HIPOTRONICS

MSR Series

Modular Series Resonant Systems - 250....2200kV; 500kVA....60,000kVA

■ **The MSR Series** is designed to provide power for tests on cables, HV and EHV transformers, gas-insulated switchgear, bushings, arresters and other accessories used in high voltage applications.

MSR systems include stackable modules that can be used to test a wide range of products. The systems can be expandable so that you can cover future testing requirements that may require higher voltage and power levels. As part of a series resonant circuit, these systems provide undistorted high voltage. Because the systems are designed to have high quality factor (Q), low input power is required which results in lower installation and operating costs.

A comprehensive range of voltages between 250kV to 2,200kV and power ratings 500kVA to 60,000kVA is available.

FEATURES

- ☑ **Multiple Q** values to meet variety of applications
- ☑ **Minimum Power** input requirements
- ☑ **Low PD** operation
- ☑ **Stackable Modules** for future upgrade
- ☑ **Windows Based Controls**
- ☑ **Oil temperature indicator(s)**

BENEFITS

Series Resonance provides a protective voltage collapse should device under test fail

Pure AC sine wave at output

Lower installation cost for power service

Expandable for future testing needs

APPLICATIONS

Ideal for Testing:

- Power Cables
- Power Transformers (applied tests)
- Gas-insulated Switchgear
- Bushings
- Arresters
- High Voltage Accessories

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TYPICAL MIDELS AND RATINNGS BY APPLICATION

FOR CABLE					
Model	**Voltage (kV)**	**Power (kVA)**	**Number of Modules**	**System Height (m)**	**Individual Module Weight (kg)**
MSR750-37M5	750	37500	3 x 250kV	11.0	17,000
MSR700-24M5	700	24500	2 x 350kV	8.7	18,370
MSR700-21M0	700	21000	2 x 350KV	8.7	18,370
MSR650-60M0	650	60000	4 x 325kV	8.2	19,808
MSR650-30M0	600	60000	2 x 300kV	8.2	19,808
MSR500-16M0	500	16000	2 x 250kV	7.8	16,000
MSR500-20M0	500	20000	2 x 250kV	7.8	16,500

FOR LOWER VOLTAGE CABLE TESTING, SEE TANK SERIES RESONANT (TSR) SYSTEMS OR AC DIELECTRIC TEST SYSTEMS (700 SERIES).
*Consult factory for different voltage and power ratings.

Included:
- Double-Shielded Isolation Transformer (DSIT)
- Power Regulator / Line Filtering
- Exciter Transformer
- High Voltage Variable Reactor
- Base Load
- Voltage Divider / Coupling Capacitor /High Voltage Filter
- Windows-based Controller
- Control / Power Interconnect Cables (10, 20, 30 or 50m)

Accessories & Options:
- Cable Terminations (KEV, CTTS)
- Partial Discharge Test Equipment (DDX7000/8003)
- Power Factor / Tan δ Measuring Equipment (2840)
- Shielded Room
- Engineering Package
- High Voltage & Grounding Cables

FOR TRANSFORMERS					
Model	**Voltage (kV)**	**Power (kVA)**	**Number of Modules**	**System Height (m)**	**Individual Module Weight (kg)**
MSR1200-12M0	1200	12000	3 x 400kV	15.8	13,835
MSR1200-9M0	1200	9000	3 x 400KV	15.8	13,550
MSR800-8M0	800	8000	2 x 400kV	8.5	13,835
MSR800-4M0	800	4000	2 x 400kV	8.0	10,200
MSR600-2M4	600	2400	2 x 300kV	6.5	5,900
MSR500-3M0	500	3000	2 x 250kV	6.0	4,100
MSR400-1M2	400	1200	1 x 400kV	3.8	6,100
MSR300-1M2	300	1200	1 x 300kV	3.0	5,900

FOR LOWER VOLTAGE TRANSFORMER TESTING, SEE AC DIELECTRIC TEST SYSTEMS (700 SERIES).
*Consult factory for different voltage and power ratings.

Included:
- Power Regulator
- Exciter Transformer
- High Voltage Variable Reactor
- Base Load
- Voltage Divider
- Windows-based Controller
- Control / Power Interconnect Cables (10, 20, 30 or 50m)

Accessories & Options:
- Power Factor / Tan δ Measuring Equipment (MIDAS, 2840 & 2820a)
- Engineering Package
- High Voltage & Grounding Cables

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FOR GIS					
Model	**Voltage (kV)**	**Power (kVA)**	**Number of Modules**	**System Height (m)**	**Individual Module Weight (kg)**
MSR800-1M6	800	1600	2 x 400kV	7.8	8,500
MSR600-2M4	600	2400	2 x 300kV	6.5	5,900
MSR600-1M2	600	1200	2 x 300kV	6.1	5,100
MSR400-1M2	400	1200	1 x 400kV	3.8	6,100

FOR LOWER VOLTAGE TRANSFORMER TESTING, SEE AC DIELECTRIC TEST SYSTEMS (700 SERIES).
*Consult factory for different voltage and power ratings.

Included:
- Power Regulator
- Exciter Transformer
- High Voltage Variable Reactor
- Base Load
- Voltage Divider
- Windows-based Controller
- Control / Power Interconnect Cables (10, 20, 30 or 50m)

Accessories & Options:
- Double-Shielded Isolation Transformer (DSIT)
- Line Filtering / High Voltage Filter
- Partial Discharge Test Equipment (DDX9121)
- Power Factor / Tan δ Measuring Equipment (MIDAS, 2840 & 2820a)
- Shielded Room
- Engineering Package
- High Voltage & Grounding Cables
- Trailer and control room for onsite testing

FOR ACCESSORIES/BUSHINGS/ARRESTERS					
Model	**Voltage (kV)**	**Power (kVA)**	**Number of Modules**	**System Height (m)**	**Individual Module Weight (kg)**
MSR1200-3M6	1200	3600	3 x 400kV	15.8	6,100
MSR800-4M8	800	4800	2 x 400kV	8.1	10,300
MSR800-3M2	800	3200	2 x 400KV	7.5	8,000
MSR600-1M2	600	1200	2 x 300kV	62	3,360
MSR400-1M6	400	1600	1 x 400kV	3.8	8,500
MSR300-1M5	300	1500	1 x 300kV	2.8	5,400

FOR LOWER VOLTAGE TRANSFORMER TESTING, SEE AC DIELECTRIC TEST SYSTEMS (700 SERIES).
*Consult factory for different voltage and power ratings.

Included:
- Double-Shielded Isolation Transformer (DSIT)
- Power Regulator / Line Filtering
- Exciter Transformer
- High Voltage Variable Reactor
- High Voltage Filter / Base Load
- Voltage Divider
- Windows-based Controller
- Control / Power Interconnect Cables (10, 20, 30 or 50m)

Accessories & Options:
- Partial Discharge Test Equipment (DDX7000/8003 or DDX9121)
- Power Factor / Tan δ Measuring Equipment (2840)
- Shielded Room
- Engineering Package
- High Voltage & Grounding Cables

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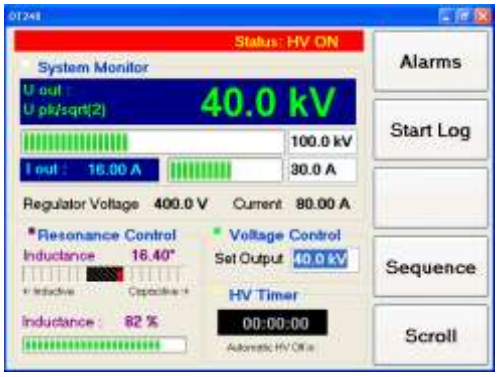
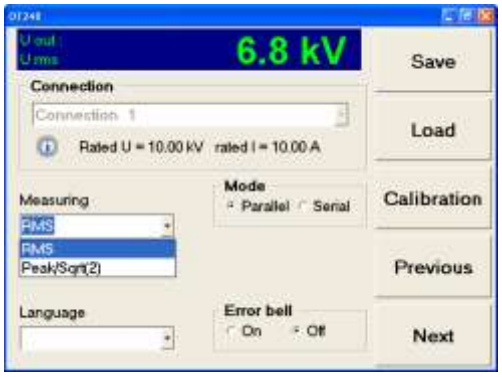
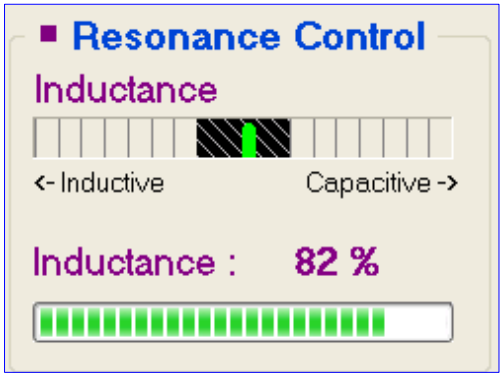
SYSTEM CONTROLS

OT 248

OT 257







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OPTIONAL EQUIPMENT & ACCESSORIES

- Water Terminations (CTTS, WPU)
- PD Measuring Equipment (DDX 7000/8003 & DDX9121)
- Tan δ Measuring Equipment (MIDAS, 2820a, 2840)
- Spare Parts Kit

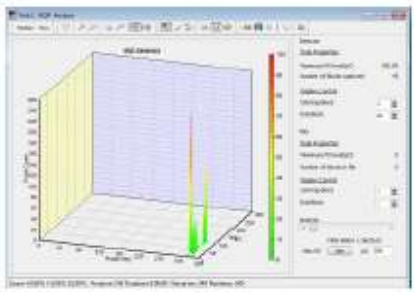
CTTS & WPU

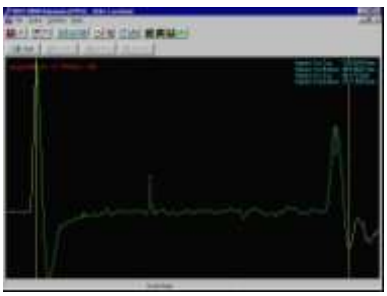
The Cable Test Termination System (CTTS) has earned the industry's confidence as a first-class product. The CTTS makes high voltage testing of cables fast and easy. Long-term ownership costs are low due to short peeling lengths for routine testing, interchangeable tubes with higher LI specification for impulse tests, and SI specifications. The Water Processing Unit (WPU) integrates state-of-the-art technology to regulate the conductivity of water and serves as a coiling system. Thermal losses generated by the CTTS during cable testing are dissipated in the WPU to avoid overheating.

Cable Terminations				
Model	**Voltage AC (kV)**	**Voltage LI (kV)**	**Voltage SI (KV)**	**Max Cable ø (mm)**
CTT 200	200	450	-	115, 130
CTT 250	250	550	-	115, 130, 165
CTT 350	350	750	-	115, 130, 165
CTT 400	400	950	-	130, 165
CTT 500	500	1200	950	130, 165
CTT 600	600	1500	1000	130, 165
CTT 700	700	1600	1100	165
CTT 800	800	1900	1200	165
CTT 1000	1000	On Request		

DDX7000/8003 & DDX9121

Our DDX Digital Partial Discharge Detectors offer high accuracies, real-time displays and a user friendly interface. The DDX7000SL & 8003 models are specifically designed for the power cable industry which includes the well-known partial discharge site location technology. The DDX9121 models are designed for the transformer industry allowing for partial discharge measurements on multiple phases simultaneously. Data analysis and data acquisition is fast, easy and requires minimal training.





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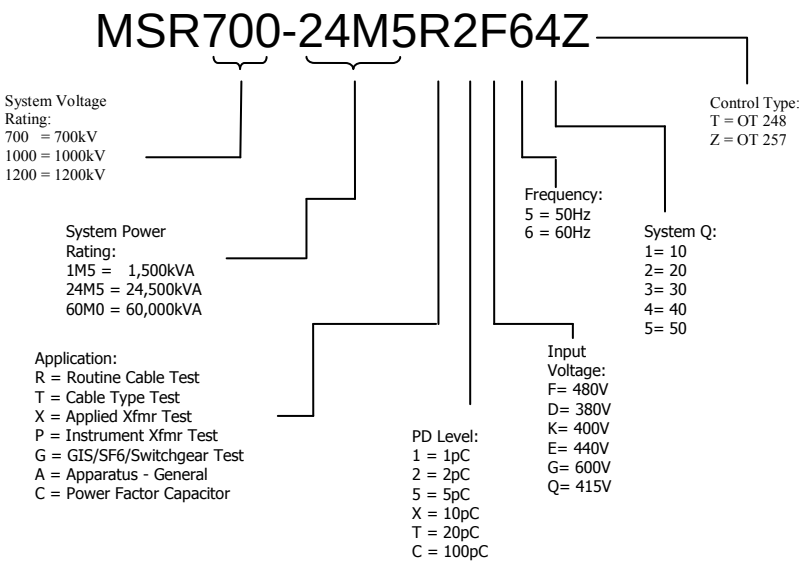
C & Tan δ / Power Factor Measuring Equipment (2840, 2820a)

The 2840 and 2820a measuring bridges are designed for measurement of low dielectric losses and impedances of high voltage apparatus such as the insulation of bushings, transformers, generators and power cables. The instruments are capable of analyzing capacitive and inductive loads with high accuracy and stability. The touch screen interface provides ease of use and the built in computer enables easy exchange of measurement and saved results.

ORDERING INFORMATION

Standard MSR Catalog Logic

NOTE: Not all options are displayed. Call for more information.



Notes:

- All dimensions and weights are approximate
- For other input voltages please consult factory
- All pictures are for reference only and may not reflect final design

Customer Supplied Cables per Local Electrical Codes:

- Mains input
- Power cables and high voltage connections to test object

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