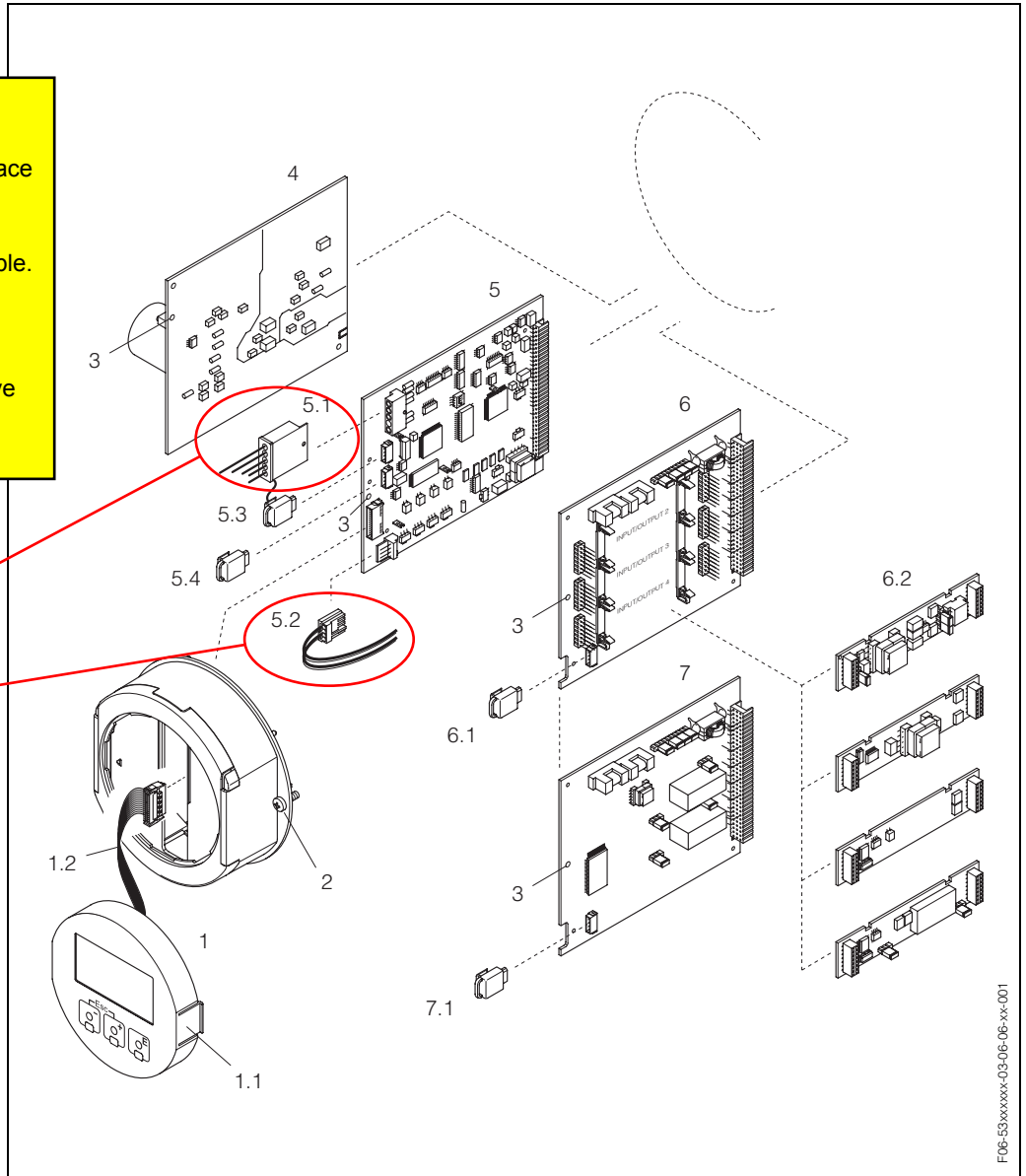


To Perform the resistance checks:  
 1) Turn Power off.  
 2) Access the electronics through the front face plate. The display holder will need to be removed.  
 3) Disconnect item 5.1-Sensor/Electrode cable.  
 4) Disconnect item 5.2-Coil Cable.  
 5) Perform the resistance check as per next sheet.  
 6) When complete reinstall all plugs that have been disconnected.

Sensor/Electrode Cable

Coil Cable

See next sheet for breakdown of connectors and resistance values.



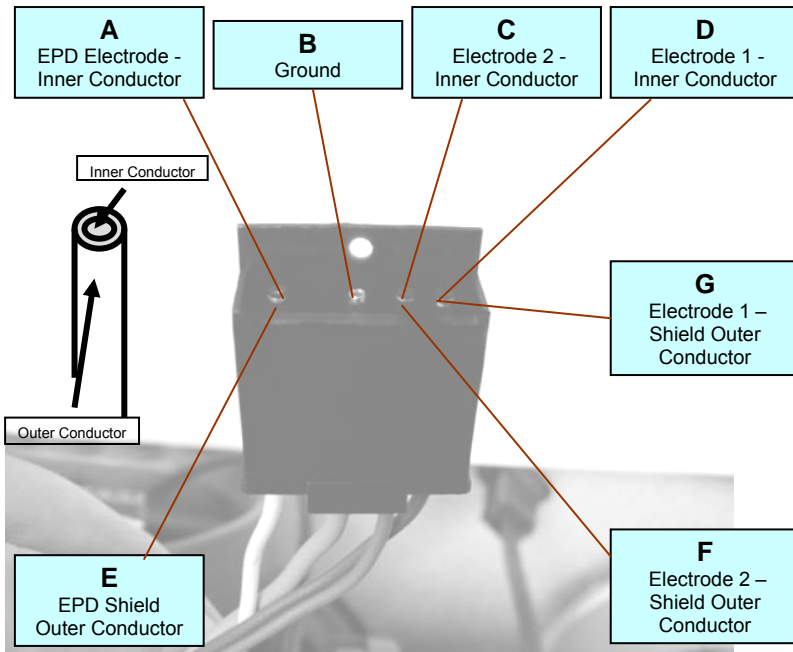
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Fig. 57: Field housing: removing and installing printed circuit boards

- 1 Local display
- 1.1 Latch
- 1.2 Ribbon cable (display module)
- 2 Screws of electronics compartment cover
- 3 Aperture for installing/removing boards
- 4 Power unit board
- 5 Amplifier board
- 5.1 Electrode signal cable (sensor)
- 5.2 Coil current cable (sensor)
- 5.3 S-DAT (sensor data memory)
- 5.4 T-DAT (transmitter data memory)
- 6 I/O board (flexible assignment)
- 6.1 F-Chip (function chip for optional software)
- 6.2 Pluggable submodules (status input and current input; current output, frequency output, relay output)
- 7 I/O board (permanent assignment)
- 7.1 F-Chip (function chip for optional software)

# Electrode Test Points

## Promag 50/53 Sensor Connector



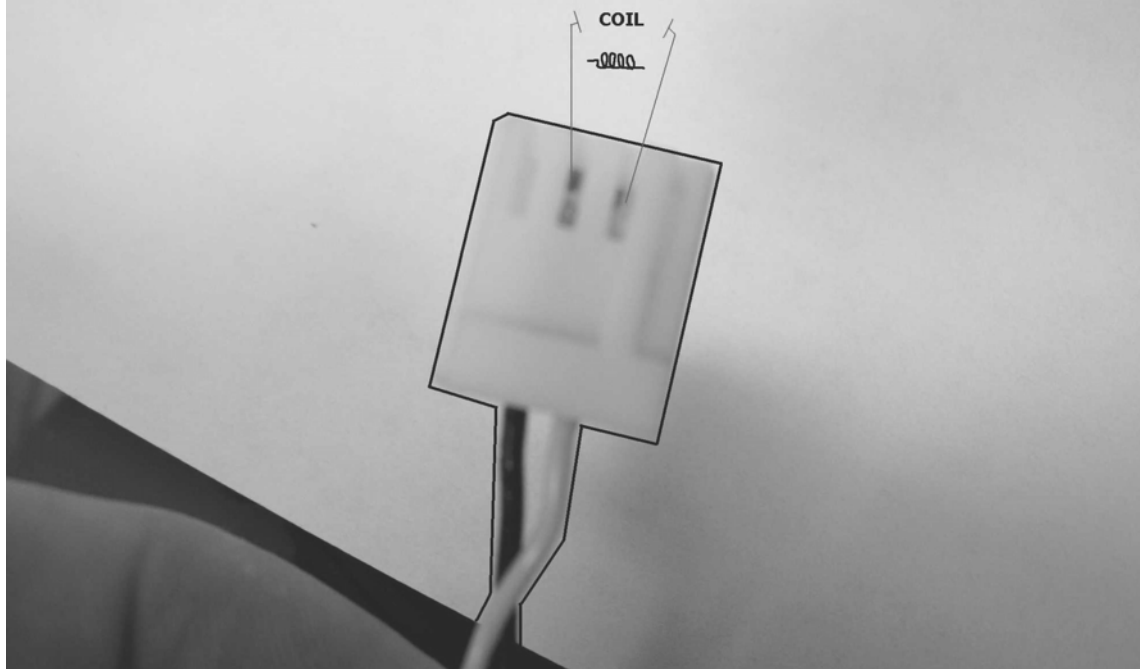
### With Meter Filled

- Electrode 1 to ground impedance should be within 20% of electrode 2 to ground
- EPD electrode to ground should be approx. The same as Electrode 1 or 2, but likely a bit higher.
- Measured impedance is a function of fluid conductivity
- Coating inside meter can affect impedance measurement
- Open connection might mean internal damage to meter or bad electrical connection

## Coil Test Points

Promag H		Promag WP	
DN 2...25 (1/12"...1")	DN 40...100 (1 1/2"...1")	DN 15...100 (1/2"...4")	DN 125...2000 (5"...78")
74 Ω ± 10%	84 Ω ± 10%	84 Ω ± 10%	140 Ω ± 10%

### PROMAG 50/53 COIL CONNECTOR



Resistance Check of remote unit.

To check electrodes:

Pipe must be completely full!!!!

- 1) Power unit down.
- 2) Disconnect the wiring at either the electronics or the sensor.
- 3) 41 to 42 should read resistance in the chart below.
- 4) 41 or 42 to ground should read open.
- 5) 5 to ground, 7 to ground, 37 to ground should read within 20% of each other.

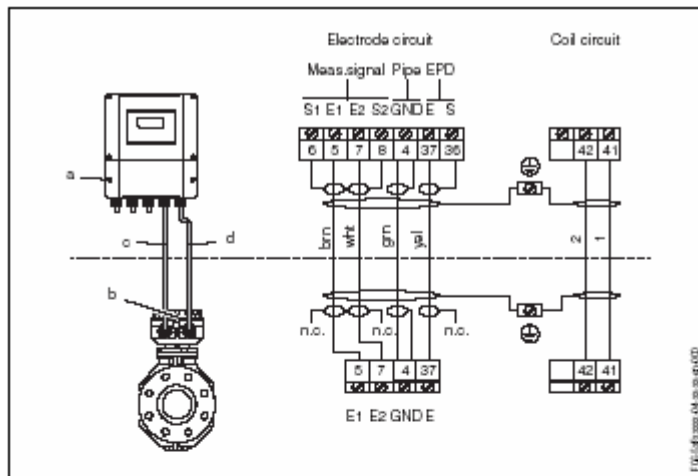


Fig. 29: Connecting the remote version of Promag W/P

a = cover of the connection compartment, b = cover of the sensor connection housing, c = signal cable, d = coil current cable, n.c. = not connected, insulated cable shields

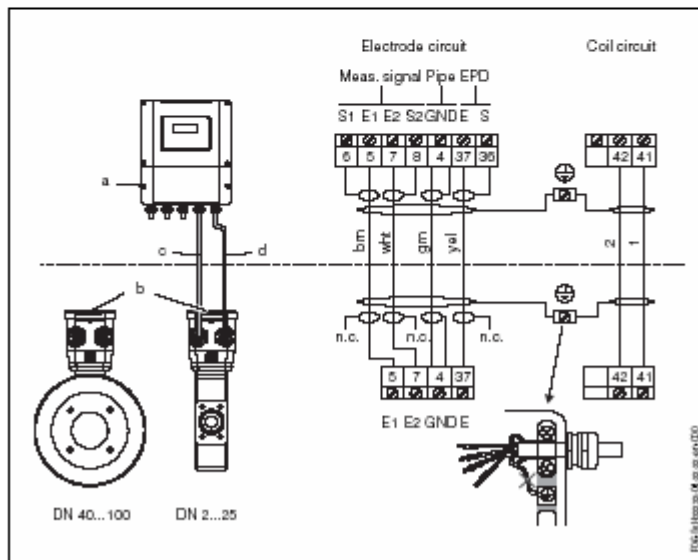


Fig. 30: Connecting the remote version of Promag H

a = cover of the connection compartment, b = cover of the sensor connection housing, c = signal cable, d = coil current cable, n.c. = not connected, insulated cable shields

6. Check the coil resistance

The coil resistance depends on the temperature:

$$R_{nom} = \frac{R}{1 + \alpha \cdot (T_c - 20^\circ C)}$$

R = measured coil resistance;  $T_c$  = coil temperature [°C];  $\alpha$  = temperature coefficient (Cu = 0,00388 1/°C)

Check the wiring between the transmitter and the sensor and observe the sensor's temperature.

Insulation failure of the coils/electrodes or open circuit, caused by moisture or medium ingress, are possible error causes. With open circuit the coil resistance becomes infinitely high, to be detected with a multimeter. Insulation failure can only get detected with a high voltage insulation tester. The insulation value should exceed 50 MΩ at a testing voltage of 500 V. Too low insulation values can be caused by moisture or by medium leakage into the sensor or the wiring. Check the lining!

Promag H		Promag W/P	
DN 2...25 (1/12"...1")	DN 40...100 (1 1/2"...1")	DN 15...100 (1/2"...4")	DN 125...2000 (5"...78")
74 Ω ± 10%	84 Ω ± 10%	84 Ω ± 10%	140 Ω ± 10%

If during troubleshooting the wiring checks OK from the electronics down to the sensor and the sensor itself checks OK it is still possible that there could be an issue internal in the electronics head.

- 1) Power the unit down.
- 2) Open up the housing as per the manual.
- 3) Verify that the Sensor/Electrode cable is installed properly. (Item 7.1)
- 4) Verify that the Coil Cable is installed properly. (Item 7.2)
- 5) You can also do a resistance check of the electronics cabling by referencing the previous diagrams for the connectors and the terminals.
- 6) Make sure you reconnect all your cables. Make sure all the circuit cards are secured. The SDAT chip Item 7.3 must be be installed properly.

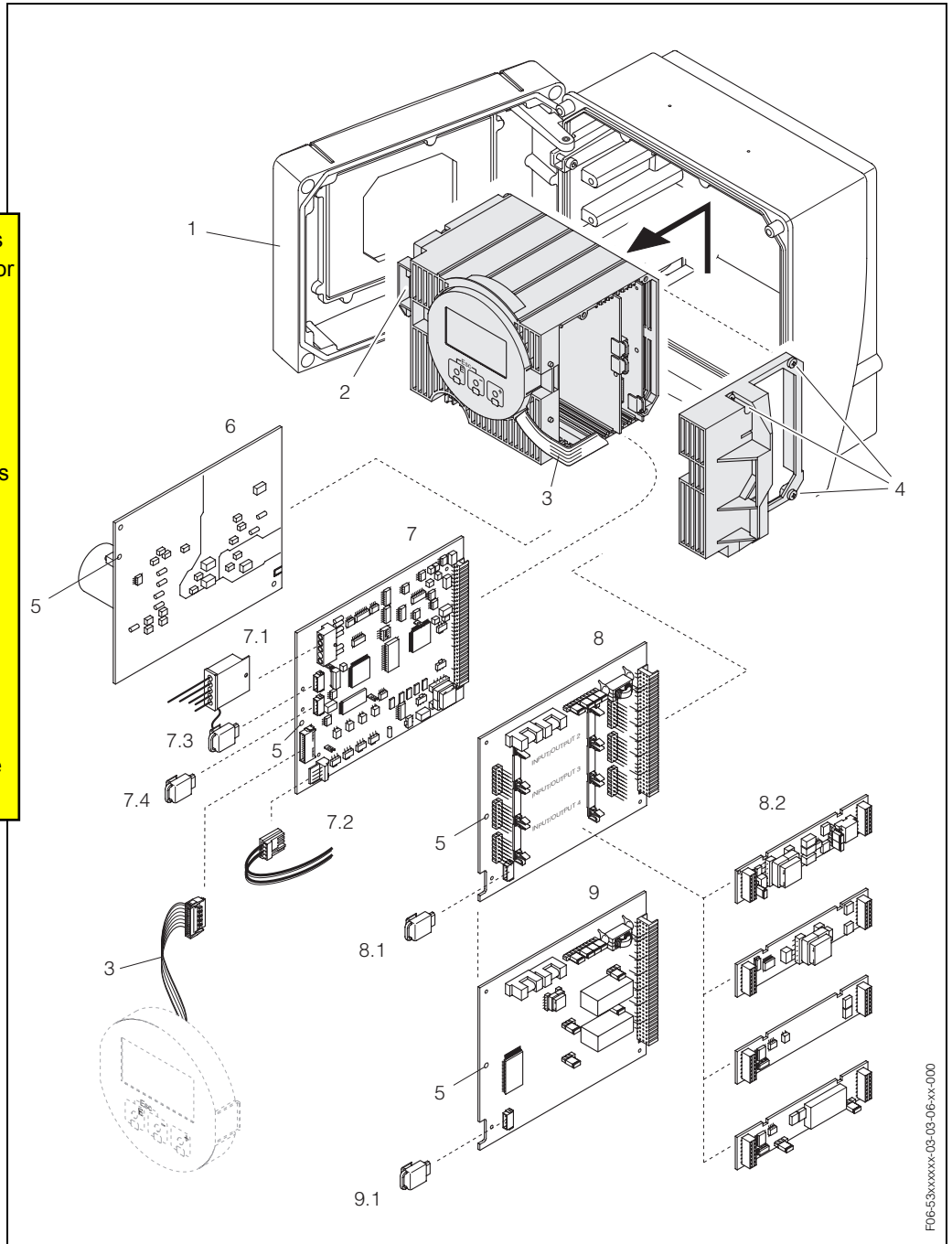


Fig. 58: Wall-mounted housing: removing and installing printed circuit boards

- 1 Housing cover
- 2 Electronics module
- 3 Ribbon cable (display module)
- 4 Screws of electronics compartment cover
- 5 Aperture for installing/removing boards
- 6 Power unit board
- 7 Amplifier board
- 7.1 Electrode signal cable (sensor)
- 7.2 Coil current cable (sensor)
- 7.3 S-DAT (sensor data memory)
- 7.4 T-DAT (transmitter data memory)
- 8 I/O board (flexible assignment)
- 8.1 F-Chip (function chip for optional software)
- 8.2 Pluggable submodules (status input and current input, current output, frequency output, relay output)
- 9 I/O board (permanent assignment)
- 9.1 F-Chip (function chip for optional software)

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