PM212
Digital Panel Meter

Model PM212

Digital Panel Meter

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SECTION I
GENERAL

1.1 Description

The PM212 is a digital readout module specifically designed for use as a plug-in Modular Panel Display for the Validyne MC1, Multi-channel Modular Transducer Control System.

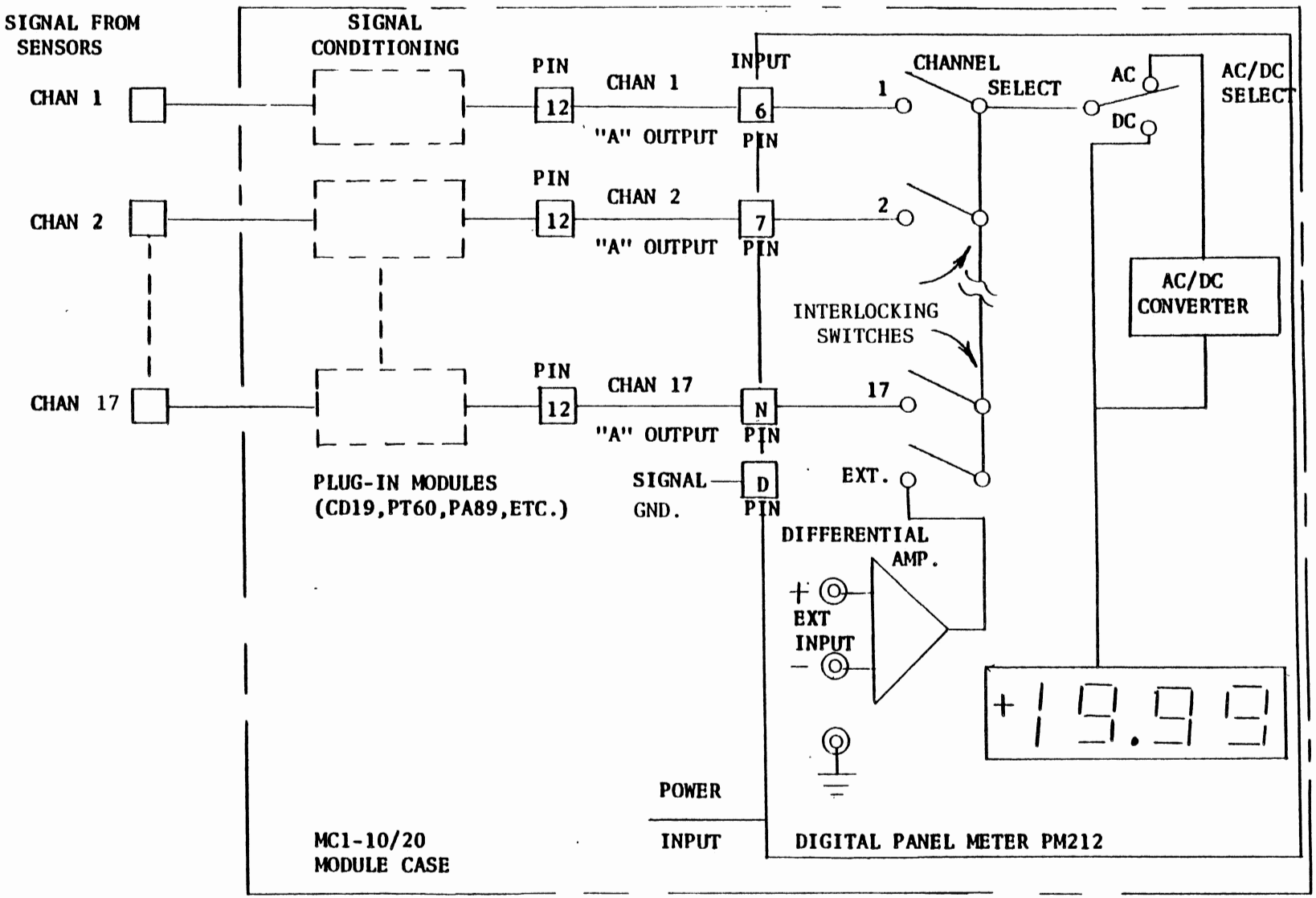
The PM212 is used to manually select and display from 1 to 17 individual channels of AC or DC voltage information, along with a front panel input.

It is designed for use with either the MC1-10 or 20 channel module cases. It features individual channel by channel decimal point choice. A choice of 3-1/2 or 4-1/2 digit optional readout display may be made at the time of purchase. Two configurations exist, they are: (-1) for 3-1/2 digit display and (-2) for 4-1/2 digit display.

The Modular Panel Display plugs into the last three channels of the designated module case. It occupies channels 8, 9, and 10 of the MC1-10 and channels 18, 19, and 20 of the MC1-20 module cases.

The channel selector switch makes it possible to read any channel data available to the meter without effecting the analog output signal.

Channel decimal points are hard wired by jumper to satisfy individual channel scaling requirements. Two methods of decimal point selections may be accomplished by jumper installation; either all channels the same or each channel having its own jumper. (See sketch.) Standard PM212 will be factory supplied with decimal pt. #2 selected for all channels.



PM212 PANEL METER

SYSTEM FUNCTIONAL DIAGRAM

FIGURE 1

SECTION II
SPECIFICATIONS

2.1 Electrical

Input Signal:	0-10V AC or DC
Input Impedance:	100K Ohm
Power Received:	±15V DC @ 35mA from MC1 Chassis
Frequency Response:	DC to 10KHz
Stability: (Drift)	±1 Digit of Input
Repeatability:	±1 Digit of Input
Accuracy-normal:	.25% of Full Scale
External Input:	1% of Full Scale
Temperature	
Operating:	-10°C to +60°C
Storage:	-25°C to +85°C
Visual Display:	0.43" LED Type Numerals
Display Rate:	2/Second
Adjustments	
Meter Full Scale	
Configuration (-1):	3-1/2 Digit has Full Scale + Adj. Only
Configuration (-2):	4-1/2 Digit has Full Scale + & - Adj.
	(Located behind the meter face) See Instructions Before Attempting Adjustment.

Front Panel Controls (See Fig. 3)

Channel Selection Switch	18 Position
AC/DC Selection Switch	2 Position AC or DC
1-9/10-17/Ext. Input Sel. Sw.	2 Pos. 1-9 and 10-17, Ext. Sel.
External Input Jacks	

2.2 Mechanical

LENGTH = 6.75" (17.14cm)

WIDTH = 4.78" (12.14cm)

HEIGHT = 3.66" (9.3cm)

WEIGHT = 1 lb. 12 oz. (.8kg)

SECTION III
OPERATION

3.1 Installation (See Fig. 2 & 3)

The PM212 Module Panel Display, when installed in an MC1-10 or MC1-20 chassis reduces the number of available plug-in slots by three. An MC1-10 will then have seven usable channels and the PM212 installed. An MC1-20 will then have the additional 10 channels for a total of 17 channels with the PM212 in place.

MC1-10/20 chassis are specifically wired to provide the "A" output from each channel for selections and power required to the connectors at the plug-in locations for the PM212. There are no other changes to the MC1-10/20 chassis and no features of the MC1-10/20 are disturbed. Without the PM212 installed the MC1-10/20 chassis returns to the full compliment of 10 and 20 channel multi-channel modular control chassis.

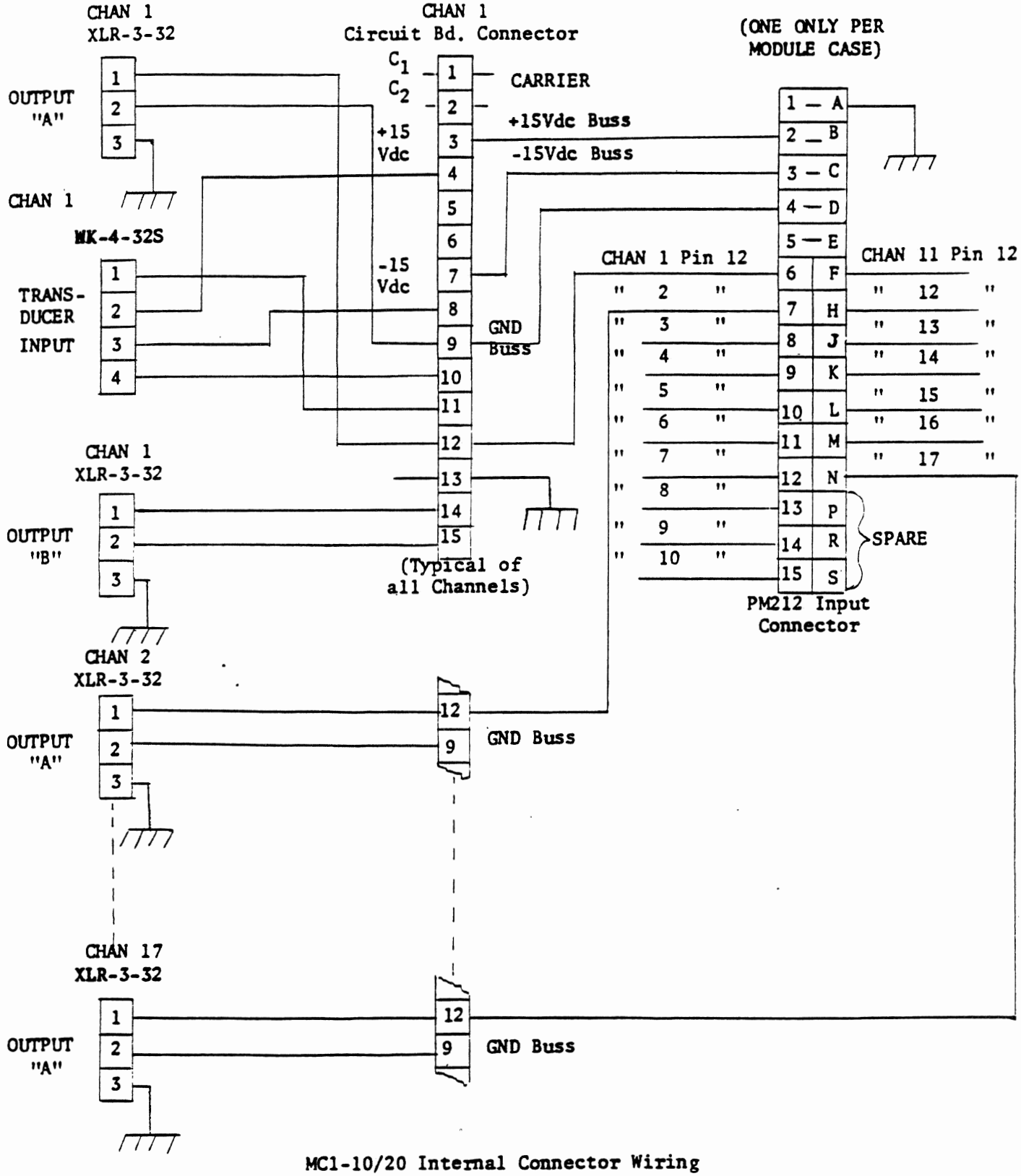
Inspect MC1-10/20 chassis for extra connector installed "11 or 21" (as viewed from far right front corner of card file) and plug PM212 into specified 3 slots. Unit is ready for operation if the MC1-10 or 20 has been properly fitted for PM212.

3.2 Display/Selector Switches

The decade select switch is a push & lock-push and release action switch. All other switches are interlocked so that only one channel can be selected at a time. A latched switch can be released by partially depressing an adjacent switch.

The button marked 1-9/10-17 Ext., permits display of either the 1-9 or 10-17 Ext. decade output for the selected channel. When this switch is in the "out" position the DPM will display the 1-9 channel as selected: When in the "in" or latched position, the 10-17 Ext., channel as selected is available for display.

To use an external input, both the switch marked 10-17 Ext. select and the Ext. switches must be depressed.



MC1-10/20 Internal Connector Wiring
for
PM212 Panel Meter

Fig. 2

3.3 External Input Uses

In the external input position, both of the far right push buttons depressed the meter functions as a digital 15V RMS AC voltmeter or a 17.5V DC digital voltmeter. (changed 12/28/77)

For AC mode the voltmeter is calibrated to read RMS volts for a sine wave signal input.

USES:

Measure 1. ±15V DC
2. Carrier 5V RMS
3. Front Panel Inputs

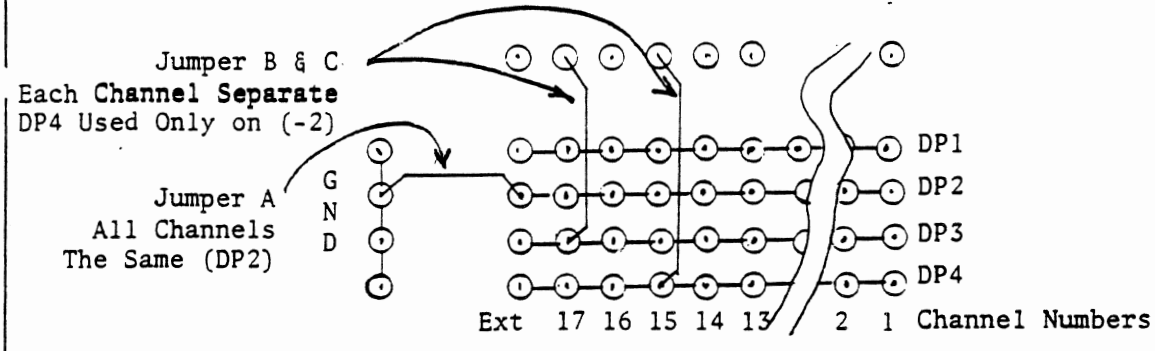
A. For R & C Null Operation
B. Output Signals

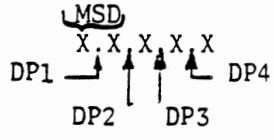
- C A U T I O N -

When measuring voltage on Ext. Input that are not differential inputs, the grounding jumper from ⏚ to — should be in place.

3.4 Decimal Point Convention

Decimal point #1 is located at the first 1/2 space to the right of the most significant display digit. As follows:





(Changed 10/21/77)

Decimal Point-Individual channel decimal point selection can be either all channels the same (Jumper A) or all channels individually selected (Jumper 3&C).

3.5 Display

The panel display meter has two configurations. Configuration one (-1) is a standard 3-1/2 digit D.P.M. which reads ±1.000, 10.00, 100.0 or 1000 depending upon which decimal point location is representative of the input data full scale reading. Configuration two (-2) is a standard 4-1/2 digit D.P.M. which reads ±1.0000, 10.000, 100.00, 1000.0 or 10000 again depending upon which decimal point is selected. No matter where the decimal point is placed the meter full scale displays 19.999 which is approximately equal to a 5.0VDC signal at the AC/DC switch output.

Meter Blanking

Whenever the input signal exceeds 19.999 counts the digits will blank. Blanking, overload, is exhibited by the polarity sign and decimal point being lighted and all others are extinguished. The meter will function normal when the overload condition has been removed.

Removal of Meter Face

Insert (just beneath face) a small blunt instrument - into the hole located at the bottom center of the meter face. Lift gently to slightly bow the meter face; lift out face.

To install meter face, hook one edge in place. Gently bow the face and insert other edge - release from bowed condition; meter face is in place.

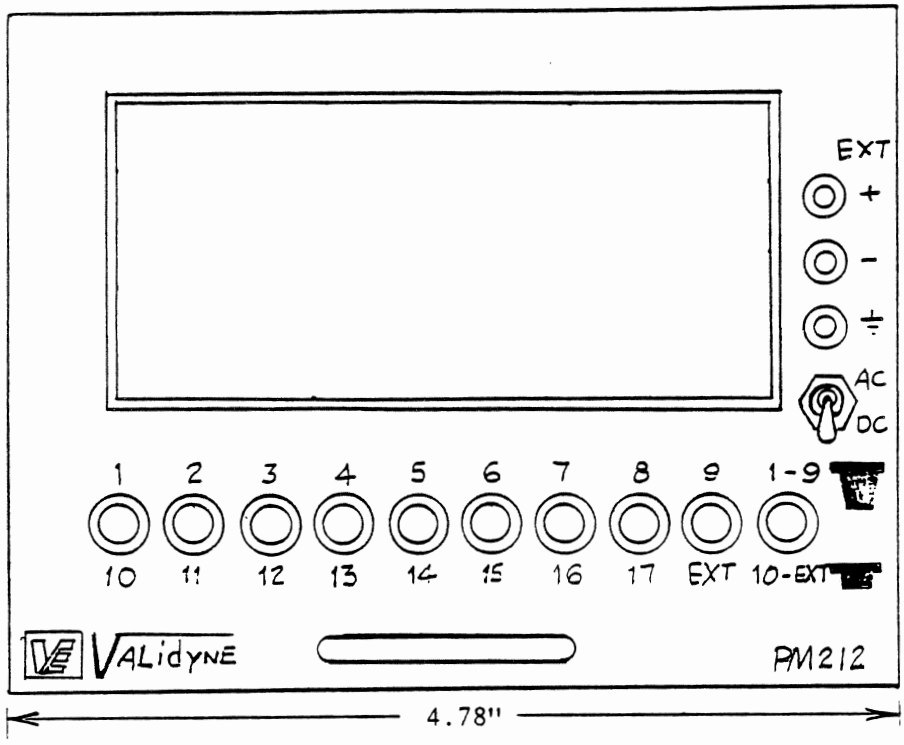
3.6 Full Scale Adjust Controls

The full scale adjustment potentiometer for 3-1/2 digit meter is located in the upper right hand corner.

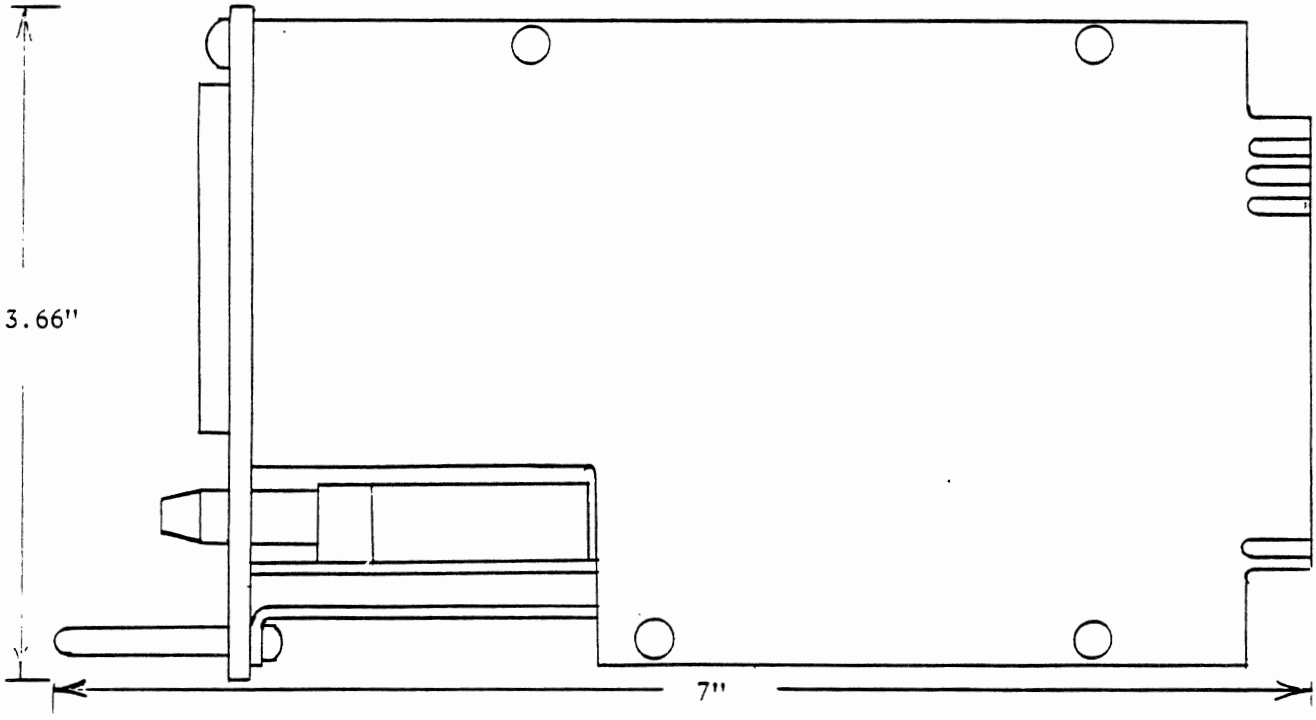
Apply an input voltage of approximately full-scale magnitude and accurate to within a half count in the last digit of the reading. Adjust the potentiometer until the instrument displays the input value.

The ±full scale adjustment potentiometers for a 4-1/2 digit meter are located in the upper right hand corner.

Apply an input voltage of approximately full scale magnitude and accurate to within a half count in the LSD of the reading. Adjust the appropriate potentiometer until the instrument displays this input value. Reverse the polarity of the input and adjust the second potentiometer.



PM212 Front Panel



Mechanical Layout

Fig. 3

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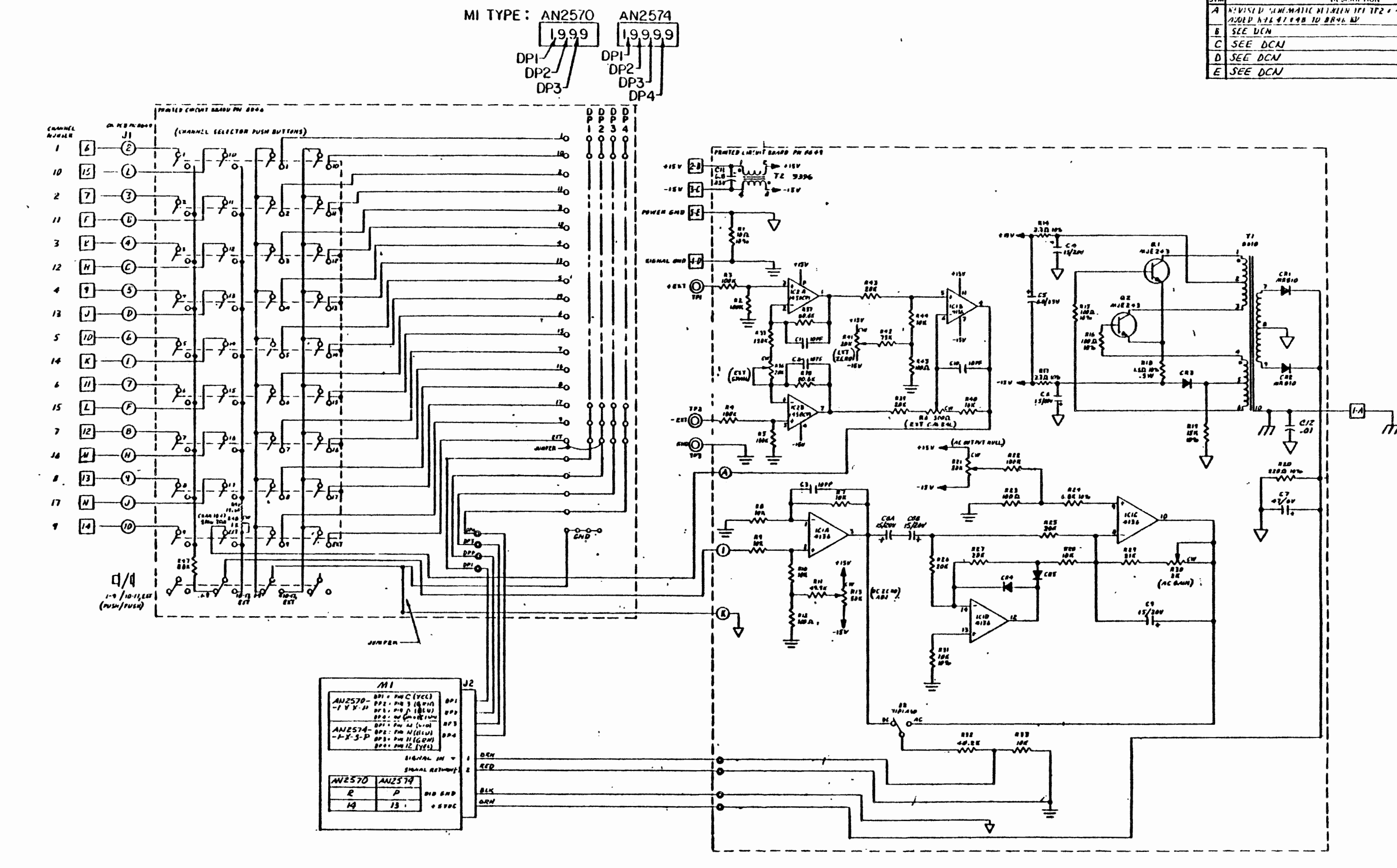
SYM	DESCRIPTION	DATE	APPROVED
A	REVISED SCHEMATIC [illegible] TP2 & 4 CH [illegible] ADDED [illegible]	[illegible]	[illegible]
B	SEE DCN	[illegible]	[illegible]
C	SEE DCN	11-20-[illegible]	JLF [illegible]
D	SEE DCN	1-23-[illegible]	JLF [illegible]
E	SEE DCN	2-22-[illegible]	JLF [illegible]



3. DIODES ARE 1N914.
2. CAPACITOR VALUES ARE IN MICROFARADS.
1. RESISTOR VALUES ARE IN OHMS ±1% 1/8 WATT.

NOTES: UNLESS OTHERWISE SPECIFIED.

CODE IDENT NO. 33107

Validyne ENGINEERING CORPORATION

PM 212

SCHEMATIC

Validyne ENGINEERING CORPORATION

PCN NO. N/A

DATE October 24, 1991

SHEET 1 OF 1

PUBLICATION CHANGE NOTICE

This notice is issued to change or update this publication for Validyne Model MC1 Plug in signal conditioners

☒ **For all instruments, make changes in this publication as listed below:**

☐ **For instruments having model dash number _____ make the following publication changes:**

PCN NO. _____

This PCN is to add input and output connector information for the following MC1 plug in signal conditioners:

BA112	AD136	CD148	NI167
LPF162	LPF167	CD18	CD19
PM204	BPF205	EC209	PM212
FC236	TC243	CD257	
AM49	PT60	FC62	AL64
SG71	PA89	CD90	PE251
TC453			

WK4-236	PTO2A	TERMINAL STRIP
1	A	1
2	B	2
3	C	3
4	D	4
A XLR-3	A XLR-3	
1	1	5
2	2	6
3	3	NONE
B XLR-3	B XLR 3	
1	1	7
2	2	8
3	3	NONE

WARRANTY

VALIDYNE ENGINEERING CORPORATION warrants equipment of its own manufacture to be free from defects in material and workmanship under normal conditions of use and service.

VALIDYNE will rework or replace any item found to be defective on as return to VALIDYNE within the time specified below:

1. Pressure Transducers and Pressure Transmitters (including transducers supplied as part of Digital Manometer Systems) within three (3) years of its original purchase.

2. Electronics products (Transducer Indicators, Carrier Demodulators, plug-in SignalCondioners, Module Cases, etc.) within one (1) year of its original purchase.

3. OEM Transducers within one (1) year of its original purchase.

Buyer is requested to secure authorization of VALIDYNE, and to describe defect prior to return of equipment under warranty. Shipment to VALIDYNE shall be at Buyer's expense, with return at VALIDYNE's expense. NON-VERIFIED problems or malfunctions, whether warranty or not, are subject to a $100.00 evaluation charge.

The warranty carries no liability, either expressed or implied, beyond our obligation to rework or replace, at VALIDYNE's option, the unit which carries the warranty to the original purchaser. Prices, specifications, and designs are subject to change without notice. This warranty is void if the product is subjected to misuse, accident, neglect, or improper application or operation.

Out of Warranty Rework

Units returned to VALIDYNE for rework which are out of warranty will be subject to the following conditions:

1. A description of the problem or malfunction shall accompany the unit returned for rework, or be communicated to VALIDYNE prior to shipment. Otherwise there will be a minimum evaluation and/or calibration charge of $100.00.

2. Unit will be reworked automatically if the charge is less than 65% of current list price, unless other specific instructions are received. Above 65% VALIDYNE will request authorization by Buyer.

3. If a quotation is required before proceeding with rework, unit should be accompanied by a document so stating, or communicated to VALIDYNE prior to shipment. A $100.00 evaluation charge will be invoiced for this service.

4. Shipping charges in both directions are the responsibility of the Buyer for all out of warranty returns.

Warranty on Rework

Warranty coverage on rework is 90 days on work done, or to the end of the original warranty period, whichever is longest.

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