



ATN20 / ATN21: Anders Attenuator – DC Current

26th February 2009

Overview

The ABELtronics ATN20/21 are designed to interface with the Anders Electronics AD48 range of backlit and non-backlit DIN-sized Digital Panel Meters (DPMs). The ATN20 is supplied from a nominal 12V, and ATN21 from 24V. The ATN20/21 will provide a current reading in the range of 0-100A DC when powered from either a 12V or 24V supply and when used in conjunction with an Anders AD48 and external 100A/60mV Shunt. The module is entirely self-contained and is mounted directly on the back of the AD48 behind the dash panel. Additionally, the supply voltage and the current the module measures are galvanically isolated from each other allowing the ATN20/21 to display negative current; for example determining charging and discharging current.

Specifications

Parameter	ATN20	ATN21	Comments
Supply Voltage Range	9-18V DC	18 – 36V DC	Voltage at Supply Terminals
Measuring Current Range	0 – 100A DC		When used with specified shunt
Operating Current (AD48)	65mA Max		Non-Backlit Anders Meter
Operating Current (AD48-BL)	100mA Max		Backlit Anders Meter
Required Shunt	100A/60mV		
Resolution	100mA		
Basic Accuracy	±3%		Accuracy depends upon shunt accuracy
Sampling Time	0.5 Sec. Typ.		

Mounting and Connection Guidelines

The ATN2x should be connected as shown in Figure 1. The power supply should be independently fused at 250mA per module, and is connected to the + and – Supply terminals. The external shunt is connected to the + / – Shunt terminals. The + Shunt terminal should be connected to the more positive side of the shunt, for example the battery, and conversely the – Shunt terminal should be connected to the more negative side of the shunt, for example the load. In this situation, the current flowing from the battery into the load will be displayed on the Anders DPM. If the current flows in the opposite direction, for example if charging a battery, a minus symbol will be shown on the display. The module is designed to be connected to 100A/60mV shunts. This means that 100A passing through the shunt will provide a voltage drop of 60mV across it. The accuracy of the reading is entirely dependent upon the accuracy of the shunt used.

It is desirable to mount the shunt as close as possible to the ATN2x otherwise the reading may be affected by electrical interference, especially in close proximity to high current cables, which may degrade the accuracy of the reading by a few percent.

Connections to the module are made by means of high quality rising-clamp terminal blocks integral to the device. The terminals will accept wire up to 4mm² in area. It is important not to over-tighten the terminal as damage to the module may result. The use of a cable ferrule is recommended.

The module is mounted directly to the rear of the Anders DPM by means of the 13 way socket on the front of the module, and is secured to the DPM by means of high-tensile Velcro to aid DPM replacement if required. The Anders DPM is mounted in the dash-panel first, and the ATN2x is plugged onto the rear and secured. **It is vital the Anders DPM is NOT plugged into the ATN20x the wrong way round. Irreparable damage to both modules WILL result.** See Figure 2 for correct connection.

The ATN2x is fully sealed in epoxy resin against water and oil. The Anders DPM, however, exposes its bare circuit board to the environment. Therefore, to maintain accuracy and reliability, it is important to mount the ATN2x and the Anders DPM in a location free from moisture. Additionally, ATN2x is protected against over-voltage and over-current at its input terminals, and reverse-polarity connection at its supply terminals.

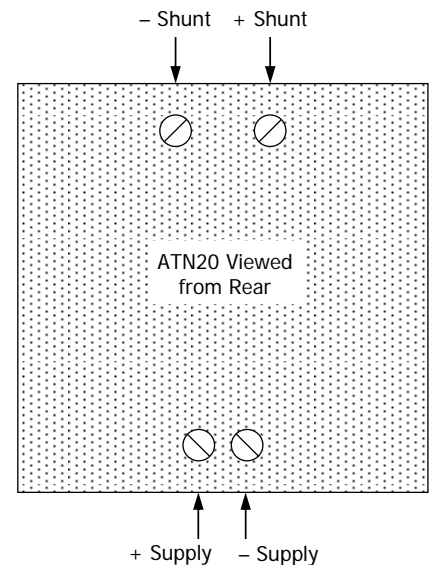


Fig. 1. Connections to the ATN20/21

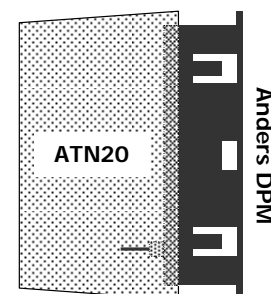


Fig. 2. Correct connection of the Anders DPM to the ATN20/21. Side view, dash panel not shown.