single analyser. Each AutoFlush cell motorized ball valve requires at peak 210mA. The cell has 3 valves so can use at peak 630mA. This, combined with the current draw required for the analyser, sensor, two relay and 4-20mA output would be around 891mA. If a second AutoFlush was used on this system, there is a potential to bring the requirement to 1623mA if all 6 valves need to be activated simultaneously.

Process Instruments Ltd. also supplies sensor systems that have pumps, solenoid valves, and other devices that use a significant amount of current. One example system is the AlkaSense® sensor. The peak current for this sensor when powered on is around 1026mA, this when combined with an analyser with a two relay output and a 4-20mA output will be around 1254mA. If any other sensors, outputs or external devices were added to this system an auxiliary power supply would be required.

External Supply

The analyser enclosure has been designed to fit an auxiliary power supply above the main circuit board. This can output up to 2500mA, allowing for the analyser to continue to power many external devices.

With an auxiliary power supply fitted, an analyser should theoretically be able to power up to 5 AutoFlush cells (with 650mA remaining) and 3 AlkaSense® (with 700mA remaining).

Estimated Power Consumption

Information regarding consumption per device can be found within the manual. Pi routinely checks orders and adds powers supplies as required. Care must be taken when upgrading analysers in the field. For further information please contact Pi at: support@processinstruments.net .