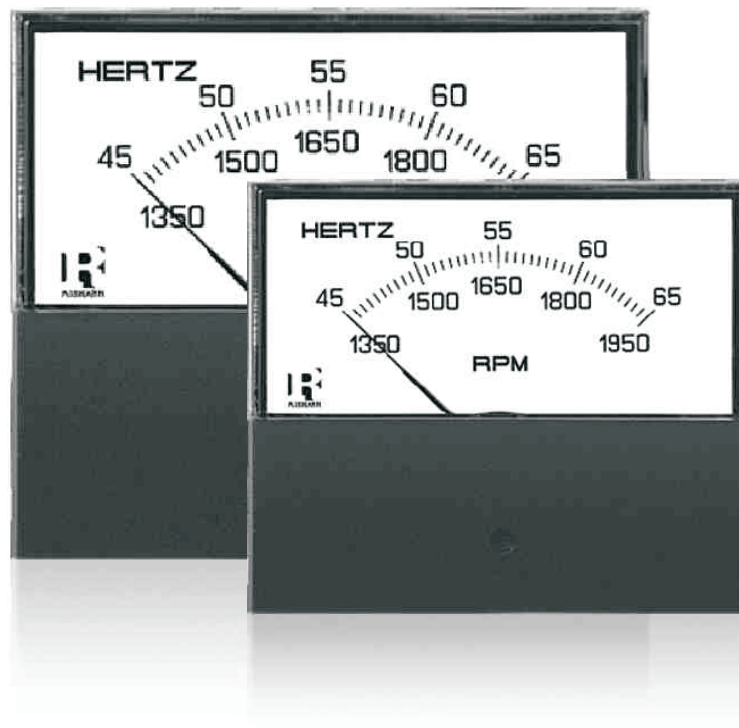


## DataSheet

011 and 012  
Anush Series  
Panel Meters



## Application

The Anush range of analog panel meters offers accurate measurement and indication of most electrical and electronic parameters in industry standard 1<sup>1/2</sup>" , 2<sup>1/2</sup>" case sizes. This innovative design features a detachable lower fascia plat which allows the flexibility of either surface or window mounting. The fascia is simply unclipped to achieve the completely flush panel appearance of panel window mounting.

The range offers AC and DC ammeters, voltmeters and frequency meters utilizing a high torque scale value and features a rear zero adjuster screw for temperproof installation. AC moving iron meters provided high accuracy true RMS measurement of 1.5%.

### Applications:

- Marine
- Switchgear
- Distribution systems
- Control panels
- Embedded generation
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor monitoring

## Features

- Measuring and indication of AC amps, volts, frequency and DC signals.
- Surface of window mounting.
- High torque pivot and jewel movement.
- True RMS measurement meters.
- AC and DC inputs.
- Upto 40 A DC direct connected.
- Upto 50 A AC direct connected.

## Benefits

- AC moving iron and moving coil mechanisms.
- Reduced inventory.
- ANSI standard case sizes.
- Detachable lower fascia plate.
- Easy to modify for distributions.

## Compliant With

- ANSIC39.1
- IEC51
- UL3111-1

## Applicable Standards

Nominal case and cutout dimensions for indicating electrical instruments. : IS2419  
DIN43700

Scale and pointer for electrical measuring instruments. : Is1248 , IEC51  
DIN43802

Connections and Terminal markings for panel meters : Is1248 , IEC51  
DIN43807

Terminal bolts/leads : DIN46200/46282

Clamp straps for connections. : DIN46282

Safety requirements and protective measures for Electrical indicating instruments and their accessories. IS9249  
DIN40050/8-70  
VDE0110/11-72  
VDE0410/10-76  
IEC529,IEC1010

Performance specifications for direct acting indicating analogue electrical measuring instruments & their accessories : Is1248  
IEC51/DINEN60051  
DIN43701

Environmental conditions : Is1248 , IEC51  
IS:9000,Part5,7,8,  
VDE/VDI3540

Front frames for indicating measuring instruments principle dimensions. : DIN43718

UL Combustibility class. : UL94V-O

Technical conditions of delivery for electrical instruments. : DIN43701

Mechanical strength (Freefalltest, vibrationtest) : IS1248/IEC51  
IS9000  
VDE0411,partI,  
Sec.43/44,IEC1010

EMC compliance as per following standards:

EN50081-2, EN50082-2, N55011/CISPR11,

EN60555-2, IEC555-2

EN61000-4-4/IEC1000-4-4,

EN61000-4-2/IEC1000-4-2,

EN61000-4-5/IEC1000-4-5,ENV50140.

Comply with following European directives : 89/336/EEC(EMC directive),73/23/EEC(lowvoltage directive)& amendment 93/68/EEC,for CE marking.

## Specifications

<b>Accuracy</b>	
<b>DC Ammeters and Voltmeters</b>	1.5% 0 to 100 % of full scale deflection
<b>AC Ammeters and Voltmeters</b>	Moving Iron: 1.5% 10 to 100 % of full scale deflection
<b>Frequency Meters</b>	0.5 % of end scale value
<b>Input Ratings</b>	
<b>DC Moving Coil Ammeters</b>	50 mA to 50A
<b>DC Moving Coil Voltmeters</b>	50 mV to 600V
<b>AC Moving Coil Ammeters (VQ)</b>	1 mA to 10A
<b>AC Moving Coil Voltmeters (VQ)</b>	6V to 600V
<b>AC Moving Iron Ammeters (EQ)</b>	100 mA to 60A <sup>*1</sup>
<b>AC Moving Iron Voltmeters (EQ)</b>	6V to 600V <sup>*1</sup>
<b>Frequency meters</b>	45-50-55Hz, 55-60-65Hz, 45-55-65Hz
<b>Burden</b>	20 to 500 VAC. Standard 900 ohms/volt
<b>Overload</b>	
<b>Voltmeters</b>	2 times for 0.5 sec 9overloads 2 times for 5sec:1 overload
<b>Ammeters</b>	10 times for 0.5 sec:9 overloads
<b>DC Center Zero Voltmeter</b>	10 times for 5 sec: 1 overload
<b>Enclosure</b>	
<b>Movement</b>	High torque pivot and jewel moving coil and moving iron
<b>Scale Balance</b>	Within 1% of scale length
<b>Relative Humidity</b>	25% to 80 % nominal range of use
<b>Operating Temperature</b>	0°C to +40°C
<b>Storage Temperature</b>	20°C to +55°C
<b>Enclosure Code</b>	IP42
<b>Case and Cover</b>	Matt black case UL94V. Polycarbonate cover
<b>Bezel</b>	Matt black
<b>Bezel Window</b>	Shatter proof polycarbonate
<b>Fixing</b>	Surface mounting : 4 corner studs, 4-40UNF Rear of panel mounting: 2 through hole mounts
<b>Terminals</b>	011-8-32UNC 012-1/4"-28UNC
<b>Compliant With</b>	
<b>Performance</b>	ANSI C 39.1 and IEC 51
<b>Manufacture</b>	UL3111-1
<b>Scaling</b>	ANSI C 39.1
<b>Safety</b>	IEC 61010-1(LVD) and BS EN 61326:(EMC)
<b>Vibration</b>	ANSI C 39.1 cl.5.13

\*1 Possible in 012 case

## Operation

### Moving Coil Meter

These meters offer a centre cored, self shielding moving coil movement using pivots, hair springs and sprung jewels. Variations in movement are limited by design. All DC voltmeters are 1000 ohms per volt, moving coil rectified products run at 900 ohms per volt. Millivoltmeters use 5 milliamps / 50 mV resistance.

### Moving Iron Meter

This clapper type repulsion design utilize a pivot, hair spring and jewel movement. The bottom jewel is oil filled to provide damping

while the top is sprung for resilience. All voltmeters are manufactured with internal voltage drop per resistors.

### Frequency Meter

Frequency meters use a 1mA/350ohm movement driven by an EMC hard frequency conversion circuit.

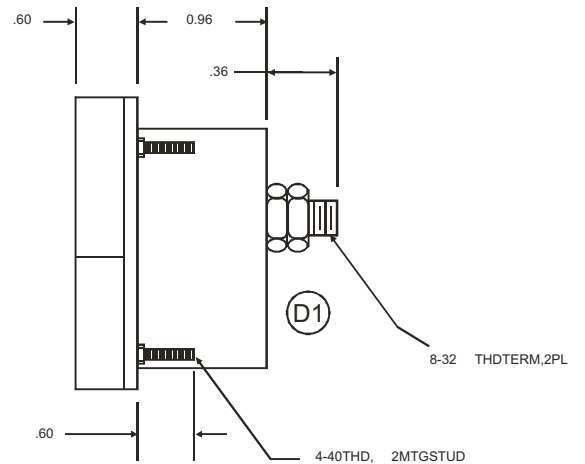
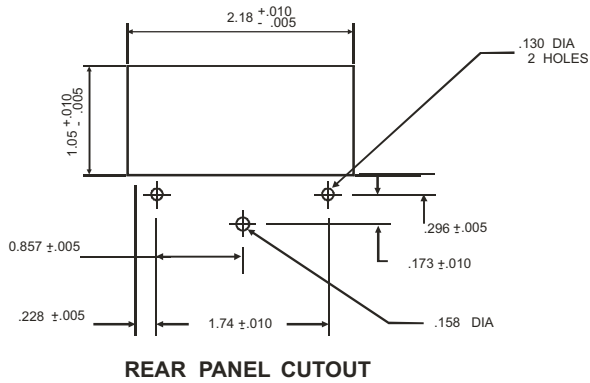
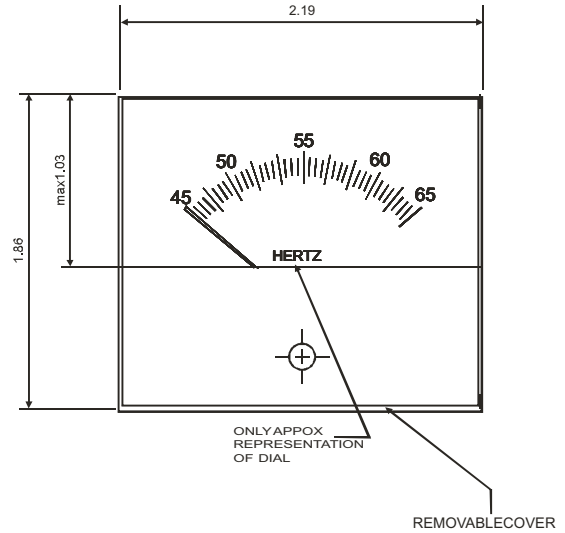
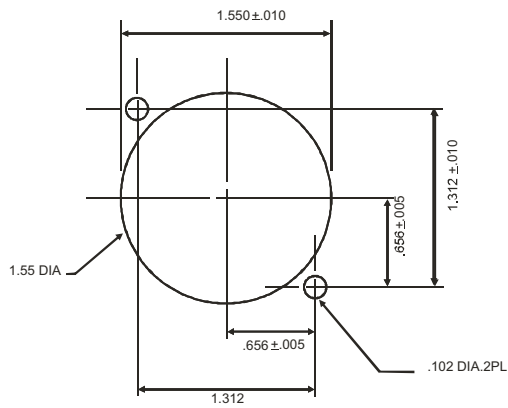
### Dials, Pointers and Scales

Standard dials are matt white black printed scales and a tubular knife-edge black are balanced within 1% of scale length and

feature a highly repeatable flattened arc scale shape, ensuring consistently accurate measurement reading. Dials are interchangeable between the challenger range of products using the same input within the published specification of the meter. Options for non standard customer specific dials are available upon request.

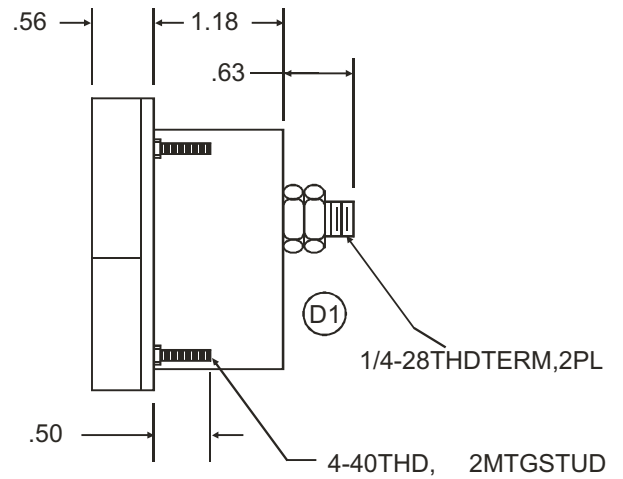
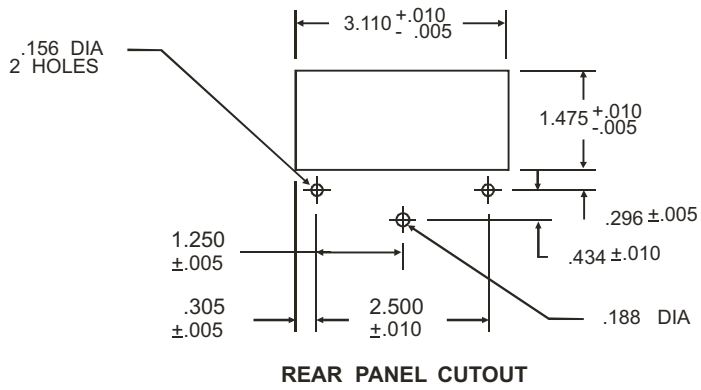
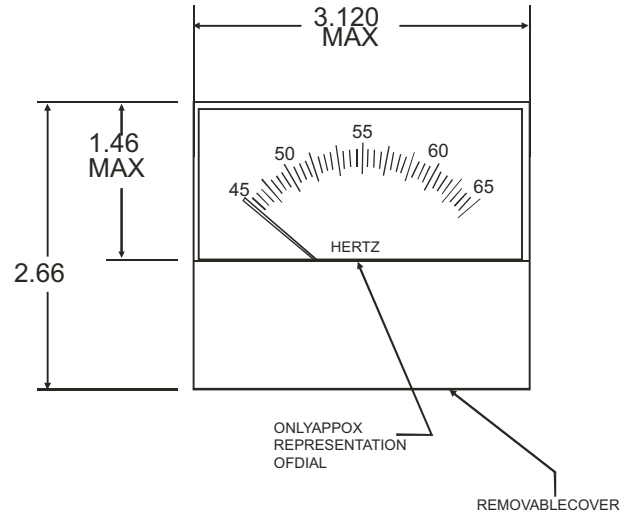
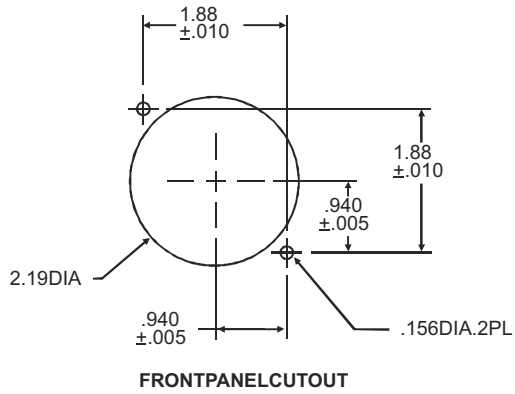
## Dimensions

A)011



# Dimensions

B)012



**RISHABH INSTRUMENTS**  
Measure, Control & Record with a Difference

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