MANUAL
FOR
ANALOG OUTPUT BAROMETER
MODEL 7105-A

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ECN 2041
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ANALOG OUTPUT BAROMETER
MODEL 7105 - A

1.0 INTRODUCTION

1.1 The Analog Output Barometer described in this manual uses a laser-trimmed piezo-resistive sensing element to transform a change in atmospheric pressure into an analog voltage. Atmospheric pressures from 600 mb to 1100 mb (17.72 to 32.48 inches of Hg) are detected and amplified by the sensor and its associated electronic circuits. The wide response of the sensor allows operation from sea level to an elevation of 14,000 feet without adjustments to the sensor.

1.2 The barometer operates from a DC power source of 10.5 VDC to 24 VDC. The output voltage range is from 2.9008 VDC to 5.3167 VDC, corresponding to 600 mb to 1100 mb of pressure. Input power and output signal connections are provided through a 5-pin standard DIN connector. Voltage regulation is provided internally to ensure correct sensor operation. A maximum current drain of 15 mA can be expected.

1.3 The barometer is housed in a sturdy, aluminum case. The enclosure may be easily mounted to a variety of surfaces or placed into additional enclosures such as electronic cabinets. An easily accessible hose barb is provided to allow remote sensing of pressure. The hose fitting attaches to a 3/16 inside diameter hose which can then be routed into or out of the area to be measured. Use of the remote measuring feature allows the sensor to be installed in a stable environment to eliminate errors due to extreme temperature variations.

2.0 SPECIFICATIONS

2.1

Sensing Range	600 to 1100 mb (17.72 to 32.48 in. Hg)
Operating Range	Sea Level to 4242 meters (Sea Level to 14,000 ft.)
Output	2.9008 to 5.3167 VDC
Sensitivity	4.83 millivolts/mb
Resolution	Dependent upon measuring device
Accuracy	0.08% of reading overall, including. Hysteresis, thermal shift, and nonlinearity
Temperature Range:	
Operating	-10° to 50°C
Storage/Shipping	-50 to 65°C
Storage Pressure	5 to 30 psi
Power	15 mA at 10.5 to 24 VDC
Electrical Connection	5-pin DIN connector
Size	4-3/4"L x 3"W x 2"D (114 mm x 79 mm x 54 mm)
Weight/Shipping	0.5 lbs/ 1.5 lbs (.2 kg/.6 kg)

3.0 INSTALLATION

3.1 This instrument is thoroughly tested and fully calibrated at the factory and is ready for installation. Please refer to the return authorization card included in the packing box if damage has occurred. Also, notify Qualimetric's, Inc.

3.2 The Analog Output Barometer is designed for optimum performance when installed in a stable environment. When the sensor housing is in a tightly sealed area and atmospheric pressures are to be measured, the remote sensing feature must be used. To sense pressures remotely, attach a 3/16 I.D. hose or latex tubing to the hose barb on the sensor housing. The hose should then be routed as conveniently as possible to the atmosphere. Avoid making sharp angles in the hose which could collapse the inside of the tube. If the sensor is housed inside a vented enclosure, the remote tubing is not necessary.

3.3 The barometer housing is designed to be bolted onto a panel or surface supplied by the user. The housing will be installed in an enclosure when supplied as part of a complete Weather Station.

3.4 The barometer is not sensitive to direction and can be mounted in any position. However, for most installations, the connector and hose barb should face downward to prevent moisture from accumulating on the connector and inside the sensor. Securely fasten the cable to a rigid support with electrical tape or plastic wire ties to minimize cable damage.

3.5 For continous operation, connector pins 1 and 4 must be shorted together by a jumper wire. This is normally done on the cable connector. For periodic operation, such as automatic Weather Stations, the jumper wire is removed to conserve battery power. The automatic Weather Station must then be programmed to turn on power to the barometer.

3.6 For use with equipment not furnished by Qualimetrics Inc., refer to the sensor wiring details to correctly connect the sensor output and power input.

4.0 THEORY OF OPERATION

4.1 The Analog Output Barometer is designed to provide an analog voltage in response to variations in atmospheric pressure.

4.2 The pressure transducer is a piezoresistive material that exhibits a small change in voltage in response to changes in pressure. The varying voltage is conditioned and amplified to a usable level by circuitry included in the sensing element integrated circuit. Temperature compensation and voltage regulation are provided internally as well.

5.0 CALIBRATION

5.1 Each sensor is tested inside a pressurized chamber and compared to an N.B.S. traceable standard. There is no adjustment to be made on the sensor.

CALIBRATION CERTIFICATE

Instrument ANALOG OUTPUT BAROMETER

Model Number 7105-A Serial Number _____

PRESSURE RANGE millibars	SENSOR CALIBRATION POINTS	SENSOR OUTPUT	
600-1100 mb	600 mb	2.9008 VDC	
	1100 mb	5.3167 VDC	

Cable T600503 Length _____ Shield ■ Yes ☐ No

☐ Refer to enclosed Calibration Sheet. Figure _____

■ Must be used in conjunction with:

Instrument BAROMETRIC PRESSURE MODULE

Model Number 1705 Serial Number 987

Technician Chris Weeks Date 4/14/90

6.0 MAINTENANCE

6.1 Maintenance should include regularly scheduled testing of the sensor to detect any changes in performance.

6.2 The sensor cannot be serviced. Any attempts to remove the cover or to disassemble the sensor will result in irreparable damage and will void all warranties.

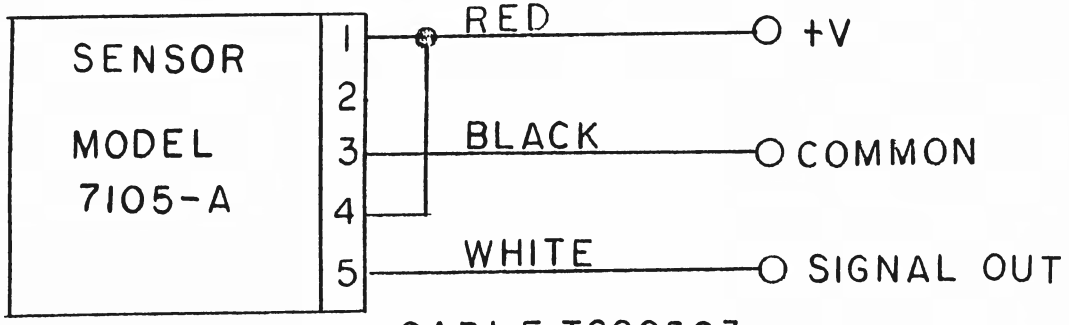
6.3 Should any sensor appear to be defective, notify the Qualimetrics, Inc. service department for assistance.

7.0 PARTS LISTS AND DRAWINGS.

7.1 The following pages include assembly drawings and parts lists for this instrument. Please note that the parts lists are in assembly/subassembly form. Each parts list is on a separate page. All parts are listed in the smallest economical size available.

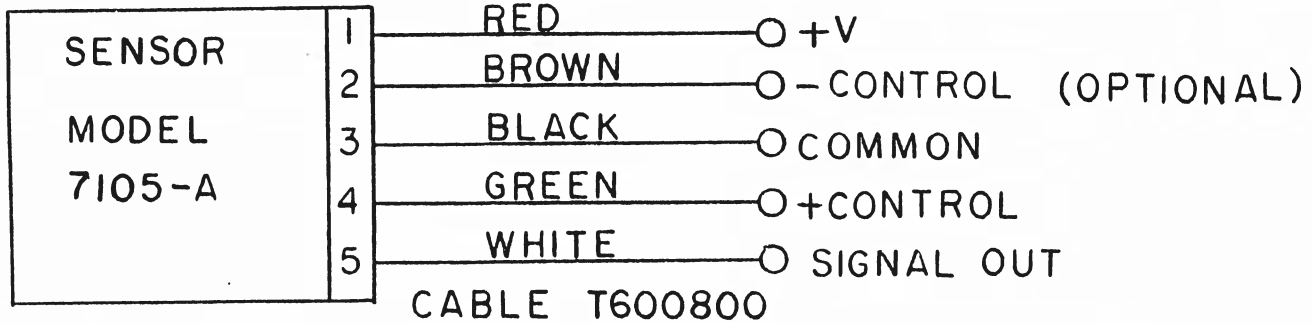
8.0 WARRANTY

8.1 All instruments are warranted for one year, unless otherwise specified, against defects in material or workmanship. Should any instrument prove to be defective within the warranty period, upon written notice and return of the instrument freight prepaid, Qualimetrics will, at its option, repair or replace the defective unit and return it freight collect. Instruments abused, improperly used or installed, and modified or altered by others, may cancel warranty.



CABLE T600503

NORMAL CABLE TERMINATION



CABLE T600800

REMOTE WEATHER STATION CABLE TERMINATION

REV	ECN	DATED	QTY	NEXT ASM
	2132	5-17-84		

TOLERANCES UNLESS OTHERWISE NOTED:
XXX= ± .005 XX= ± .010 FRACTIONS = ± .02
ANGLES ± ½° CONCENTRICITY= .003 TIR

ENGR	RN	DT 6/14/84
APPRO		DT

Weathermeasure WEATHERtronics
Division of QUALIMETRICS, Inc.

A

NOMENCLATURE SCHEMATIC, SENSOR CABLE TERMINATION MODEL 7105-A

MOD. USAGE 7105-A

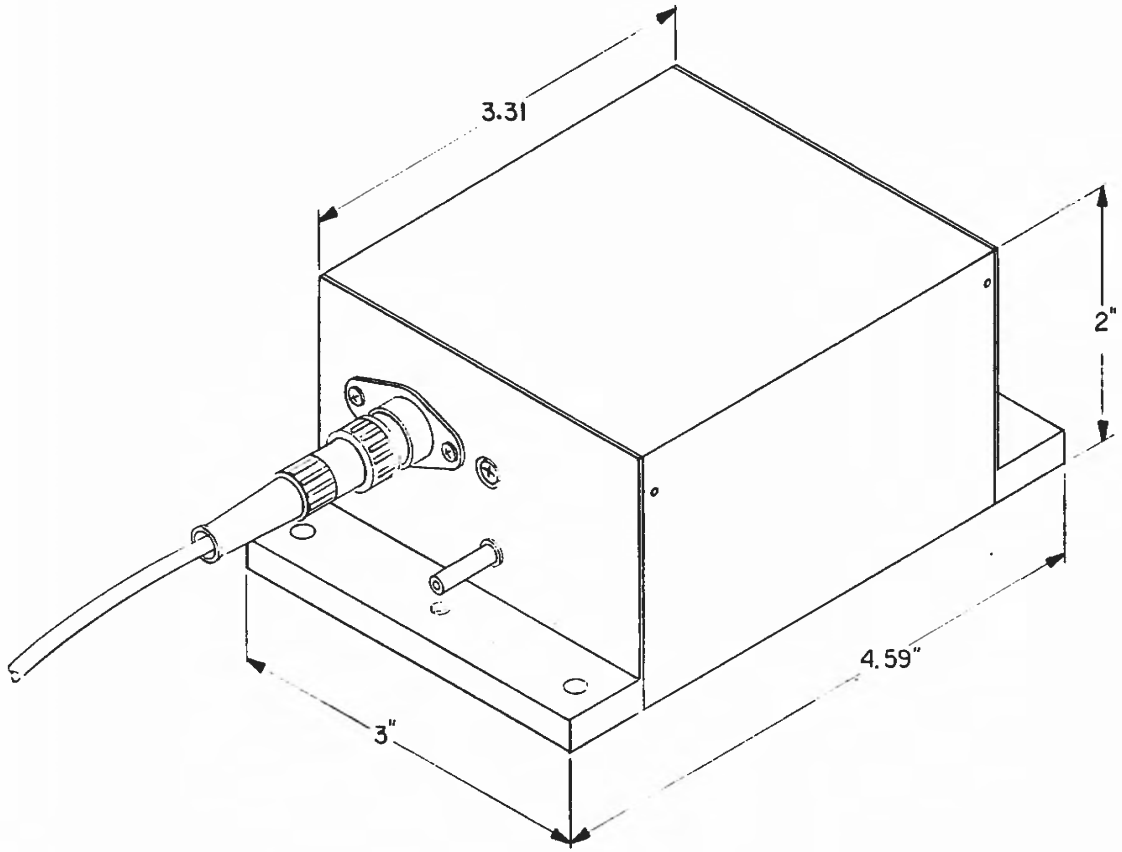
SHEET 1 OF 1

BY RN DT 6/14/84

SCALE Ø

DWG. NO. 7105-A25

DWG. NO. 7105-A05



REV	ECN	DATED	QTY	NEXT ASM
A	2468	2/86		

TOLERANCES UNLESS OTHERWISE NOTED:
XXX= ± .005 XX= ± .010 FRACTIONS= ± .02
ANGLES ± ½° CONCENTRICITY= .003 TIR

MATL

FINISH

ENGR		DT 2-28-86	
APPRO		DT	

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B

NOMENCLATURE OUTLINE
ANALOG OUTPUT BAROMETER
MODEL 7105-A

MOD. USAGE | SHEET 1 OF 1

BY	SCALE	DWG. NO.
K. WEBER	NONE	7105-A05
DT 2/28/86		