

TSE

Heat Control System



IGEL Electrics' Thyristor based Power System (TSE) is a heavy-duty, fully digital power control unit designed for precise control of resistive and inductive loads in heating systems. It offers zero-crossing phase control or phase control-power functionality, making it suitable for a wide range of applications.

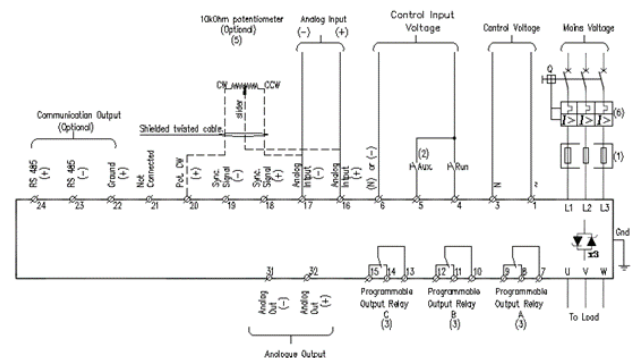
IGEL's Thyristor-based Power Heat Control Systems are versatile solutions suitable for a wide range of applications requiring accurate and reliable control over heating elements.

Their flexibility, efficiency, and precision make them indispensable in various industries and processes.

Specifications

- » Voltage Range: 230-1000V
- » Current Range: 8-1500A
- » Frequency: 50/60Hz
- » Control Input: 0-10VDC, 4-20mA, 0-20mA,
- » Load Synchronization: Special optional digital synchronization system for load sharing in multi-controller applications
- » Display: Two-line, 16 character LCD display for programming, actual values, statistical & maintenance data

Typical Control Scheme



*For illustration purposes only



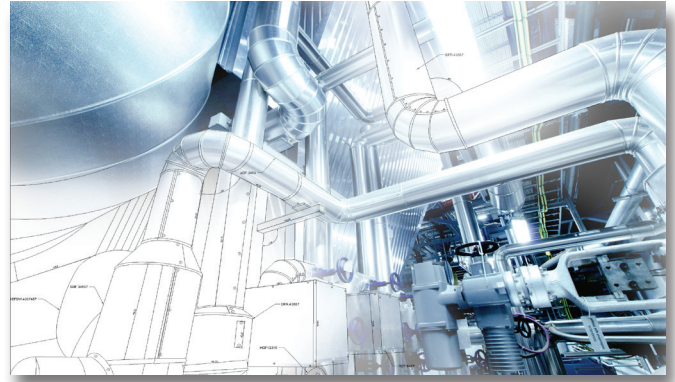
Applications

- » Industrial Heating Process
- » Temperature Control Systems
- » Plastic and Rubber Processing
- » Food Processing
- » HVAC Systems
- » Pipeline Heating

IGEL  **ELECTRIC**

Features

- » Wide range of voltage and current outputs for versatile applications.
- » Multiple control input options available for flexibility in operation.
- » Optional potentiometer input for control without the need for an external power supply.
- » Optional digital synchronization system for load sharing.
- » Fully programmable with 9 protection functions, including "Load Unbalance" alarm and "Under power level" alarm.
- » Two-line LCD display enabling easy programming and monitoring.
- » Optional RS-485 communication for programming, remote data readings, and controlling.
- » Optional analogue output PCB (4-20mA, 0-20mA, or 0-10V) - extra connectivity.



Options

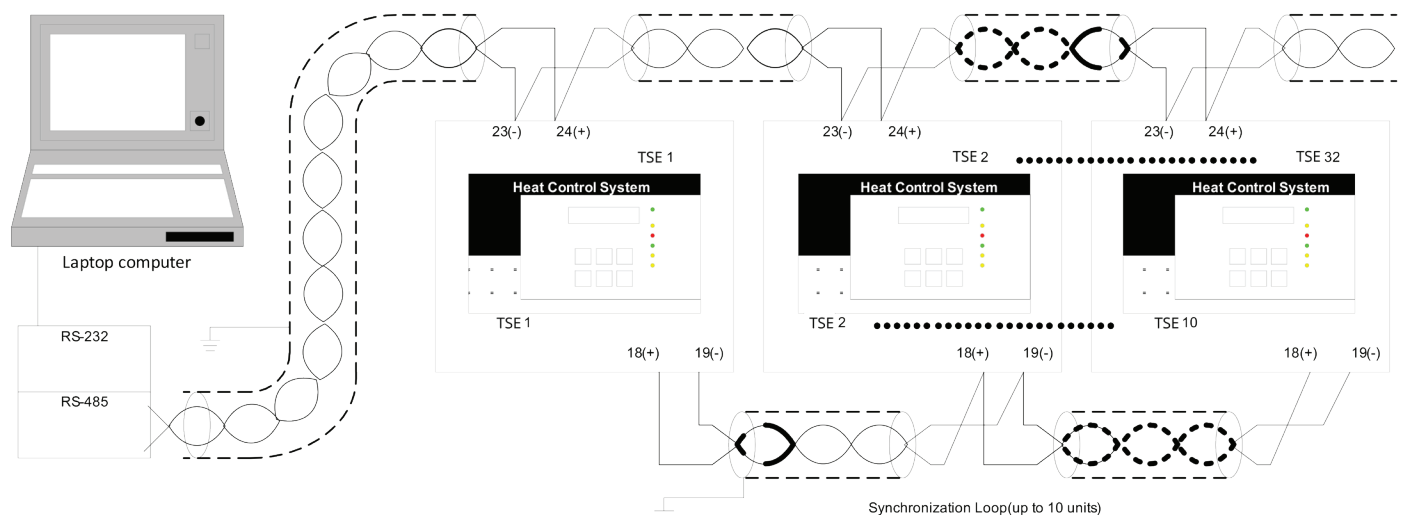
- » Modbus
- » Remote key pad
- » Analog output
- » Conformal coating
- » Remote Panel mounting
- » Synchronization mode
- » Potentiometer control

Communication and Synchronization

IGEL Electric allows for the synchronization of up to 10 heat control units (and looping up to 32 units for communication) offering a significant advantage in enhancing operational efficiency and reliability.

By ensuring that all units are precisely synchronized, the system can maintain consistent temperature control across multiple motors, optimizing performance and minimizing energy consumption. This synchronization also facilitates coordinated operation, reducing the risk of overheating or uneven heating, thereby extending the lifespan of the motors and decreasing the likelihood of unexpected downtime.

Communication Loop(up to 32 units)



*For illustration purposes only

Models | Up to 690VAC

| Model | Rated Current (A) | Load kW @400V | Unit Dimensions (mm) | | | Weight (Kg) |
|-------|-------------------|---------------|----------------------|------|-----|-------------|
| | | | H | W | D | |
| A | 8 | 6 | 291 | 172 | 185 | 6.3 |
| | 17 | 12 | | | | 6.3 |
| | 31 | 21 | | | | 6.4 |
| | 44 | 30 | | | | 6.5 |
| | 58 | 40 | | | | 6.5 |
| | 72 | 50 | | | | 6.5 |
| B | 85 | 59 | 390 | 172 | 195 | 8.5 |
| | 105 | 73 | | | | |
| C | 145 | 100 | 385 | 274 | 238 | 14.5 |
| | 170 | 118 | | | | |
| | 210 | 145 | | | | |
| D | 310 | 215 | 455 | 380 | 292 | 31 |
| | 390 | 270 | | | | |
| E | 460 | 318 | 555 | 380 | 292 | 51 |
| F | 580 | 401 | 640 | 470 | 302 | 53 |
| | 820 | 567 | 640 | 470 | 302 | 53 |
| G | 950 | 657 | Consult Factory | | | |
| | 1100 | 761 | | | | |
| | 1400 | 969 | | | | |
| | 1500 | 1038 | 1225 | 1050 | 471 | 172 |

Models | 1200VAC

| Rated Current (A) | Motor kW @1000V | Unit Dimensions (mm) | | | Weight (kg) |
|-------------------|-----------------|----------------------|-----|-----|-------------|
| | | H | W | D | |
| 55 | 95 | 550 | 280 | 346 | 33.5 |
| 105 | 182 | | | | |
| 160 | 277 | | | | |
| 200 | 346 | | | | |

Ordering Information

| TSE | 31 | 400 | 230 | 230 | 0 | S |
|--|--|---------------|-----------------|-----------------------|---------|-------------|
| | Full load Current | Mains Voltage | Control Voltage | Control Input Voltage | Options | Front Panel |
| | | | | | | |
| Full load Current | | | | | | |
| Specify | Description | | | | | |
| Rated Current [A] Models 400-690VAC | 8, 17, 31, 44, 58, 72, 105, 145, 170, 210, 310, 390, 460, 580, 850, 950, 110, 1500 | | | | | |
| Rated Current [A] Models 1000VAC | 55, 105, 160, 200 | | | | | |
| Mains Voltage | | | | | | |
| Specify | Description | | | | | |
| 400 | 230 – 400 VAC, 50/60Hz , +10% -15% | | | | | |
| 480 | 480 VAC, 50/60Hz , +10% -15% | | | | | |
| 600 | 600 VAC, 50/60Hz , +10% -15% | | | | | |
| 690 | 690 VAC, 50/60Hz , +10% -15% | | | | | |
| 1000 | 1000 VAC, 50/60Hz , +10% -15% | | | | | |
| Control Voltage (Terminal A1, A2) - <i>*Cannot be modified on site</i> | | | | | | |
| Specify | Description | | | | | |
| 115 | 115 VAC, 50/60Hz , +10% -15% | | | | | |
| 230 | 230 VAC, 50/60Hz , +10% -15% | | | | | |
| 110 VDC + 24 VDC | Consult Factory | | | | | |
| Control Input Voltage (Terminals 1-5) - <i>*Cannot be modified on site</i> | | | | | | |
| Specify | Description | | | | | |
| 115 / 230 | 90 - 230 VAC, 50/60Hz, For DC Consult Factory | | | | | |
| 24 | 24 VAC, 50/60Hz, For DC Consult Factory | | | | | |
| 48 | 48 VAC, 50/60Hz, For DC Consult Factory | | | | | |
| Options | | | | | | |
| Specify | Description | | | | | |
| 0 | No options | | | | | |
| 3M | Communication RS-485 Board (MODBUS) ⁽¹⁾ | | | | | |
| 5 | Analog card ⁽¹⁾ | | | | | |
| 8 | Harsh environment treatment ⁽¹⁾ | | | | | |
| D | Remote Keypad mounting replacing the original panel. (Supplied with 1.5 m cable). ^{(1), (2)} | | | | | |
| Sync. | Synchronization between up to 10 TSE units. ⁽¹⁾ | | | | | |
| P | Potentiometer control. (No need for external power source) ⁽¹⁾ | | | | | |
| Notes: | ⁽¹⁾ Must be ordered from factory - cannot be installed onsite ⁽²⁾ D option is available for SI-HCS 145A and up. | | | | | |
| Front Panel - Standard | | | | | | |



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