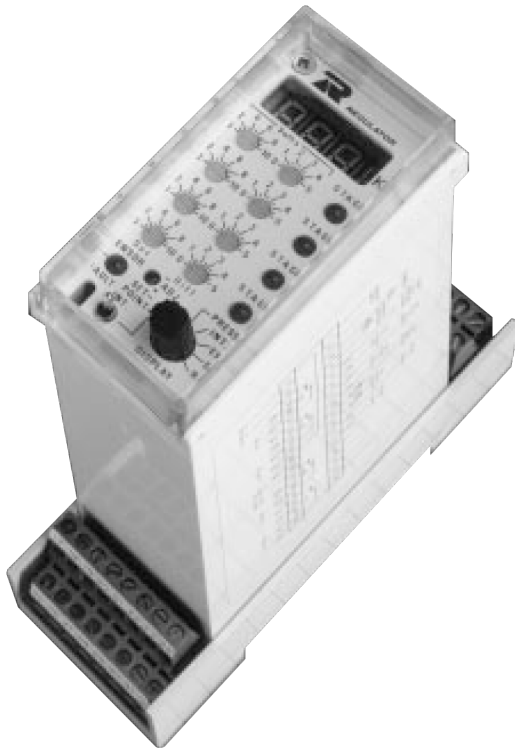




Regulator Systems

MANUFACTURER OF AIR CONDITIONING CONTROLS AND INSTRUMENTATION

PC2004 PRESSURE CONTROLLER



FRONT PANEL

Digital Display & Display Selector Switch

- The Display Selector Switch has five positions:
- 1 PRESS Pa Displays the pressure sensed at the transducer.
 - 2 INT SP Displays the INTERNAL SETPOINT from which the Controller is working.
 - 3 EXT SP Displays the remote setpoint when the external setpoint is installed (nonstandard) or when overridden by a building management system
 - 4 D/A Displays the 0-10VDC signal generated when the pressure is ABOVE the setpoint selected.
 - 5 R/A Displays the 0-10VDC signal generated when the pressure is BELOW the setpoint selected.

Relay Setpoints & LED Display

The operation of the relay stages in the system are indicated by their respective LED's and controlled by the potentiometers immediately below the digital display. The pull in volts is set by the left potentiometer and the differential by the right potentiometer. When the relay is energised the LED is illuminated. The zero volts drop out feature prevents any relay from locking on if the differential voltage is set higher than the pull in volts. The internal circuitry will drop out the relay at 100mV. (The settings on the differential are in volts not in percentage of pull in volts.)

Sensor Fault & Setpoint Selection & Adjustment

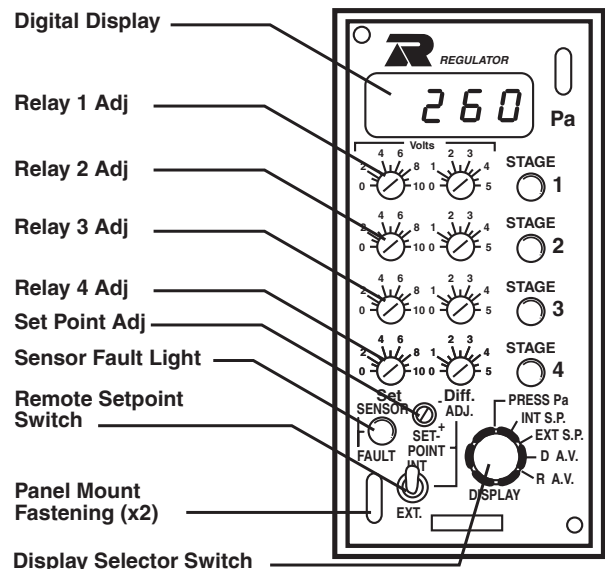
At the lower left is the sensor fault light to indicate when a fault is detected and shutdown is effected. A setpoint adjustment screw is located to the right of the sensor LED and a switch to select internal or external setpoint is located below.

SYSTEM 2000

SYSTEM 2000 is totally Australian designed and manufactured. Exclusive circuitry gives the PC2004 Pressure Controller all the features that has made this system an industry leader. The PC2004 is part of the System 2000 control devices developed by Regulator Australia. The basic features common to all the 2000 Series controllers create a uniquely flexible yet powerful configuration. With all the functions that create an accurate and reliable controller housed in the one unit, the PC2004 offers the finger-tip control needed for complex conditions.

TECHNICAL DATA

Supply Voltage	240v ± 10%
	24v ± 10%
Power Consumption	2VA
Ambient Temperature	0 to 50°C
Operating	-20 to 60°C
Storage	
Ambient Humidity	max 90% RH
Enclosure	Flame retardant ABS
Weight	max 0.2kg
Size	H: 140mm
	W: 48mm
	D: 170mm
Output Voltage	
D/A + R/A	0 to 10VDC 10mA max
High Select D/A + R/A	0 to 10VDC 10mA max
Relay Outputs	
SPDT Contacts - Voltage Free	250VAC 2.5A



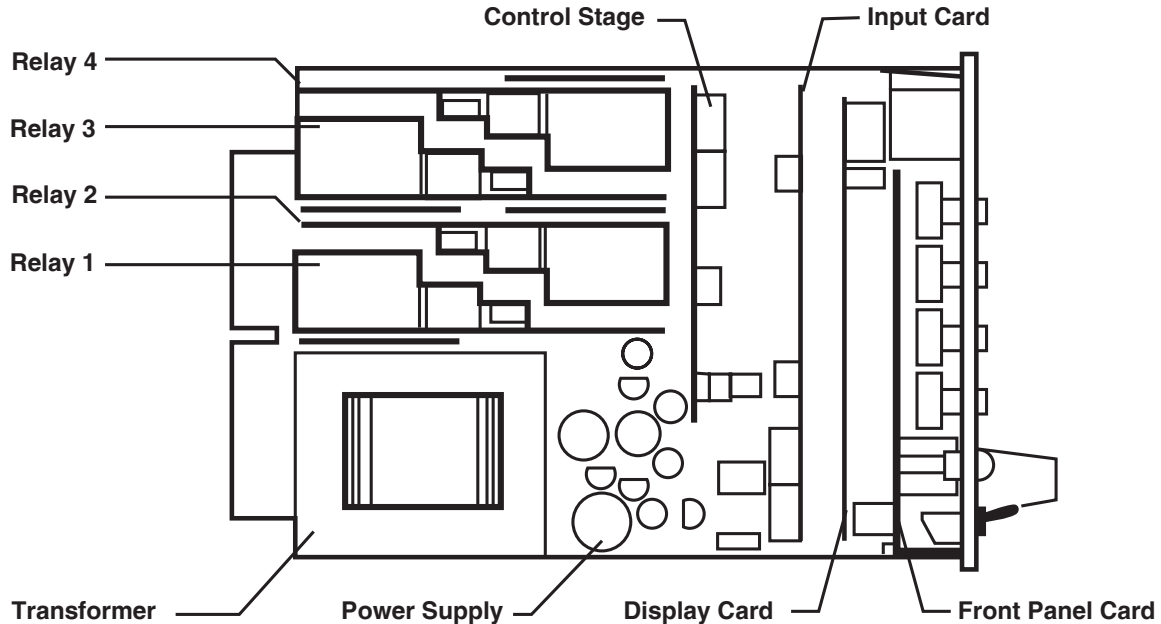


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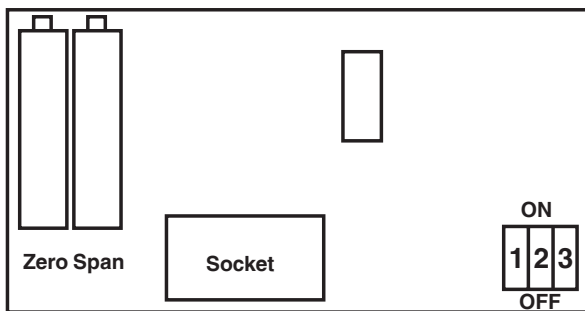
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PC2004 PRESSURE CONTROLLER

INTERNAL LAYOUT

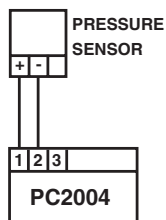


INPUT CARD 4 - 20 mA

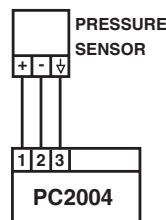


The PC2004 can be used with any 4 - 20mA Pressure Sensor, two or three wire connection. The PC2004 has a 12VDC supply available from terminal 1 for loop powered devices. If a higher voltage is required, then an external power supply is connected to the sensor (+) and terminal 3 (signal ground). The sensor output (-) is connected to terminal 2 (input). For three wire devices, connect to terminals 1, 2 & 3. The zero and span potentiometers can be used to adjust the 4 - 20mA signal to display a range from 50 to 1050. The ranges can be Pa, Kpa or Mpa. Dip switches 1 & 2 are used to set the decimal point. Dip switch 3 is not used.

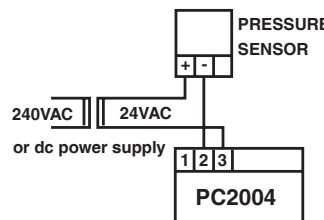
2 - WIRE CONNECTION



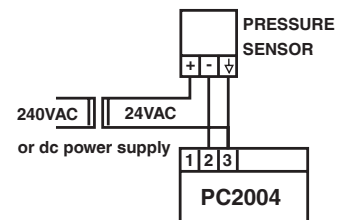
3 - WIRE CONNECTION



EXTERNAL POWER SUPPLY



EXTERNAL POWER SUPPLY - 3 WIRE



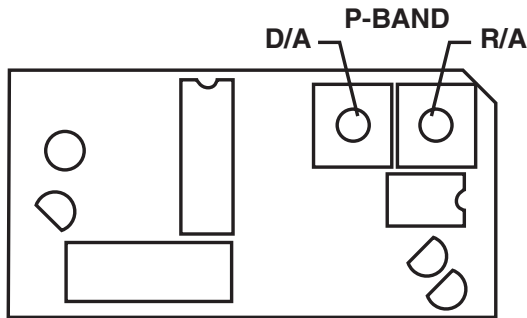


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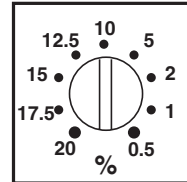
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PC2004 PRESSURE CONTROLLER

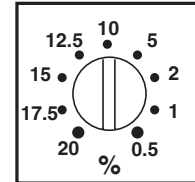
CONTROL STAGE



D/A



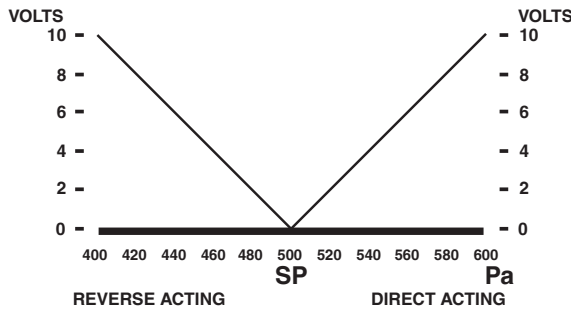
R/A



PROPORTIONAL BAND

The PC2004 generates two voltage signals: D/A direct acting and R/A reverse acting. Each is independently adjustable. These 0 - 10vdc signals are proportional to the deviation of the input pressure from the setpoint. The adjustment range is from 0.5 - 20% of range. E.G. With a range of 1000 Pa and a P-Band setting of 10%, this will give a 0 - 10vdc output with a 100 Pa change at the sensor.

PROPORTIONAL OUTPUTS



RANGE

- 0 - 100 Pa
- 0 - 125 Pa
- 0 - 500 Pa
- 0 - 2.00 KPa
- 0 - 10.0 KPa
- 0 - 100 KPa
- 0 - 350 KPa
- 0 - 1000 KPa
- 0 - 2.00 MPa

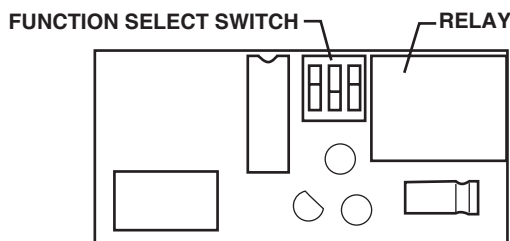
PROP. BAND

- 0.5 - 20 Pa
- 0.6 - 25 Pa
- 2.5 - 100 Pa
- 0.01 - 0.4 KPa
- 0.05 - 2.0 KPa
- 0.5 - 20 KPa
- 1.75 - 70 KPa
- 5 - 200 KPa
- 0.01 - 0.4 MPa

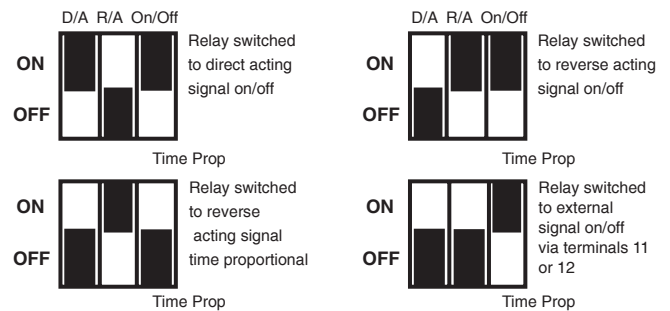
Range: 0-1000Pa

PB: 10 volts/100Pa

RELAY CARD



Functional select switches - example settings



RELAY CARDS

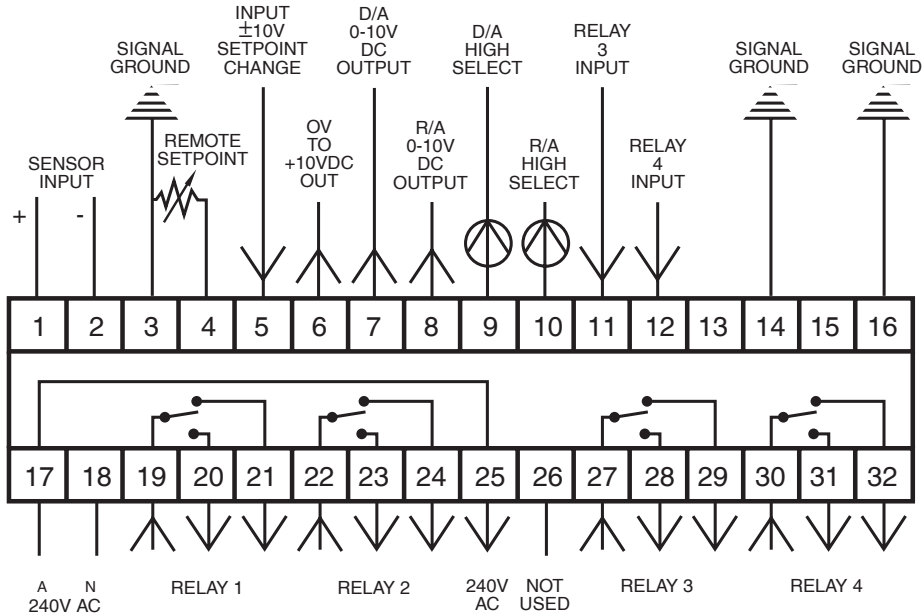
The Series 2000 relay cards have identical features:

1. Easy plug in replacement with expansion to 4 outlets.
2. 240VAC 2.5 amp ratings with voltage-free contacts.
3. Selection for operation of each relay stage on the D/A or R/A voltage signal.
4. Selection of each stage to operate as ON/OFF or TIME PROPORTIONAL basis with DIP switching. Relays 3 & 4 can be isolated from the internal D/A and R/A signal rails and operated through terminals 11 & 12 by an external 0-10VDC signal. The diagram shows the DIP switch positions

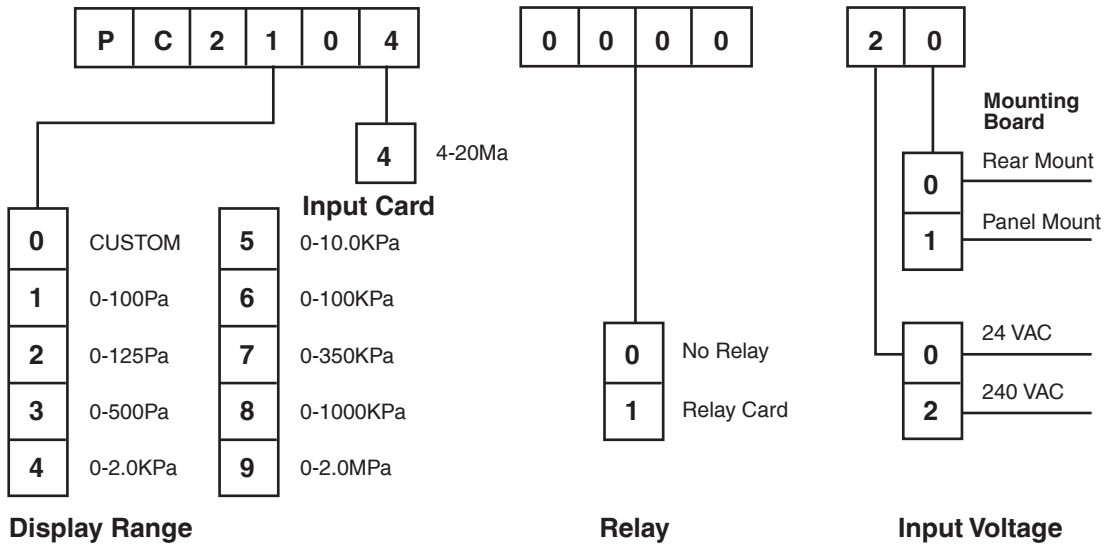


PC2004 PRESSURE CONTROLLER

TERMINAL CONNECTION DIAGRAM



MODEL NUMBERING SYSTEM





Regulator Systems

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PC2004 PRESSURE CONTROLLER

MODEL NUMBERING SYSTEM

Sensor Inputs

The PC2000 accepts a 4-20mA signal (loop powered) from the PC2004 range of pressure transducers or any other pressure transducer with a 4-20mA output. Note: If the device is not loop powered the input connections are to terminals 2 and 3. The input card is selectable for different ranges, eg. 0-100Pa, 0-1000Pa, etc.

Common Signal Ground

All signal inputs and control voltage outputs are referenced to this point. In multiple control configurations, #3 must be commoned.

Remote Setpoint

If a remote setpoint is required, it is wired across terminals 3 & 4. Non standard by special order.

Setpoint Change

This terminal accepts a +10v to -10v signal to vary the setpoint up and down +20% of range. Commonly this signal would be derived from a DDC or BMS system, or another controller. The altered setpoint is displayed on the EXT S.P. position on the front panel. The INT/EXT switch is set to INT.

0v to +10v DC

This terminal output is a direct output voltage of the input signal. In the PC2004 it represents 0 to 100% of the range. Commonly used to interface with a DDC or BMS system. NOTE: If there is a sensor fault and the Controller shuts down, this voltage drops to -15VDC allowing for an external fault indicator to be incorporated.

D/A & R/A 0-10VDC Output

When switched to the D/A or R/A position, these output voltages are the same as shown on the front panel digital display. These voltages are generated by the PC2004 in response to movement away from the setpoint of the measured variable and are the voltage ramps used to switch the internal relays. Used for analog output for external equipment control.

D/A & R/A High Select

These terminals are used for high selecting on multiple control hookups. Voltages are the same as for 0-10 output terminals. Diode protected to prevent voltage feeding back into the controller.

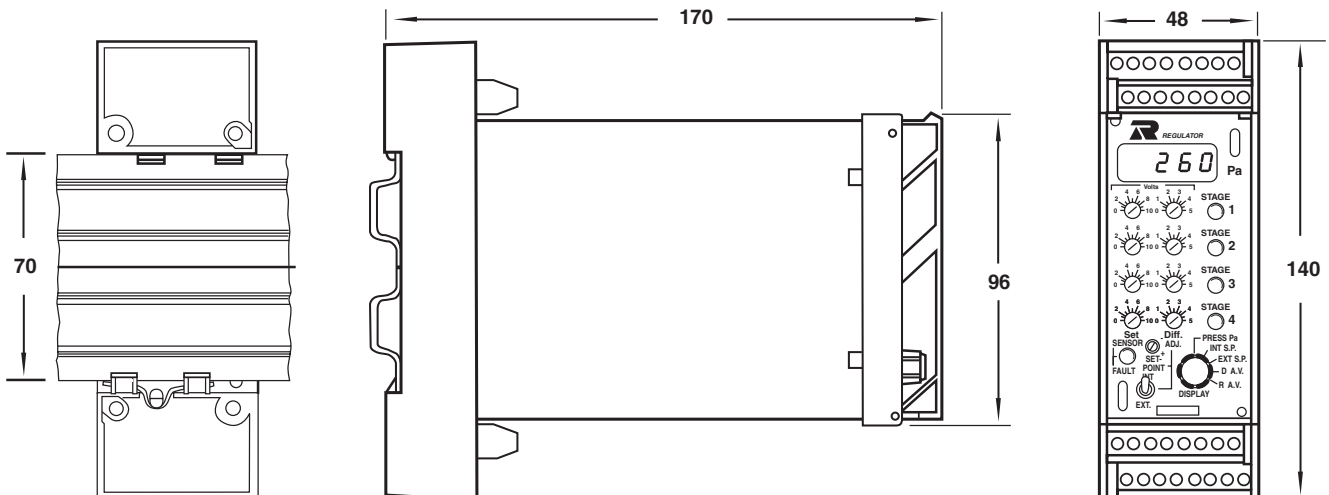
Relay 3 & 4 Input

When it is desired to operate a relay from an external signal then the dip switch settings on the appropriate relay card are switched to external signal. These external signals are connected to terminal 11 for relay 3 and terminal 12 for relay 4.

240VAC/24VAC

All System 2000 Controllers have internal mains transformer isolation. Active supply is via terminals 17 & 18. Terminals 19 to 32 are relay connections. Relays are rated 2.5 amps at 240VAC.

DIN MOUNTING RAIL



NOTE: Double 35 mm DIN Rail

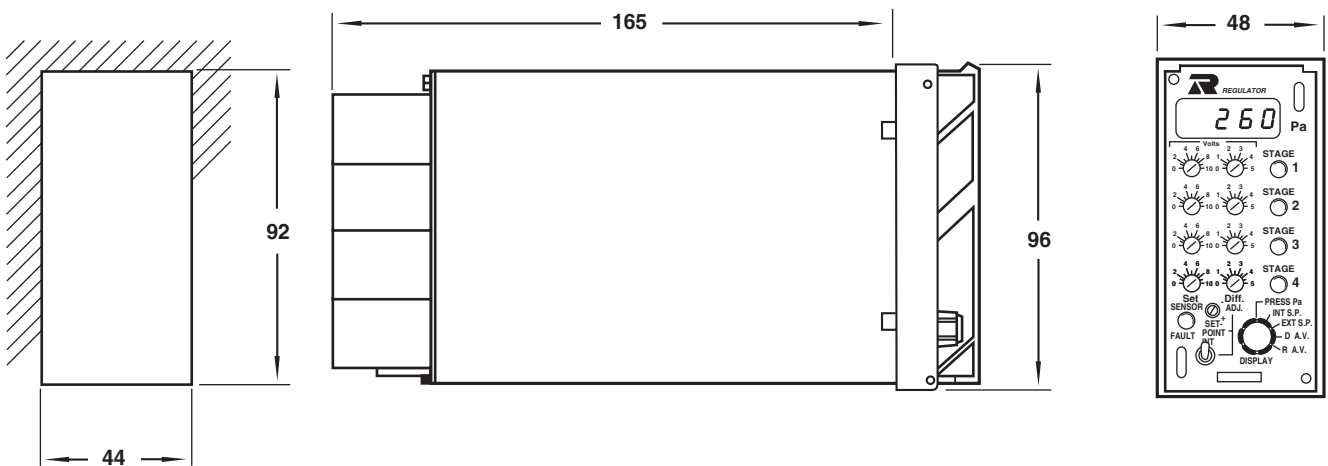


PC2004 PRESSURE CONTROLLER

PANEL OR REAR MOUNTING

All PC2004 Controllers are suitable for panel or rear mounting. Available in a white custom-made enclosure, the PC2004 can be mounted through the front panel of a switchboard to take full advantage of the digital display. Wiring is easy. The DIN rail (spring loaded clip system) supports the minimum of interconnections with all signal and high voltages at opposite ends.

PANEL MOUNT TERMINAL BLOCK



CUT OUT - DIMENSIONS