



FEATURES

- Battery powered
- Large 0.5" LCD display
- 0.1 degree resolution
- ± 0.2 degree accuracy
- Two ranges: 3.5-7V/7-14V
- Broadband: 57 to 3000Hz
- Small and light-weight
- No reference or stator loading
- One year warranty

APPLICATIONS

- Resolver Zeroing
- Field Testing
- Trouble Shooting
- Resolver System Alignment

GENERAL DATA

The DRM-4™ is the industry's first hand-held digital resolver meter. This resolver angle measuring device allows the user to conveniently align and checkout resolver systems on the assembly line or in the field. It comes complete with rugged portable carrying case, test leads and battery.

The instrument is designed to measure the most common resolver signals. Stator voltages from 3.5 to 14Vrms are handled by two manually selected ranges, 3.5-7Vrms and 7-14 Vrms. Rotor excitation voltages 3 to 30Vrms, 47 to 3000Hz are handled automatically.

A large easy-to-read LCD display is used to read the resolver angle over a range of 0-359.9 degrees to an accuracy of ± 0.2 degrees. The display features a low battery indicator to help minimize the possibility of any false readings.

The DRM-4™ uses a ratiometric conversion technique and employs a type II tracking loop which insures high noise immunity and jitter-free operation. High input impedances minimize loading effects on the resolver system being tested.

Extensive use of low power linear and digital circuitry has provided a dramatic reduction in power consumption, enabling the unit to operate for two to four weeks of average use on a single 9V rectangular alkaline battery (30 hours of actual test time).

The unit is fully specified over an operating temperature range of 0 to +50 degrees C at 80% RH. An extended range version can be ordered that will operate over a temperature range of -30 to +70 degrees C at 95% RH.

APPLICATIONS

Due to its small size and light weight, the DRM-4™ is ideal for field testing and trouble shooting. The unit is rugged enough to provide a long service life even in a tool box environment. Applications include trouble shooting and resolver alignment for aircraft, shipboard, and ground-based systems. The instrument is extremely useful for aligning two-speed resolver systems.

SPECIFICATIONS

Parameter	Value
Reference Input (R1-R3)	
Voltage	3 to 30Vrms
Frequency	47 to 3000Hz
Input impedance	200K ohms
Stator Input (S1-S2-S3-S4)	
Range switching	Manual switching
Voltage ranges	
Low Range	3.5 to 7Vrms
High Range	7 to 14Vrms
Input impedance	100K ohms, all ranges
Operating Method	Ratiometric, type II tracking loop, continuous conversion
Digital Display	
Type	0.5 inch LCD
Resolution	0.1 degree
Range	0 to 359.9 degrees
Accuracy ⁽¹⁾	± 0.2 degrees
LO BAT indicator	Colon
Battery	
Type	9V rectangular alkaline dry cell with miniature snap terminals
Life	Normally 30 hours
Operating Temperature	
Standard range	0 to +50 degrees C
Extended range ⁽²⁾	-30 to +70 degrees C
Storage Temperature	-40 to +85 degrees C
Humidity	
Standard range	80% RH or less
Extended range ⁽²⁾	95% RH or less
Case Configuration	
Size	6.0" x 3.12" x 0.81"
Weight	8.0 oz. including battery
Material	ABS plastic
Color	Yellow

NOTES

- Accuracy applies for:
 - over reference and signal amplitude ranges
 - 10% reference and signal harmonic distortion
 - over operating temperature range
 - over operating frequency range
- Add suffix R to part number for extended range version

ACCESSORIES

The DRM-4™ comes complete with the following accessories:

- Digital resolver meter 1
- Battery (9V) 1
- Test leads 6
- Carrying case 1

THEORY OF OPERATION

The DRM-4™ is a precision instrument for measuring resolver angles and consists of the following five basic functions, (see figure 1):

- Power supply
- Range select circuitry
- Resolver to BCD converter
- BCD to seven segment decoder
- Display assembly

A 9V battery and voltage conversion circuitry provides all the dc voltages necessary to operate the unit.

The reference input (R1-R3) accepts 3-30Vrms at 47-3000Hz. The stator inputs accept voltages from 3.5-14Vrms in two manually selected ranges, 3.5-7Vrms and 7-14Vrms. The power switch doubles as a range switch, the center position is off, up position selects 7-14V range and the down position selects the 3.5-7V range. Full accuracy is maintained over both specified ranges.

The heart of the DRM-4™ is a micro-module resolver to BCD converter that accepts the range scaled resolver inputs and outputs a four decade BCD angle to an accuracy of ± 0.2 degrees.

The BCD angle is converted to a seven segment format and displayed on a 0.5 inch LCD display.

OPERATING THE DRM-4™

When the instrument is received, the battery is not installed. Follow the procedure below for loading or replacement of the battery:

- Place screwdriver in slot in the battery cover and pry up. Battery cover is located on lower rear of instrument.
- Remove battery strap and snap on new battery.
- Place battery into compartment.
- Replace battery cover.

When battery replacement is necessary, replace only with alkaline dry cell in order to maintain specified operating life.

CAUTION:

When replacing battery be sure to turn switch to off position

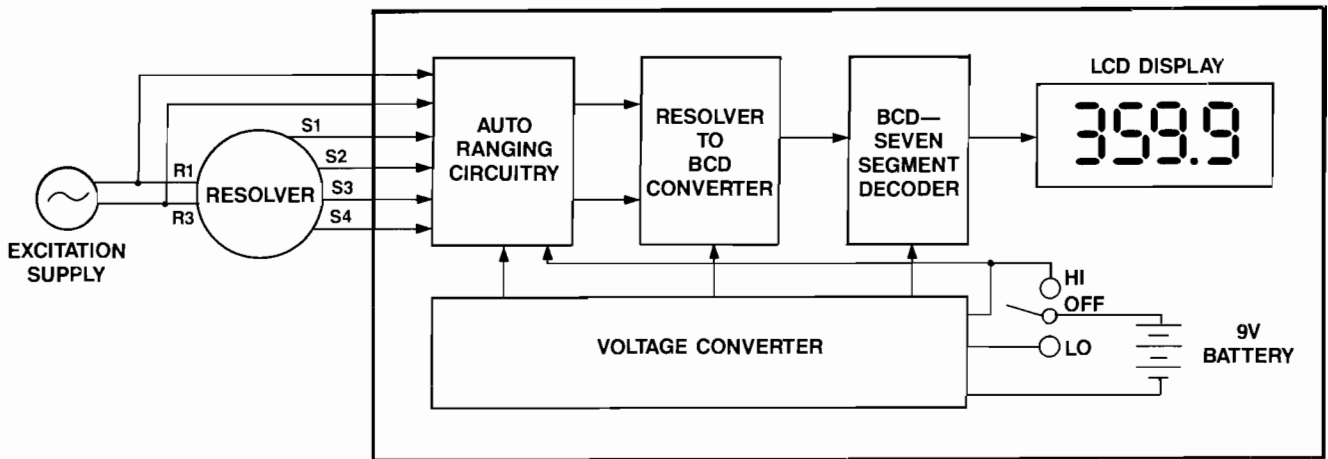
The instrument will operate for an average of 30 hours continuous on a single battery. When the colon on the display appears, there is approximately 20 minutes of battery life remaining. The battery should be changed as soon as possible.

To connect the test leads to the DRM-4™ simply insert the appropriate leads into the input jacks as indicated below:

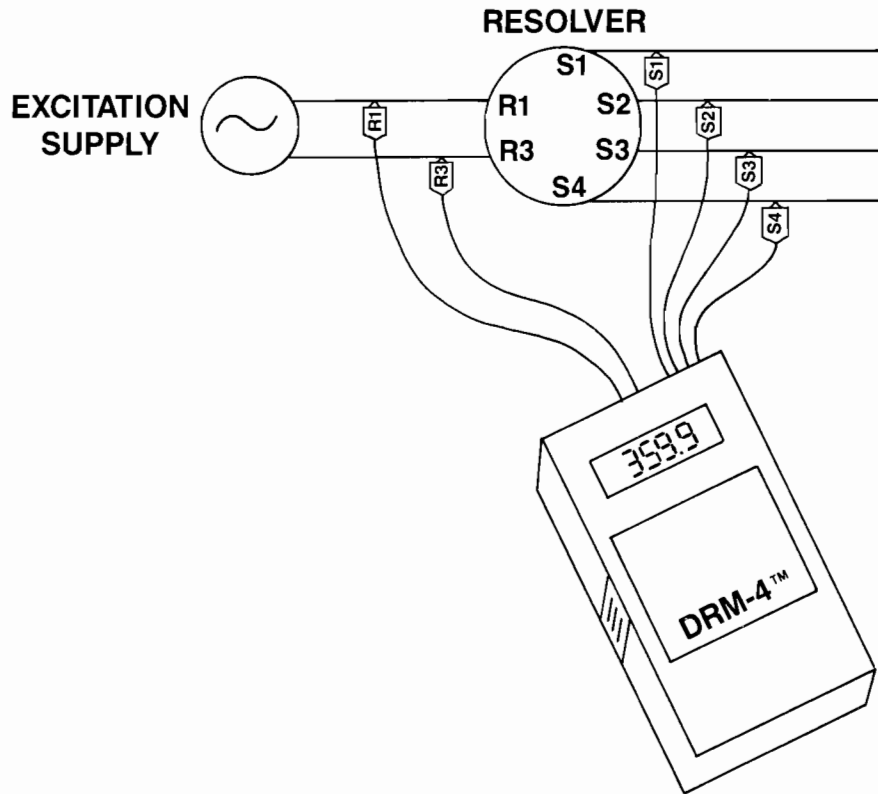
TEST LEAD			DRM-4™ INPUT JACK
MARKING	COLOR	FUNCTION	MARKING
R1	RED	REF +	R1
R3	BLACK	REF -	R3
S4	BLUE	SIN -	S4
S2	YELLOW	SIN +	S2
S1	RED	COS +	S1
S3	BLACK	COS -	S3

To connect the DRM-4™ to a resolver system, connect R1 and R3 leads to the corresponding rotor terminals and connect S1 thru S4 leads to the corresponding resolver stator terminals, (see figure 2).

Turn on the instrument by selecting the appropriate voltage range, the resolver angle will be displayed in degrees.



BLOCK DIAGRAM, DRM-4™
FIGURE 1



CONNECTING THE DRM-4™
FIGURE 2

WARRANTY

All units warranted against defects in materials and workmanship for 1 year from date of shipment. Liability is expressly limited to servicing, adjusting, or replacing any CSI product returned to our factory with delivery charges prepaid. In no case shall our liability exceed the original purchase price.



9509 VASSAR AVENUE • CHATSWORTH, CA 91311
TEL: (818) 709-5510 • FAX: (818) 709-8546