

Pax Diagnostics works closely with customers and transformer manufactures to solve practical application problems. Improving safety and allowing for full diagnostics tests on transformers sometimes requires innovative thinking. Pax Diagnostics Active Probes are results of this input and we are proud to present these improvements as accessories available for all FRAX-101 customers.

AIP-101 Active Impedance Probe



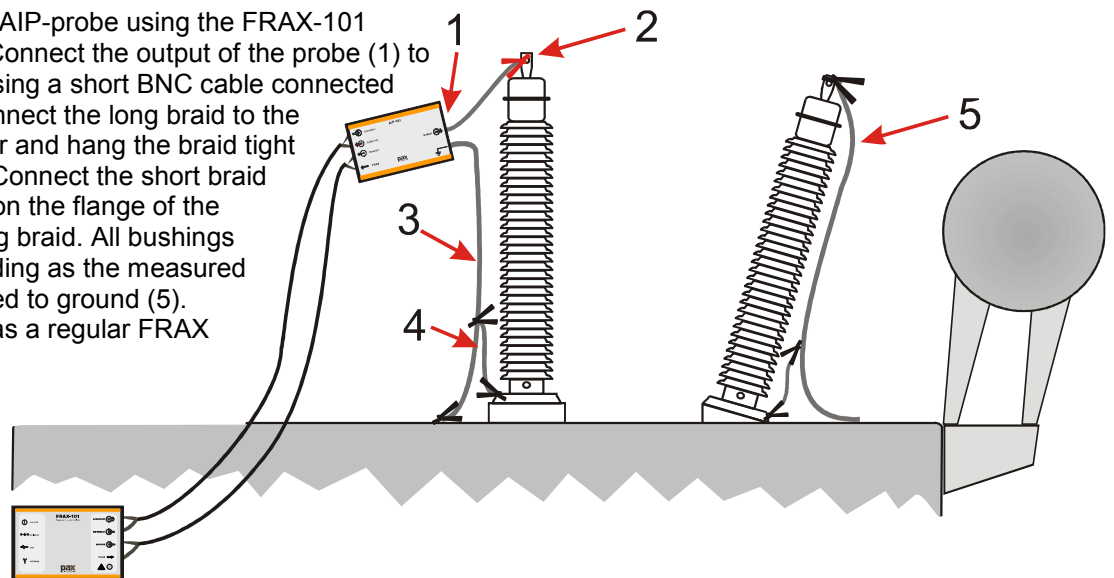
The FRAX-101 is designed to measure the transfer functions expressed as e.g. Magnitude, Impedance or Ratio between two non-grounded connections, e.g. between non-grounded phase 1 bushing and non-grounded neutral bushing of a power transformer.

For transformer modeling purposes, measurements have to be performed to a grounded connection e.g. the transformer tank or to a bushing connected to the transformer tank, the Active Impedance Probe AIP-101 should be used.

The use of the Active Impedance Probe, AIP-101 ensures safe, accurate and easy measurements to ground.

Connection

Connect the FRAX to the AIP-probe using the FRAX-101 cable set and a DC cable. Connect the output of the probe (1) to the top of the bushing (2) using a short BNC cable connected to the FRAX connector. Connect the long braid to the AIP-probe ground connector and hang the braid tight to the bushing surface (3). Connect the short braid (4) to a ground connection on the flange of the bushing and then to the long braid. All bushings connected to the same winding as the measured bushing should be connected to ground (5). Perform the measurement as a regular FRAX measurement.



Specifications

Interface

Generator Input	50 Ohm
Reference Output	50 Ohm
Measure Output	50 Ohm
DC Input	GND, +12V, -15V, +15V

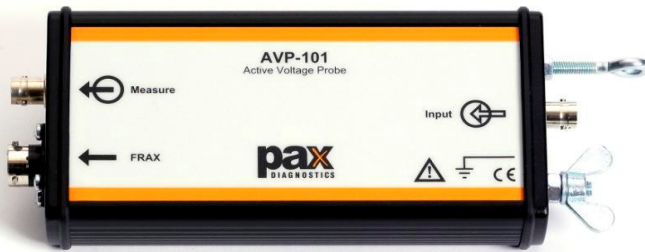
Output

Generator Voltage	20 V peak to peak
Isolation	Typ 100 MΩ // 1 pF Min 50 MΩ // 2 pF

Measurement

Frequency range	20 Hz – 2 MHz
Measurement range	0.5 Ohm +2 μH up to 10 MΩ // 2 pF
Measurement accuracy	± 10 % from 2 Ω + 5 μH up to 1 MΩ / 10 pF * 50 MΩ equals -120 dB at 50 Ω input * 5 MΩ equals -100 dB at 50 Ω input * ± 10 % = ± 0.8 dB

AVP-101 Active Voltage Probe



The input impedance of FRAX-101 measurement channels is 50 Ω. The use of relative long leads with a characteristic impedance of 50 Ω requires this 50 Ω termination in the Frequency Response Analyzer. When higher input impedance than 50 Ω is needed, Pax Diagnostics offers the **Active Voltage Probe AVP-101**.

The Active Voltage Probe makes it possible to keep the lead between the test instrument and the test connection on the test object short as AVP extends the test instruments measurement circuit closer to the test connection point.

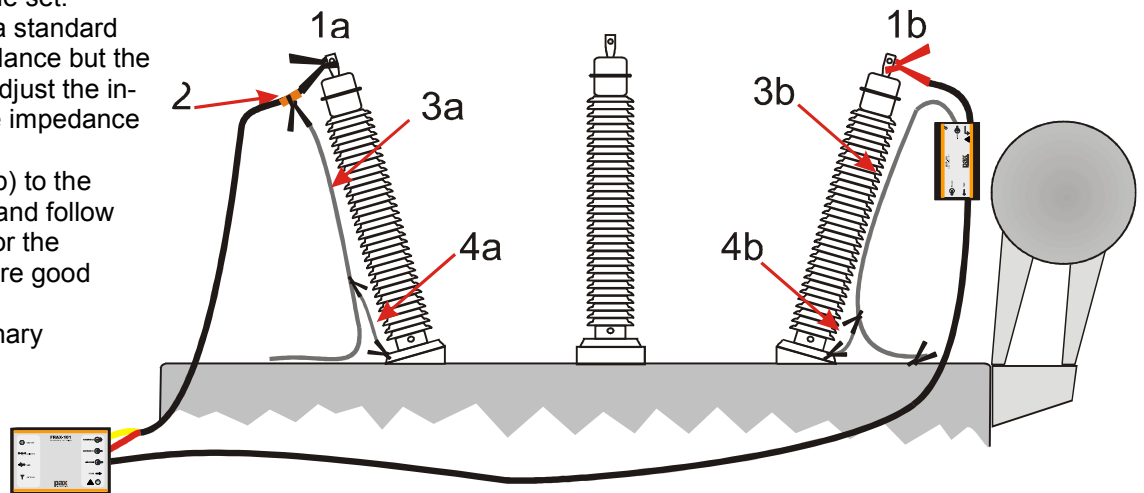
Connection

Connect the FRAX "Generator" and "Reference" cable to the high voltage side bushing top (1a) using the FRAX connector. Connect the braid (2) to the FRAX connector and let the braid hang close to the bushing surface (3a). Connect the short braid to a good grounding point, usually via a bushing bolt (4a), and connect to the long braid. The other side of high voltage winding should be connected to the grounded transformer tank.

Hang the AVP probe on the FRAX connector and connect the FRAX to the AVP-probe using the "Measure" cable and the DC cable. Connect the AVP probe to the bushing using the BNC > banana converter and AVP clamp cable (1b) provided in the AIVP cable set.

The AVP probe has a standard 1 MΩ / 10 pF input impedance but the converter allows you to adjust the input impedance to suit the impedance of your test object.

Connect the braid (3b) to the probe ground connector and follow the same procedure as for the previous bushing to ensure good grounding. Perform the measurement as an ordinary FRAX measurement.



Specifications

Interface

Reference Output	50 Ω
DC Input	GND, +12V, -15V, +15V

Input

Ratio	1:10
Input Impedance	1 MΩ // 10 pF

Measurement

Frequency range	20 Hz – 2 MHz
Accuracy	1% of reading +10 mV 5 degrees down to 100 mV

Specifications are subject to change without notice

Order information

Active Impedance Probe AIP-101
Active Voltage Probe AVP-101
AIVP Cable Kit, 18 m / 60 ft
AIVP Cable Kit, 9 m / 30 ft

GE-000-30
GE-000-40
GC-000-57
GC-000-58



Pax Diagnostics AB
Enhagsslingan 6
SE-187 40 - Taby - Sweden
Phone + 46 8 5250 3600
Fax + 46 8 792 02 70
Email: info@paxdiagnostics.com

ZB-AC3-01 A02E

pax
DIAGNOSTICS

www.paxdiagnostics.com