



# POWERVIEW Analog Gages PVA20 & PVA35 Installation Instructions

PVA-02126N  
Revised 01-04  
Section 78  
00-02-0532



Please read the following information before installing. A visual inspection of this product for damage during shipping is recommended before mounting. It is your responsibility to have a qualified person install this unit.

## GENERAL INFORMATION

### WARNING

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT

- ✓ Disconnect all electrical power to the machine.
- ✓ Make sure the machine cannot operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.

### Description



**CAUTION:** These instruments are designed to be used ONLY with the MurphyLink™ PowerView module or other approved MurphyLink™ PowerView products.

The PowerView Analog Gages (PVA) are a series of intelligent gages designed to display easy-to-read information transmitted by the PowerView. The PVA gages communicate with the PowerView via a single RS485 twisted pair MODBUS<sup>†</sup> RTU serial link. The gages can be daisy-chained using quick-connect harnesses with watertight connectors.

The PVA gages also include features such as a smooth stepper motor operation for the 270° sweep pointer, an environmentally sealed case with two Deutsch DT style connectors molded into the casing, and green LED back lighting. They are available for standard 2-1/16 in. (52 mm) and 3-3/8 in. (86 mm) diameter hole sizes. In addition their plastic cases incorporate a “D” shape allowing panel cutouts that eliminate gage rotation during installation.

The PowerView Audible Alarm (PVAA) alerts operators to fault conditions via piezoelectric alarm and relay contacts. It also has a temporary silencer button that silences the audible tone for 2 minutes on alarms and 30 seconds on shutdown conditions.

All PowerView Gages can be powered by 12 or 24 VDC systems.

### PVA20 Series Models: 2 inch size gages:

- PVA20 -A = Engine Oil Pressure
- PVA20 -B = Coolant Temperature
- PVA20 -C = Voltmeter
- PVA20 -D = Percent Load at Current RPM
- PVA20 -E = Transmission Oil Pressure
- PVA20 -F = Transmission Oil Temperature
- PVA20 -G = Engine Oil Temperature
- PVA20 -T = Tachometer
- PVAA20 = 2 inch dial audible alarm gage

### PVA35 Series Models: 3-1/2 in. size gages:

- PVA35 -T = Tachometer
- PVA35 -S = Speedometer



PVA35 Series

PVA20 Series

### Specifications

**Power Supply Input Voltage:** 12/24V (8-32VDC min. & max. voltage).

**Power Supply Operating Current:** (@ 14 VDC) =  
PVA20, PVA35: 28 mA minimum; 52 mA maximum.  
PVAA20: 19 mA minimum; 46 mA maximum.

**Backlight Maximum Current** (not applicable to PVAA20): 24 mA.

**Input:** RS485 MODBUS<sup>®</sup> RTU data.

**Output:** Analog Readout.

**Relay Rated Load (PVAA20):** 0.5 A, 125 VAC; 1 A, 24 VDC.

**Relay Maximum Switching Capacity (PVAA20):** 62.5 VA, 30W.

**External Audible Alarm Output (PVAA20):** 28 VDC, 30 mA max. (current sink).

**Temporary Silence Button (PVAA20):** Charge transfer technology.

**Operating Temperature:** -40° to 185°F (-40° to 85°C).

**Storage Temperature:** -76° to 185°F (-60° to 85°C).

**Dial:** White numerals over black background.

**Indicating Pointer:** Stepper motor operation with 270° sweep.

**Gage Accuracy:** PVA20: Better than ±1.0% of scale.  
PVA35: Better than ±2% of scale.

### Environmentally Sealed Enclosure:

*Sealing:* IP68, ±5 psi (±34.4 kPa).

*Case and Clamp Material:* Polyester (PBT).

*Lens Material:* Polycarbonate.

*Bezel Material:* Polyester (PBT).

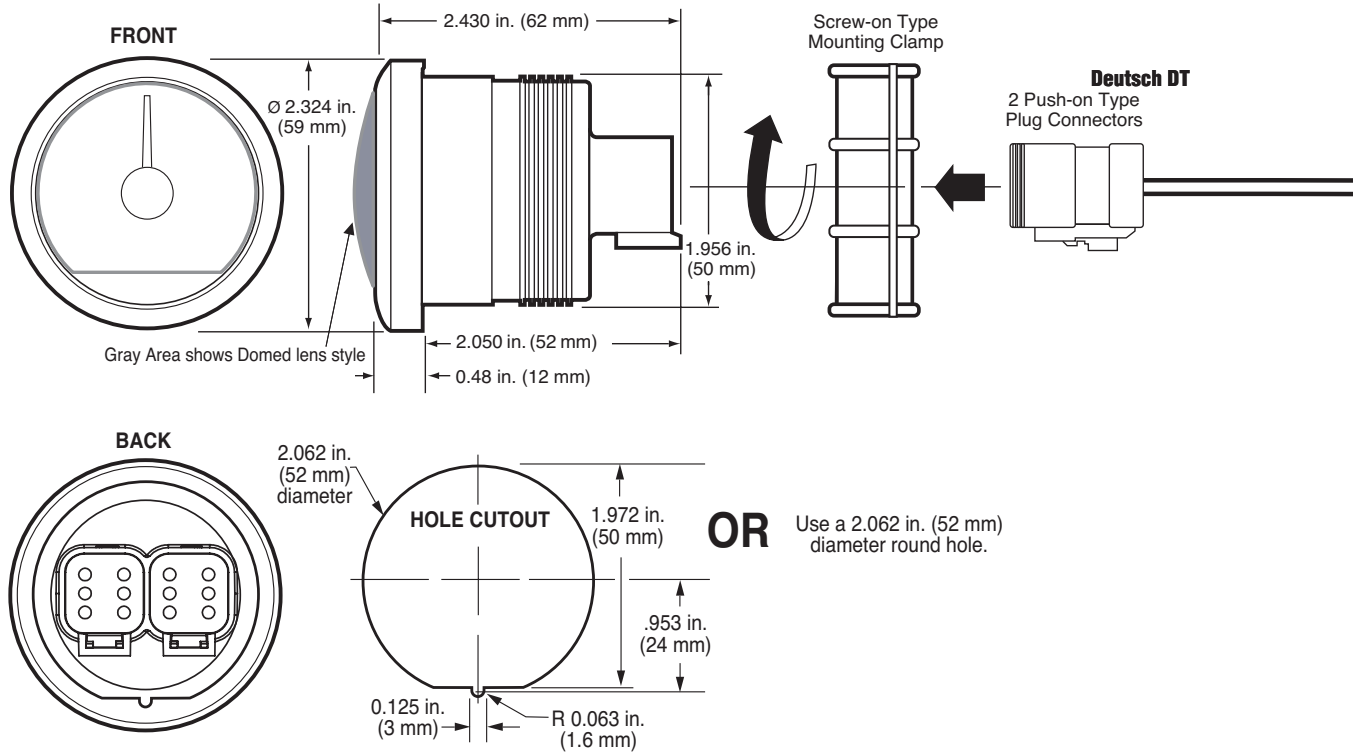
**Maximum Panel Thickness:** 3/8 in. (9.6 mm).

**Connectors:** 6-Pin Deutsch DT06 Series.

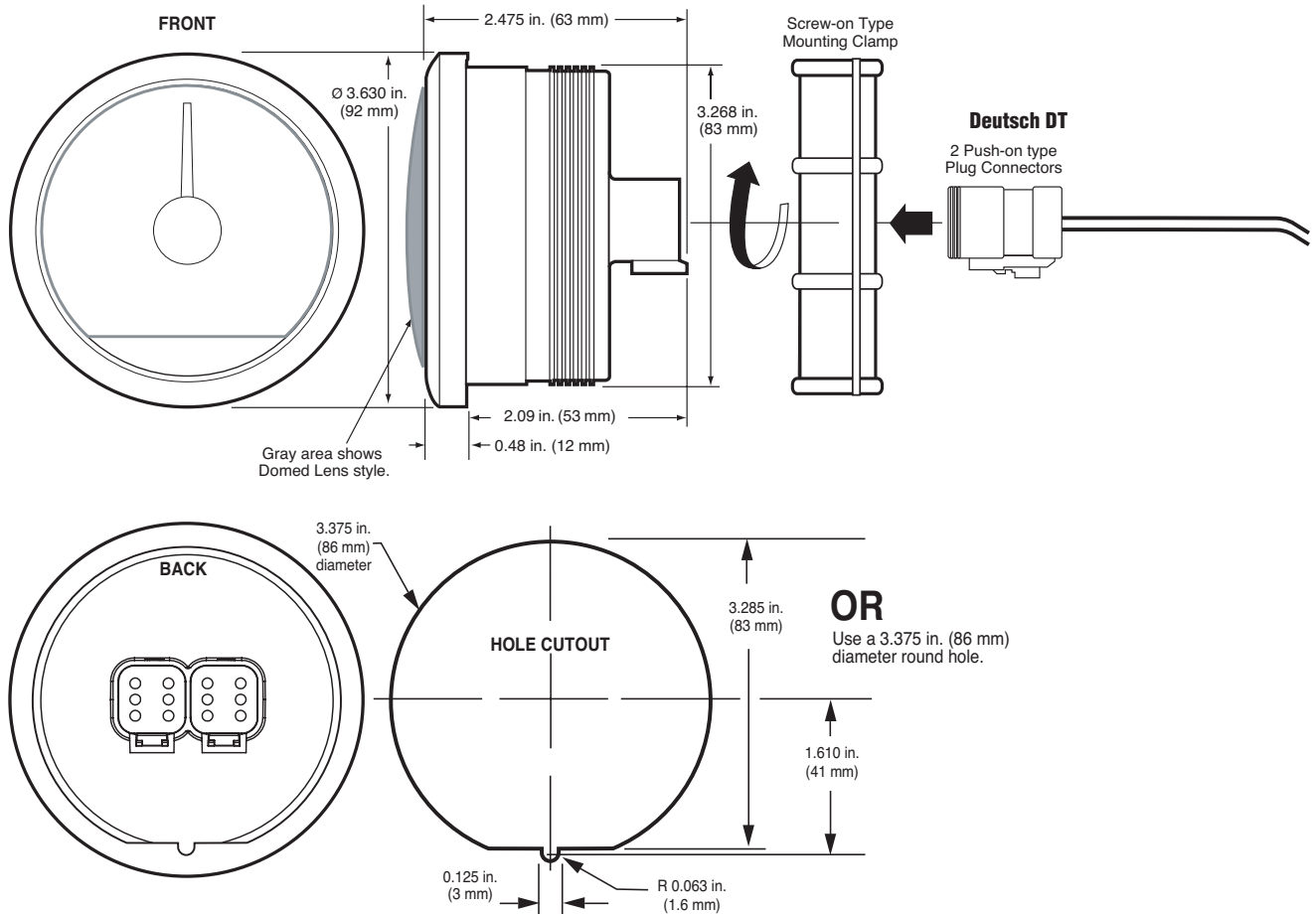
<sup>†</sup> MurphyLink is a registered trademark of FWMurphy. All other trademarks and service marks used in this document are the property of their respective owners.

# PVA SERIES20 and PVA SERIES35 Dimensions and Mounting

## PVA20 and PVAA Series Typical Installation and Mounting Dimensions



## PVA35 Series Typical Installation and Mounting Dimensions

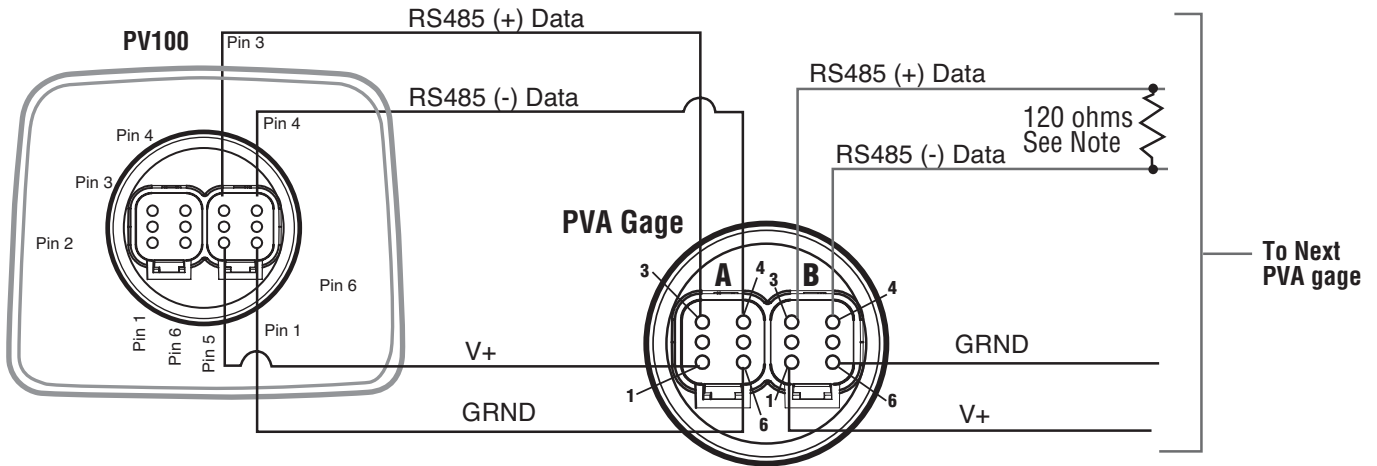


# PVA20, PVA35 and PVAA SERIES Typical Wirings For 12 and 24 VDC



**WARNING: Disconnect battery negative cable before wiring or service.** Devices containing solid state components can be damaged or caused to malfunction when used in systems which incorporate inductive loads (e.g. relays, solenoids, etc.) that can generate voltage spikes. To reduce the potential for this type of damage, install a fly back or clamping diode across all inductive loads. Use Murphy diode package 65-00-0343 or equivalent. A typical diode is 1N4005 and is readily available from commercial sources. Failures of this type are not covered by our Limited Warranty.

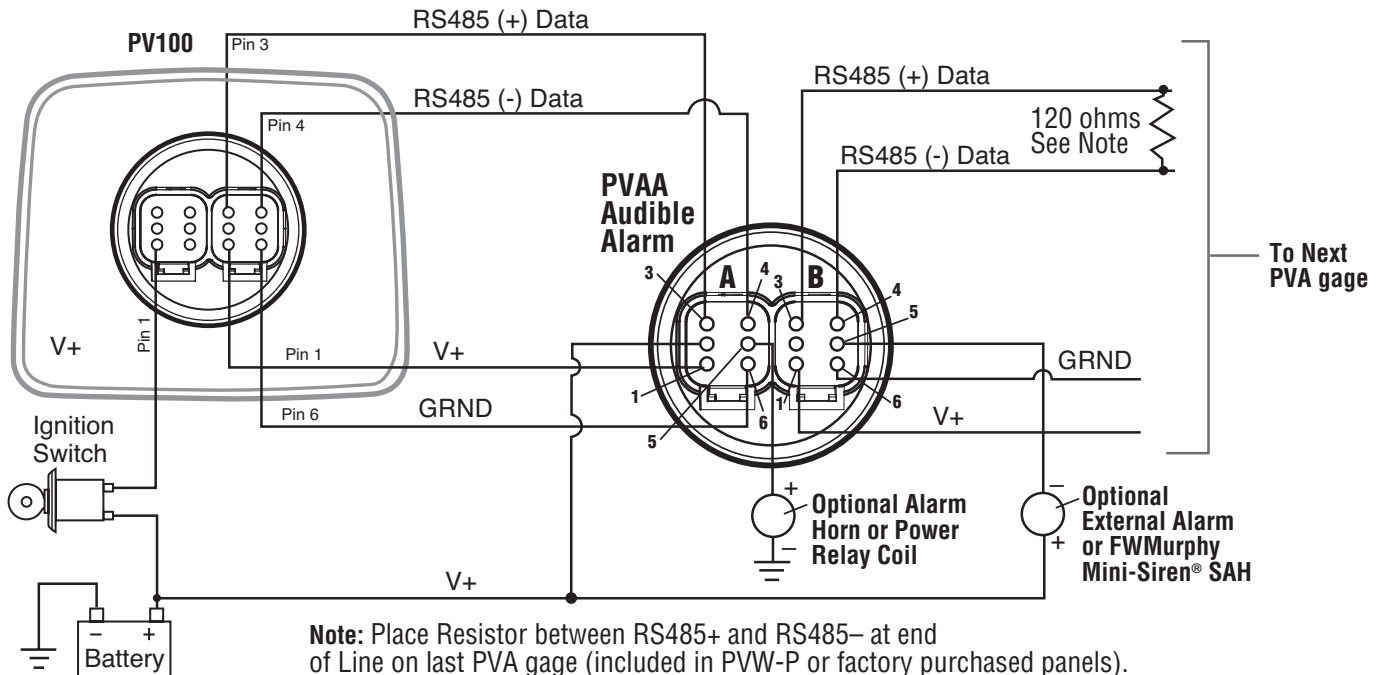
## PowerView Gages Back View Deutsch DT06-6S Style Connections



**Note:** Place Resistor between RS485+ and RS485- at end of Line on last PVA gage (included in PVJR or factory purchased panels).

**IMPORTANT:** To eliminate external interference: RS485(+) and RS485(-) should be twisted pair cable or twist wires together, one twist per inch minimum. (RS485 wire for example: BELDEN 9841 or 3105A).

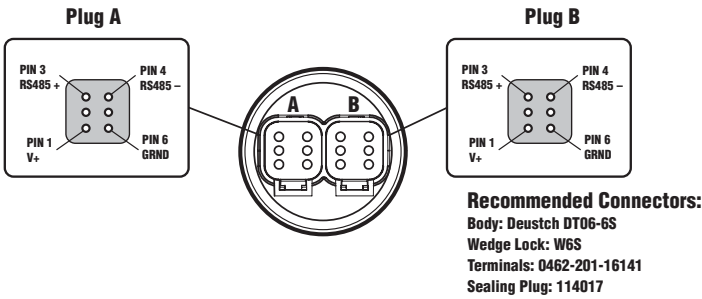
## PVAA Audible Alarm Back View Deutsch DT06-6S Style Connections



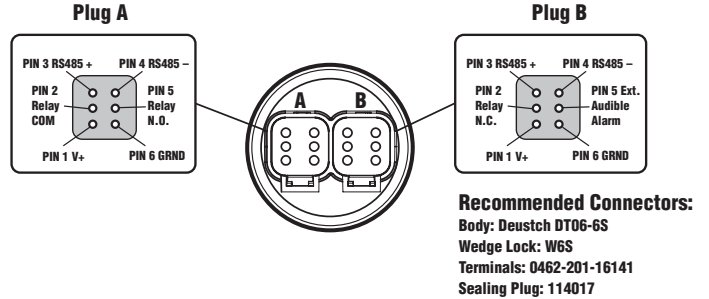
**Note:** Place Resistor between RS485+ and RS485- at end of Line on last PVA gage (included in PVW-P or factory purchased panels).

# Typical Connectors PIN Designation

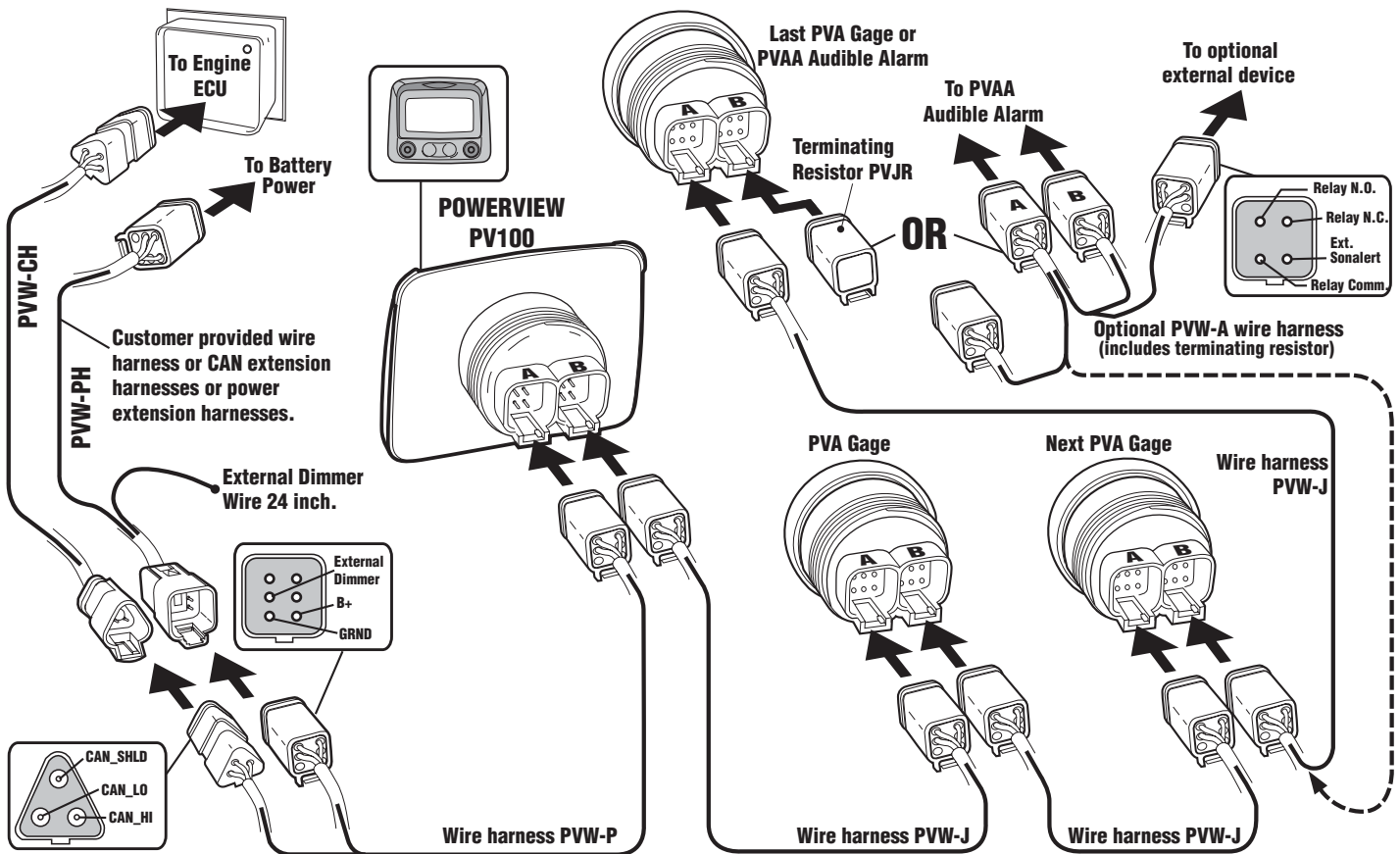
**PowerView Gages Back View  
Deutsch DT06-6S Style Connections**



**PowerView Audible Alarm Back View  
Deutsch DT06-6S Style Connections**



## Typical Quick-Connect Diagram



## Warranty

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/support/warranty.htm](http://www.fwmurphy.com/support/warranty.htm)



**FW Murphy**  
P.O. Box 470248  
Tulsa, Oklahoma 74147 USA  
+1 918 317 4100  
fax +1 918 317 4266  
e-mail sales@fwmurphy.com  
www.fwmurphy.com

**CONTROL SYSTEMS & SERVICES DIVISION**  
P.O. Box 1819; Rosenberg, Texas 77471; USA  
+1 281 633 4500 fax +1 281 633 4588  
e-mail sales@fwmurphy.com

**MURPHY DE MEXICO, S.A. DE C.V.**  
Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje  
San Luis Potosí, S.L.P.; México 78384  
+52 444 8206264 fax +52 444 8206336  
Villahermosa Office +52 993 3162117  
e-mail ventas@murphymex.com.mx  
www.murphymex.com.mx

**FRANK W. MURPHY, LTD.**  
Church Rd.; Laverstock, Salisbury SP1 1QZ; U.K.  
+44 1722 410055 fax +44 1722 410088  
e-mail sales@fwmurphy.co.uk  
www.fwmurphy.co.uk

**MURPHY SWITCH OF CALIFORNIA**  
41343 12th Street West  
Palmdale, California 93551-1442; USA  
+1 661 272 4700 fax +1 661 947 7570  
e-mail sales@murphyswitch.com  
www.murphyswitch.com

**MACQUARRIE CORPORATION**  
1620 Hume Highway  
Campbellfield, Vic 3061; Australia  
+61 3 9358 5555 fax +61 3 9358 5558  
e-mail murphy@macquarrie.com.au



In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.