

## Application Note

Title: Measurement of voltage and current in a DC load bank application

Date: 18<sup>th</sup> March 2015

Revision: 1st

### 1. Introduction

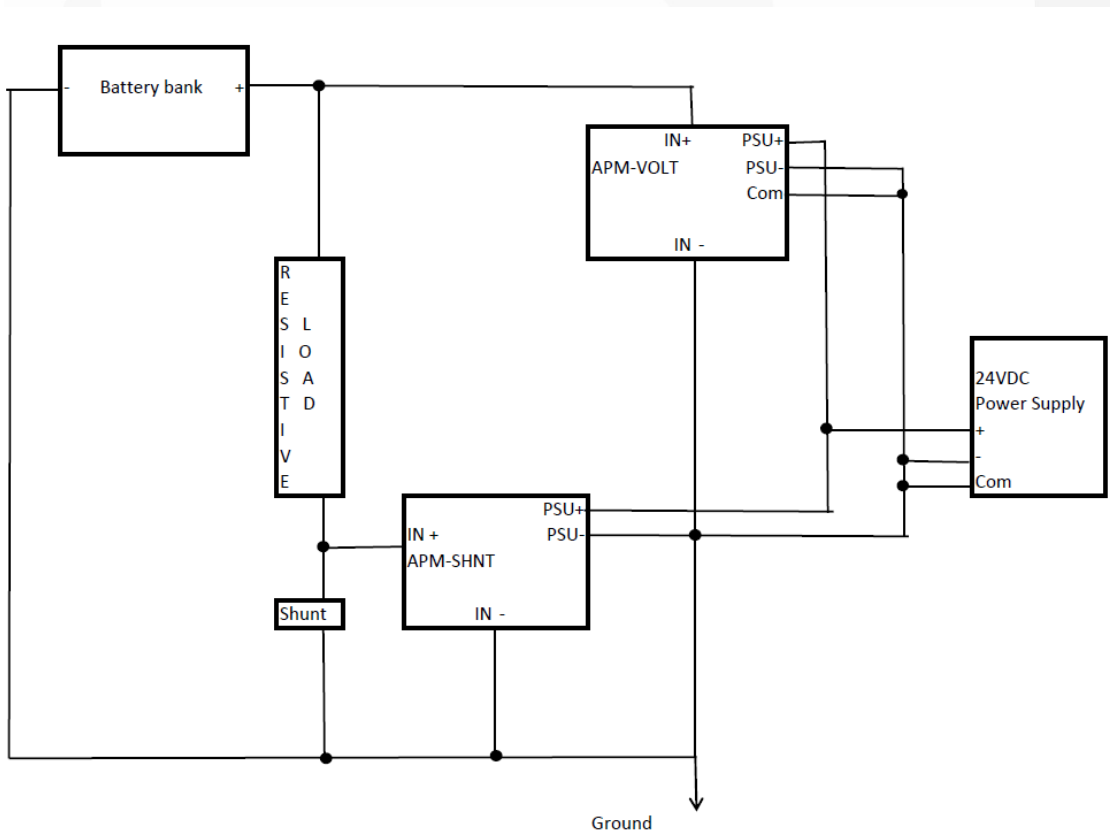
Most manufacturing facilities use battery powered equipment such as fork lifts and maintenance carts

These facilities will use load banks to test these batteries on a regular basis. Bad batteries can impact productivity and damage equipment.

Manufacturers of load bank equipment usually provide a volt meter and a current meter on each load bank. By monitoring current and voltage at specific resistive load will indicate whether a battery or bank of batteries is good.

The voltage is general measured across the load and the current is measured using a current shunt on the low side of the load. Shunts are typically 50mv or 100mv output

### 2. Diagram

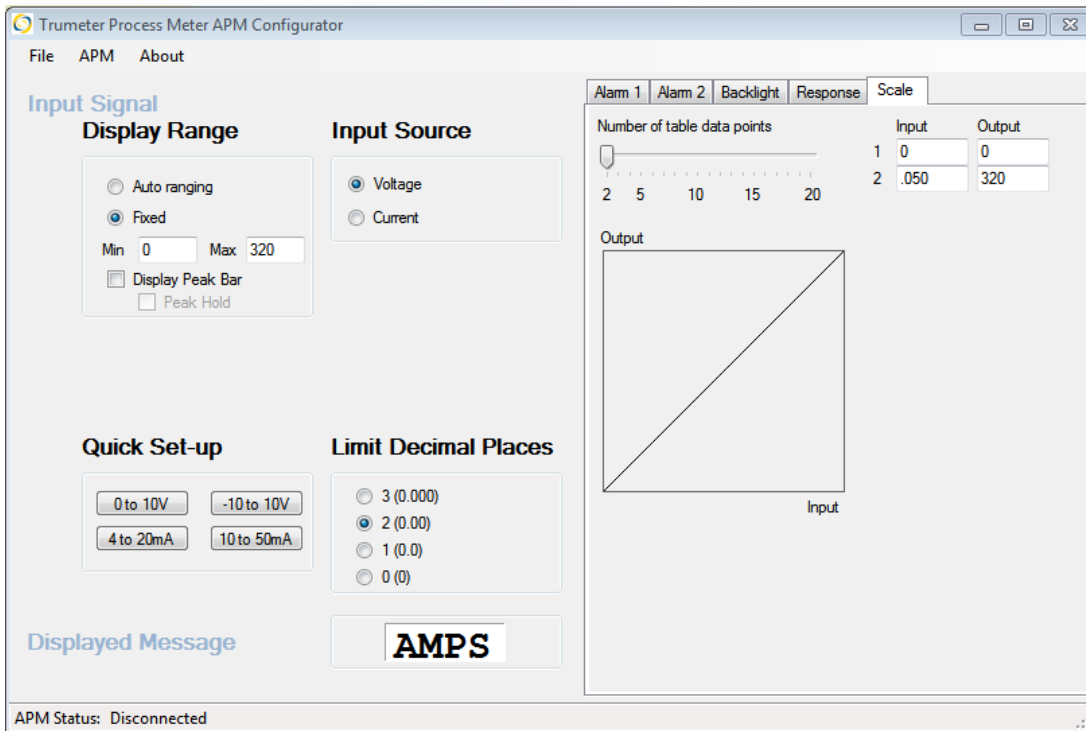


### 3. Example

The Load Bank tests six 12 volt batteries in series. 72 volts total. Under load, a voltage below 70 volts indicates an issue. The load is sized to draw 300 amps from the batteries. A current below 290 amps indicates an issue. The system uses a 300 amp to 50mv shunt.

APM-VOLT

# APM-SHNT



Trumeter Process Meter APM Configurator

File APM About

**Input Signal**

**Display Range**

Auto ranging  
 Fixed  
 Min 0 Max 320  
 Display Peak Bar  
 Peak Hold

**Input Source**

Voltage  
 Current

**Quick Set-up**

0 to 10V -10 to 10V  
 4 to 20mA 10 to 50mA

**Limit Decimal Places**

3 (0.000)  
 2 (0.00)  
 1 (0.0)  
 0 (0)

**Displayed Message**

**AMPS**

APM Status: Disconnected

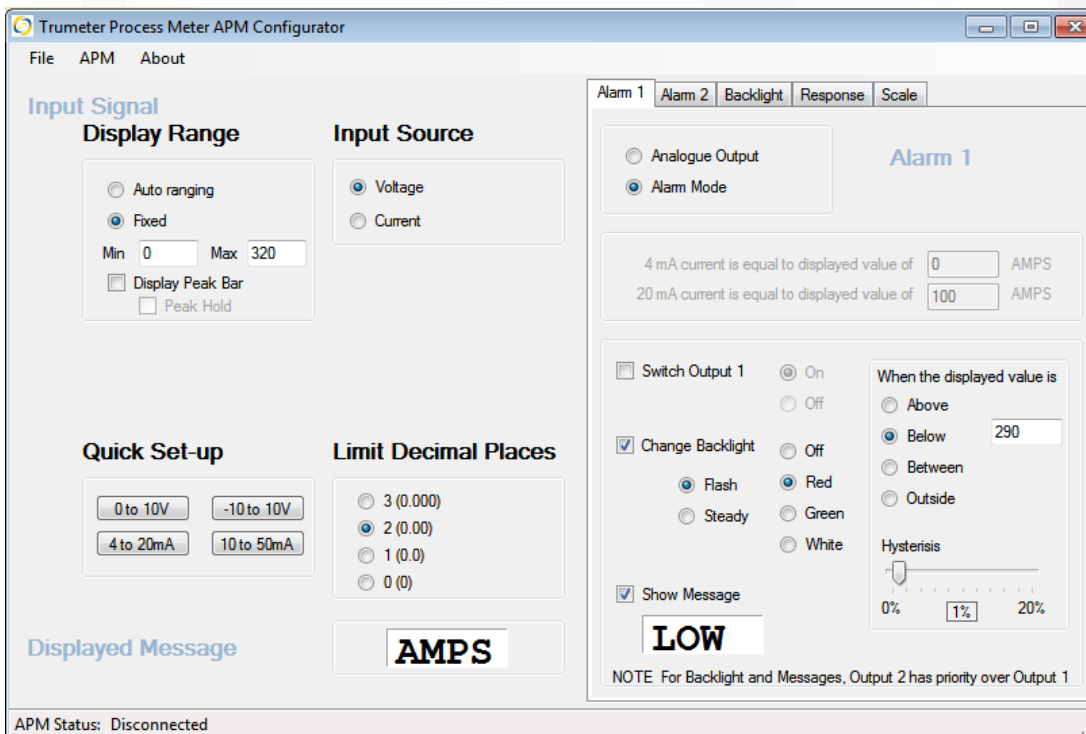
Alarm 1 Alarm 2 Backlight Response **Scale**

Number of table data points

	Input	Output
1	0	0
2	.050	320

Output

Input



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 1 (0.0)  
 0 (0)

**Displayed Message**

**AMPS**

APM Status: Disconnected

Alarm 1 Alarm 2 Backlight Response Scale

Analogue Output  
 Alarm Mode

**Alarm 1**

4 mA current is equal to displayed value of 0 AMPS  
 20 mA current is equal to displayed value of 100 AMPS

Switch Output 1  On  Off

Change Backlight  Off

Flash  Red  
 Steady  Green  White

Show Message

**LOW**

When the displayed value is

Above  
 Below 290  
 Between  
 Outside

Hysteresis

0% 1% 20%

NOTE For Backlight and Messages, Output 2 has priority over Output 1