

# MV-CTTS

O-Sung Electric Machinery Co., Ltd.

High-Voltage CTTS with Proprietary Domestic Technology

- DTD Redundant Overlap Detection Device
- Integrated Earthquake Resistance and Fire Monitoring Functions



## MV CTTS 7.2kV



## CTTS

### Closed Transition Transfer Switch

"Closed Transition Transfer Switch (CTTS)" refers to a switch that is transfer uninterruptibly when between normal power and generate power is switched

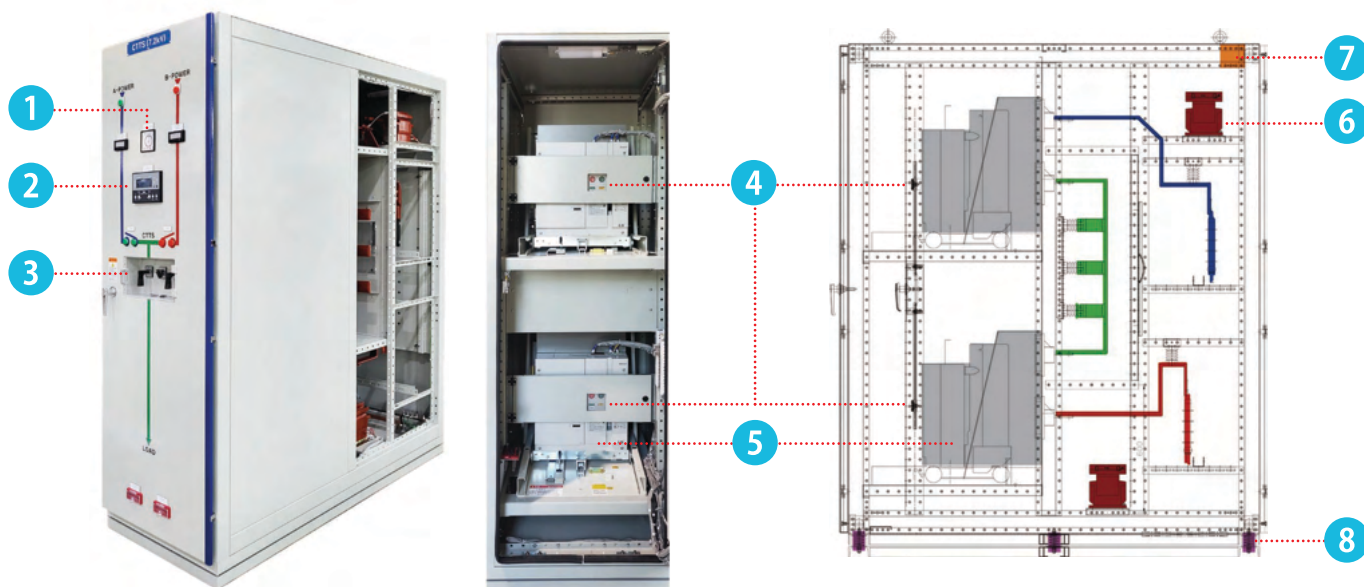
These systems maintain the continuity of the power network and prepare for emergencies by minimizing power outages.

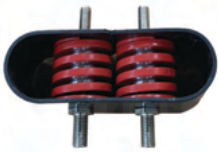
CTTS can be applied in the following cases

- **When normal power outage pre-notice**  
: Start the generator before the scheduled power outage and transfer it with uninterruptible power
- **When an instantaneous power outage is expected due to extreme weather**  
: Start the generator and transfer it with uninterruptible power
- **Power Peak Control**  
: Start the generator before peak time and transfer it with uninterruptible power
- **When normal power is re-energized**  
: uninterruptible switching from power generation to normal power
- **When testing the load operation of equipment such as generators**  
: Uninterruptible switching while powering the load

The CTTS panels of E-tech & Osemco can be built according to the needs of the site and provide more reliability and safety by applying a [Double Trip Device\(DTD\)](#).





| ITEM | VIEW                                                                                | DESCRIPTION                                   | ITEM | VIEW                                                                                 | DESCRIPTION                         |
|------|-------------------------------------------------------------------------------------|-----------------------------------------------|------|--------------------------------------------------------------------------------------|-------------------------------------|
| 1    |  | Synchroscope Mete                             | 5    |  | VCB                                 |
| 2    |  | CTTS controller                               | 6    |  | PT                                  |
| 3    |  | A-power / B-power electrical operation switch | 7    |  | Fire/gas alarm (smoke, temperature) |
| 4    |  | Manual input prevention device                | 8    |  | Earthquake-resistant device         |
| ※    |  | Double Trip Device (DTD) / Patent applicatio  |      |                                                                                      |                                     |

# SPECIFICATION



| ITEM                                               |                                           | DESCRIPTION                                                                                                                                                        |
|----------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated specifications                               |                                           | 3.6kV, 7.2kV<br>3P 630~3150A                                                                                                                                       |
| Rated short-circuit breaking capacity current(Icu) | [kA]                                      | 25kA, 31.5kA, 40kA                                                                                                                                                 |
| uninterruptible over lap transfer time             | [msec]                                    | Max. 100msec or less                                                                                                                                               |
| Circuit breaker maker                              |                                           | Order specifications other than LS, Schneider, ABB                                                                                                                 |
| CTTS Control Module                                |                                           | CTTS-807                                                                                                                                                           |
| Display                                            |                                           | ouch screen LCD 5", Metering, Setting, History Menu (Auto/Manu), Synchroscope                                                                                      |
| Uninterruptible switching conditions (adjustable)  |                                           | Within the phase angle $\pm 5^\circ$<br>Within the frequency $\pm 0.2$ Hz<br>Within $\pm 3\%$ voltage difference<br>(Embedded generator voltage/frequency control) |
| Measurement                                        |                                           | A-Power / B-Power<br>V, Hz (A. PF, kW, Kvar with CT option)                                                                                                        |
| Protection                                         |                                           | Power failure, phase loss, phase revarsal,<br>75-98% overvoltage (V), 103-105% over frequency (Hz),<br>105-115% low voltage (V), 88-98% low frequency (Hz)         |
| Power supply and demand management                 |                                           | Peak Management (PEAK Control), System Linked Type                                                                                                                 |
| Emergency shut-off & safety                        |                                           | Double trip device (DTD), Mechanical lock for circuit breaker manual input prevention                                                                              |
| Dimension                                          | [mm]                                      | 2350(H)x800(W)x2000(D)<br>(Customizable size for arrangement with SWGRs)                                                                                           |
| Color                                              |                                           | RAL7032, 5Y 7/1, 7.5BG (Customizable)                                                                                                                              |
| Key application site                               |                                           | IDC centers, banks, factories, broadcast stations, hospitals, UPS power transfer equipment, etc                                                                    |
| Protective relay                                   |                                           | Under Voltage(27), Over Voltage(59),<br>Over/Under Frequency(81), Vector shift(78), Reverse Power(32)                                                              |
| Remarks                                            |                                           | SWGR and BUS DUCT arrange available                                                                                                                                |
| CTTS Controller                                    | Power                                     | 24[VDC] / 7.2[W]                                                                                                                                                   |
|                                                    | Size                                      | (W)201.4mm x (H)141mm x (D)70mm                                                                                                                                    |
|                                                    | CTTS Controller LCD display               | 5.0inch TFT LCD (854x480) TFT graphic LCD (Touch screen                                                                                                            |
|                                                    | Voltage input                             | L-N 110[V] ~ 264[V] / 50[Hz] ~ 60[Hz]                                                                                                                              |
|                                                    | Communication port (for external control) | RS485 2port, RS232 1port                                                                                                                                           |

## DTD : Double Trip Device

### Redundant CB Abnormal Overlap Detection Device



Monitoring of Abnormal Overlap Input in Redundant CBs

Individual Detection of CB Overlap Maintenance by 3 Stages

High-Speed DC 24V Trip Output

Abnormal Alarm Output Function

Relay Trip Output Function

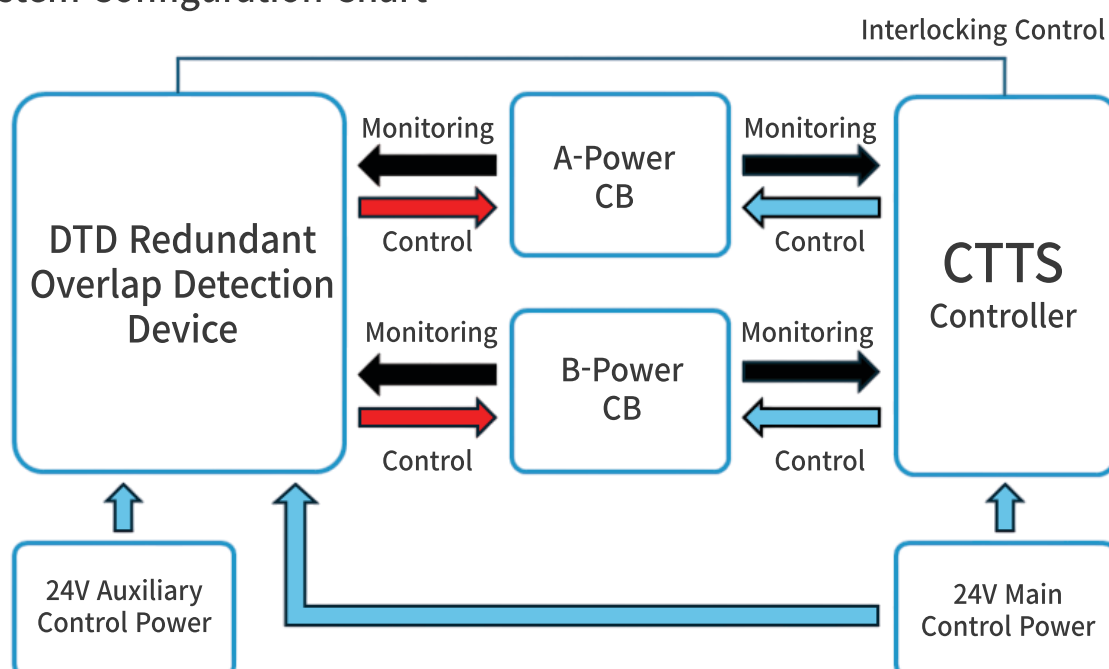
Use of Redundant Control Power Supply

Patent Application

### Applications & Features

- When implementing Closed Transition Transfer Switching (CTTS) using two CBs, a mechanical interlock configuration is not possible.
- This is a separate redundant device that monitors and protects against abnormal inputs that may occur during this process, specifically checking for conditions that deviate from the normal CTTS transfer requirement of overlapping within 100ms.

### System Configuration Chart



# FIRE/GAS MONITORING SYSTEM



## Recognition

Measures the environment in which a fire can occur

Sensing contents : temp, humidity, smoke, CO, 6 types of combustible gases

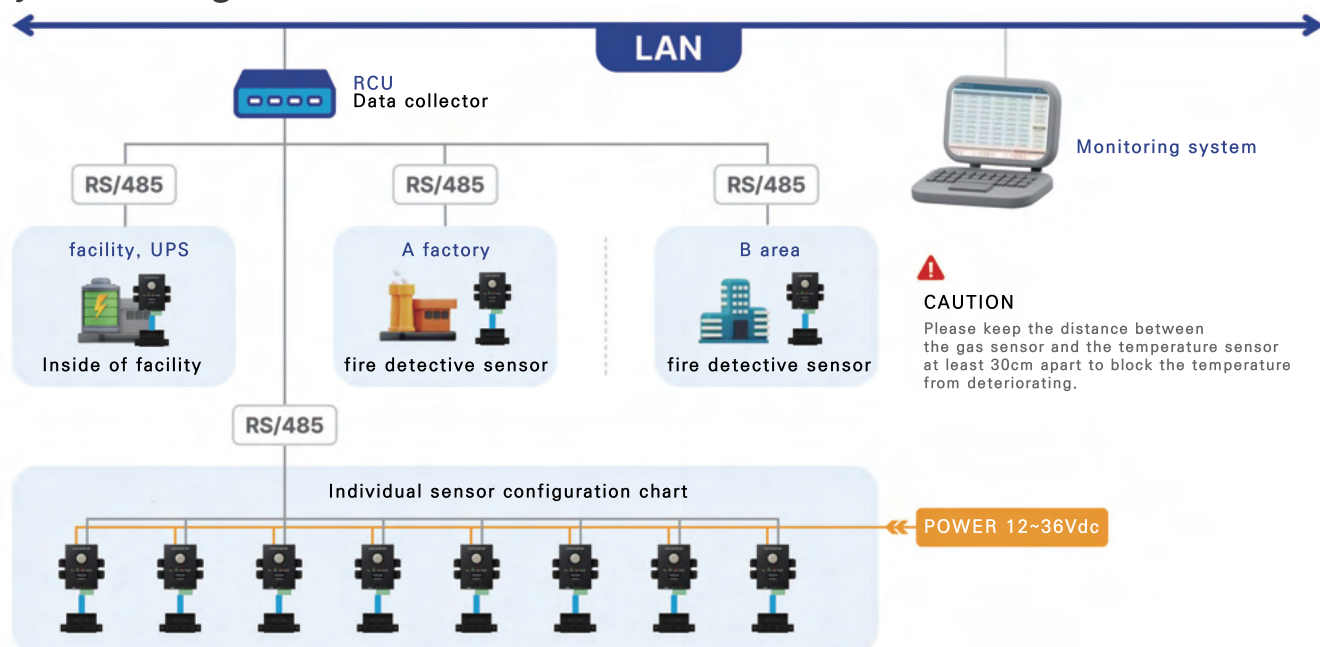
## Prediction

Pre-predict fire or danger in control monitoring with recognized content

## Alert

Immediately notify you perceptions and predictions.

## System configuraion chart



| ITEM                  | DESCRIPTION                                              |
|-----------------------|----------------------------------------------------------|
| Size                  | (W)47 x (H)68 x (D)24                                    |
| Weight                | 200g                                                     |
| Detection target      | LPG, propane, Co, CH4, alcohol, H2, smog, temp, humidity |
| Calibratio            | Variable resistance                                      |
| Response time         | Sensor self response within 1 second                     |
| Powe input            | DC 12~36V                                                |
| Current consumption   | 200mA(DC5V)~60mA(24V), 2W or less                        |
| Operating temperature | -10~70°C                                                 |
| External port         | RS-485 2P(D+,D+), pwr+2P, pwe-, temp sensor connector    |
| Comm. protocol        | Modbus-RTU                                               |
| Comm. outpu           | RS-485                                                   |
| Comm. baud rate       | 9600bps                                                  |
| 485Comm. ID setting   | 5BIT(DIP SW)                                             |
| DISPLAY               | LED X 2(status, comm.)                                   |

| ITEM                                              | Osemco & E-tech                                                                                                                                                      | B                                                                                                                                                                     | C                                                                                                                                                                     |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated specifications                              | 3.6kV, 7.2kV<br>3P 630~3150A                                                                                                                                         | 3.6kV, 7.2kV(22.9kV)<br>3P 630~3150A                                                                                                                                  | 2.4kV - 15kV<br>Standard, Bypass, and<br>Dual-Switch Configurations<br>3P 30~4000A                                                                                    |
| Rated short-circuit current(Icu) [kA]             | 25kA, 31.5kA, 40kA                                                                                                                                                   | 25kA, 31.5kA, 40kA                                                                                                                                                    | 10-100 kA                                                                                                                                                             |
| uninterruptible over lap transfer time [msec]     | Max. 100msec or less                                                                                                                                                 | Max. 100msec                                                                                                                                                          | Max. 100msec or less                                                                                                                                                  |
| Circuit breaker maker                             | Order specifications other than LS, Schneider, ABB                                                                                                                   | Order specifications other than LS, Schneider, ABB                                                                                                                    | Schneider                                                                                                                                                             |
| CTTS Control Module                               | CTTS-807                                                                                                                                                             | B사 300H                                                                                                                                                               | C사 Group 5                                                                                                                                                            |
| Display                                           | Touch screen LCD 5"<br>Metering, Setting,<br>History Menu (Auto/Manu),<br>Synchroscope                                                                               | LCD 8"<br>Metering, Setting,<br>History Menu (Auto/Manu),<br>Synchroscope                                                                                             | 4Line X 20Character<br>Metering, Setting,<br>History Menu (Auto/Manu),<br>Synchroscope                                                                                |
| Uninterruptible switching conditions (adjustable) | Within the phase angle $\pm 5^\circ$<br>Within the frequency $\pm 0.2$ Hz<br>Within $\pm 3\%$ voltage difference<br>(Embedded generator voltage / frequency control) | Within the phase angle $\pm 3^\circ$<br>Within the frequency $\pm 0.15$ Hz<br>Within $\pm 3\%$ voltage difference<br>(Embedded generator voltage / frequency control) | Within the phase angle $\pm 5^\circ$<br>Within the frequency $\pm 0.25$ Hz<br>Within $\pm 3\%$ voltage difference<br>(Embedded generator voltage / frequency control) |
| Measurement                                       | A-Poewr / B-Power<br>V, Hz<br>(A, PF, kW, Kvar with CT option)                                                                                                       | A-Poewr / B-Power<br>V, Hz<br>(A, PF, kW, Kvar with CT option)                                                                                                        | A-Poewr / B-Power<br>V, Hz<br>(A, PF, kW, Kvar with CT option)                                                                                                        |
| Power outage and recovery time setting            | In recovery<br>Minimum: Voltage (V) 75-98%<br>Frequency (Hz) 88-98%<br>Max: Voltage (V) 105-115%<br>Frequency (Hz) 103-105%                                          | In recovery<br>Minimum: Voltage (V) 75-98%<br>Frequency (Hz) 88-98%<br>Max: Voltage (V) 105-115%<br>Frequency (Hz) 103-105%                                           | In recovery<br>Minimum: Voltage (V) 70-98%<br>Frequency (Hz) 85-98%<br>Max: Voltage (V) 102-115%<br>Frequency (Hz) 103-105%                                           |
|                                                   | Engine start, input delay timer, engine timer built-in                                                                                                               | Engine start, input delay timer, engine timer built-in                                                                                                                | Engine start, input delay timer, engine timer built-in                                                                                                                |
| Power supply and demand management                | Peak Management (PEAK Control) System Linked Type                                                                                                                    | Peak Management (PEAK Control) System Linked Type                                                                                                                     | Peak Management (PEAK Control) System Linked Type                                                                                                                     |
| Emergency shut-off & safety                       | Double trip device (DTD)<br>Mechanical lock for manual input prevention                                                                                              | Generator trip device                                                                                                                                                 |                                                                                                                                                                       |
| Dimension [mm]                                    | 2350(H)x800(W)x2000(D)<br>(Customizable size for arrangement with SWGR, bus-duct)                                                                                    | 2350(H) x 900(W) x 2200(D)                                                                                                                                            | SECTION 1, 2<br>2336(H) x 1828(W) x 2331(D)                                                                                                                           |
| Color                                             | RAL7032, 5Y 7/1, 7.5BG<br>(Customizable)                                                                                                                             | RAL7032, 5Y 7/1, 7.5BG                                                                                                                                                | ANSI 61 GRAY                                                                                                                                                          |
| Key application site                              | IDC centers, banks, factories, broadcast stations, hospitals, UPS power equipment, etc.                                                                              |                                                                                                                                                                       |                                                                                                                                                                       |
| Protective relay                                  | Under Voltage(27) Over Voltage(59),<br>Over/Under Frequency(81) Vector shift(78), Reverse Power(32)                                                                  |                                                                                                                                                                       |                                                                                                                                                                       |





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**Catalog No. MVCTTS-2507**

※ The specifications of this product are subject to change without notice for quality improvement purposes.