



# CCVT MAX

Health Monitoring System for CCVTs



Introducing  
**CCVT MAX**  
from  ZTZ SERVICES





**CCVT<sub>MAX</sub>** is a proven health monitoring system for CCVTs  
 With **CCVT<sub>MAX</sub>**, the symptoms of many problems can be detected

- Loose Connections
- Failure of Ferro-Resonance Circuit
- Failure of The Intermediate Voltage Transformer
- Failure of Capacitor Elements in Upper and Lower Stacks

**CCVT<sub>MAX</sub>** offers many benefits

- Actionable Warning Before Costly Relay Trip Errors
- Avoidance of Violent CCVT Failure, Damage, Injury
- Decrease the Risk of Bus Faults That Cause System Instability and Loss of Power to All Customers on the Bus
- Identify CCVT Family Problems, Thought to Be Random
- Gives Targeted Granular Diagnostic Information



Failed CCVT with C1 Stack missing

**CCVT<sub>MAX</sub>** goes far beyond typical voltage monitoring. Simple voltage monitoring cannot preserve system security while coping with normal system voltage swings and imbalance, and other outside influences on voltage that can be mistaken for CCVT problems.

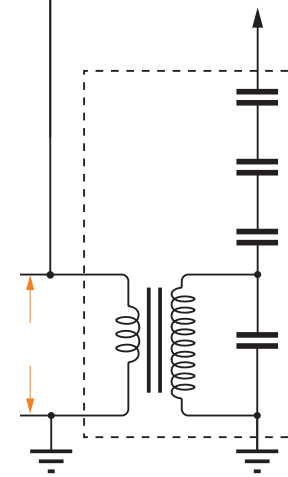
Using refined analysis techniques, **CCVT<sub>MAX</sub>** audits the phasor voltage outputs of the CCVTs.

Up to four three-phase CCVT sets may be monitored by one system.

**CCVT<sub>MAX</sub>** analyzes the phasor relationships, then reacts to minute changes in the health of both the upper and lower capacitor stack, ferro-resonance circuitry, and the wound transformer section.

**CCVT<sub>MAX</sub>** is easily rack-mounted, near the CCVT and system protection terminals inside the control building.

**CCVT<sub>MAX</sub>** is the ideal retrofit monitor to use for your life extension strategy, ensuring crew safety in energized substations where CCVTs are installed.



Special transducers are not required for **CCVT<sub>MAX</sub>**. The standard 67 or 115V AC phase connections are taken from fused CCVT outputs.



From precise measurements, **CCVT<sub>MAX</sub>** performs multiple diagnostic test methods.

- Measured for each CCVT group:
- Imbalance of the system
  - Angles between phases
  - Status

- Measured for each CCVT:
- Power Factor
  - Relative Voltage Ratio
  - Secondary voltage
  - Primary voltage

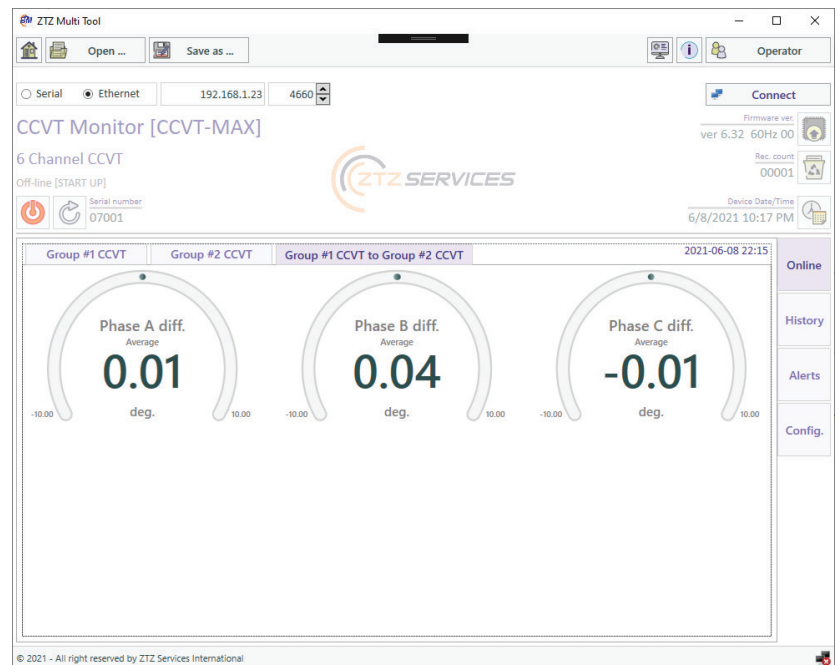
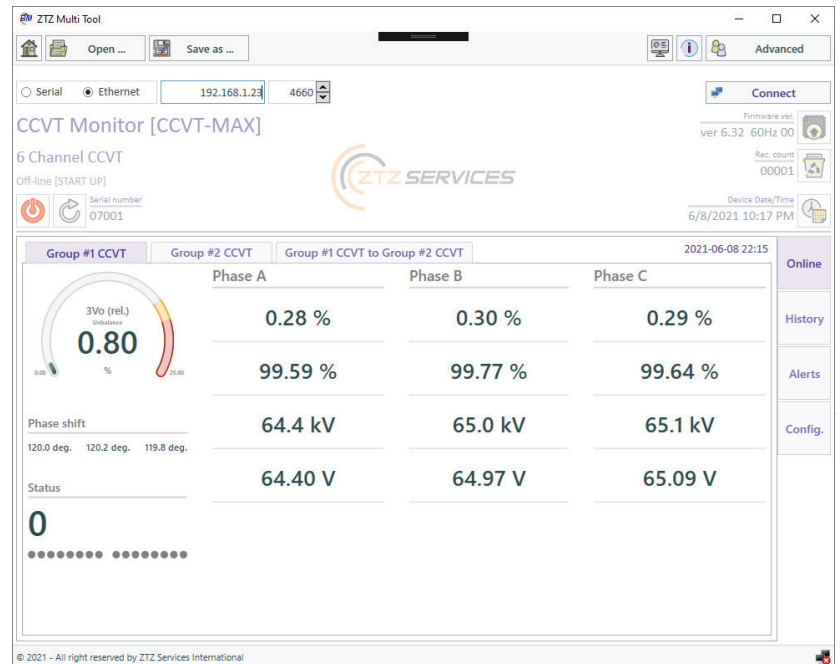
- Measured for two CCVT groups:
- Same-phase angle comparison

- One device alarm relay
- Four CCVT group alarm relays
- SCADA Connectivity

## Technical Data

<b>Dimensions:</b>	19-inch rack-mounted 3U case
<b>Weight:</b>	approx. 12 lb
<b>Power supply:</b>	90 ... 264 VAC 50/60 Hz 120 ... 370 VDC Max power consumption 75 VA
<b>Inputs:</b>	up to four 3-phase groups of CCVT
<b>Outputs:</b>	5 alarm dry-contact relays: <ul style="list-style-type: none"> <li>a. 1 x Device alarm relay (Form C)</li> <li>b. 4 x CCVT group alarm relays (Form C)</li> </ul> Relay switch capacity: 250 V / 10 A AC or 125 V / 8 A DC
<b>Communication:</b>	<ul style="list-style-type: none"> <li>a. Local USB port on front panel</li> <li>b. Ethernet (RJ45) port for remote access with ZTZ software</li> <li>c. SCADA connectivity: <ul style="list-style-type: none"> <li>- RS-485 port (Modbus RTU or DNP3.0 Serial)</li> <li>- Ethernet port (RJ45) (Modbus TCP or DNP over Ethernet)</li> </ul> </li> </ul>
<b>Front panel indication:</b>	<ul style="list-style-type: none"> <li>- Power and Status</li> <li>- CCVT group alarm status</li> </ul>

## Software View



Based in Miami, Florida; ZTZ Services International specializes in continuous monitoring systems for transformer bushings, partial discharge measurement, on-line DGA systems for insulating fluids, and forensic analysis services.

ZTZ Services International is the pioneer in transformer bushing monitoring with over 4500 systems in service globally, and many documented transformer saves to its credit. The CCVT<sub>max</sub> is rooted in this practical and successful technology, proven over 40 years.

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