



## SHC2500 SUBSTATION HARDENED COMPUTER

### FEATURES

- Designed for harsh substation environments (IEC61850-3, IEEE1613)
- Industrial rated power supply with dual power supply option
- Wide operating temperature (- 40°C to +85°C), no fans
- Up to 32 RS232/RS422/RS485 ports
- Up to 32 Digital I/O

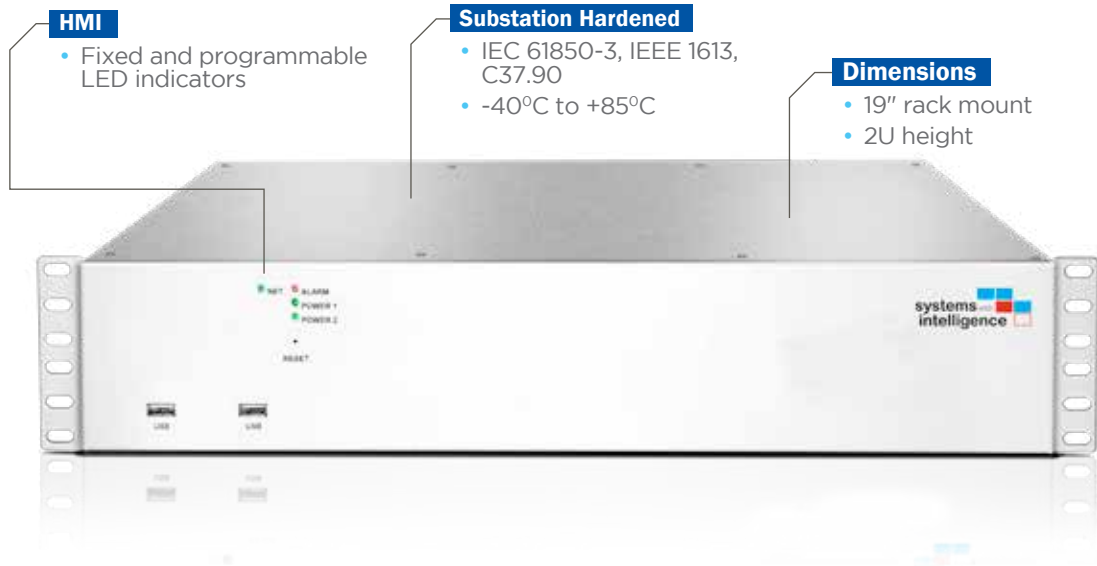
### KEY BENEFITS

- Versatile computing platform
- Highly reliable operation
- Powerful processor
- Multiple configurations

Systems With Intelligence SHC2500 is a powerful substation hardened computer that can run many application software programs used within a substation. The SHC2500 has been built from the ground up and is designed to withstand the harsh substation environment. Increased reliability is achieved with an industrially rated power supply with optional dual redundancy, and a fanless design. The SHC2500 meets or exceeds the IEEE 1613 and IEC 61850-3 substation specifications for vibration, electrostatic discharge, fast transient, radiated emissions, overcurrent, dielectric strength, and pulse magnetic fields disturbances. The SHC2500 provides highly reliable operation to ensure maximum up-time for the utility's mission critical applications.

The SHC2500 provides an ideal and powerful general computing platform for SCADA, human-machine interfaces (HMIs), remote-terminal units (RTUs), substation gateway, and other utility specific applications used within a substation environment.

# FRONT & REAR DIAGRAM



### HMI

- Fixed and programmable LED indicators

### Substation Hardened

- IEC 61850-3, IEEE 1613, C37.90
- -40°C to +85°C

### Dimensions

- 19" rack mount
- 2U height

### Expansion Ports

- Ethernet Ports
- Serial interfaces
- Digital I/O

### Dual Ethernet Ports

- Dual "switched" Ports available for redundant loops
- Multiple types of Interfaces & Connectors (Copper, Fiber)

### Standard Interfaces

- 10/100/1000 Base Tx Ethernet Port
- 4 USB Ports (2 front/2 back)
- VGA Interface
- 1 Audio Output



### Additional Features

- Fail Safe Relay
- HDMI port

### Power Supply

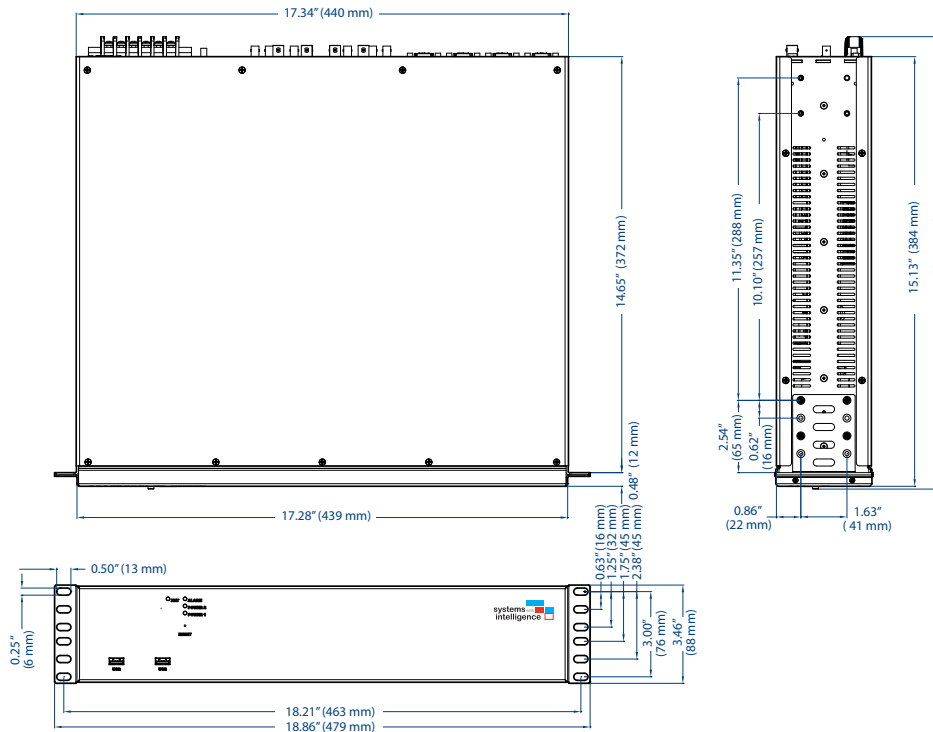
- Industrial rated for substations
- 24VDC, 48VDC, 105-300VDC or 85-250VAC
- Optional dual redundancy

# TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Processor	<ul style="list-style-type: none"> <li>Intel® Core™ i3-7100U, 2.4GHz</li> <li>Intel® Core™ i5-7300U, 2.6GHz<sup>1</sup></li> <li>Intel® Core™ i7-7600U, 2.8GHz<sup>1</sup></li> </ul>
Memory	<ul style="list-style-type: none"> <li>Up to 32GB</li> </ul>
Operating System	<ul style="list-style-type: none"> <li>Windows 10 Enterprise LTSC</li> </ul>
Time Synchronization	<ul style="list-style-type: none"> <li>NTP</li> </ul>
Video Output	<ul style="list-style-type: none"> <li>1 VGA and 1 HDMI interface for computer monitor</li> </ul>
USB	<ul style="list-style-type: none"> <li>4 USB Ports</li> </ul>
Storage	<ul style="list-style-type: none"> <li>Up to 2TB using solid state drives</li> </ul>
LAN Interface	Included: 1-port 10/100/1000TX RJ45 Interface Optional modules: <ul style="list-style-type: none"> <li>2-ports 10/100/1000TX RJ45 or 100FX Fiber Interface (ST or SC)</li> <li>8-ports 10/100TX</li> <li>8-ports 100FX LC Fiber Interface</li> </ul>
Serial Modules	<ul style="list-style-type: none"> <li>4 x RS232/RS422/RS485 DB9</li> <li>8 x RS232/RS422/RS485 RJ45</li> </ul>
Digital IO Modules	<ul style="list-style-type: none"> <li>8x transient/surge protected two-state, dry contact, current loop inputs</li> <li>8x relay switch outputs (30VDC, 1 Amp / 50VAC, 5 Amp)</li> <li>4x dry contact, current loop inputs + 4x relay switch</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>24VDC, 48VDC, 105 -300VDC or 85-250VAC; Optional dual redundant power supplies</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>-40 ° C to +85 ° C<sup>2</sup>; no cooling fans</li> </ul>
EMC/EMI	<ul style="list-style-type: none"> <li>IEC 61850-3; IEEE 1613; IEC 61000-6-2; IEC 61800-3</li> </ul>
Mounting/Dimensions	<ul style="list-style-type: none"> <li>19" Rack Mount; 2U height</li> </ul>
Warranty	<ul style="list-style-type: none"> <li>2 Years</li> </ul>

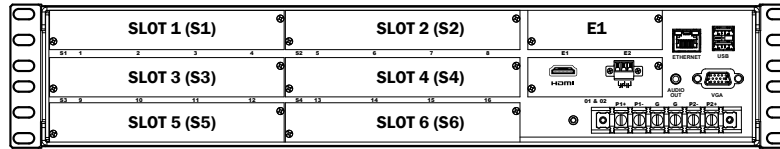
Notes: <sup>1</sup> No turbo enabled in BIOS  
<sup>2</sup> Thermal Performance of SHC2500 may vary based on configuration and CPU load.

## DIMENSIONS Unit: inches (mm)



# CONFIGURATION

## SHC2500 SUBSTATION HARDENED COMPUTER



### BASE UNIT

SHC2500 Base Unit and all standard items (not listed in the options):

- 1 VGA and 1 HDMI interface for computer monitor
- 4 USB ports (2 front/2 back)
- 1 x 10/100/1000 BaseTx Ethernet Port
- Fail Safe Relay
- 1 Audio Output

### Processor

- |    |                                 |
|----|---------------------------------|
| i3 | • Intel® Core™ i3-7100U, 2.4GHz |
| i5 | • Intel® Core™ i5-7300U, 2.6GHz |
| i7 | • Intel® Core™ i7-7600U, 2.8GHz |

### Memory

- |    |                   |
|----|-------------------|
| 08 | • 8GB RAM Memory  |
| 16 | • 16GB RAM Memory |
| 32 | • 32GB RAM Memory |

### PS1, PS2 - Power Supply

- |      |   |
|------|---|
| HIS  | 105-300VDC or 85-250VAC, screw terminal block |
| 24S  | 24VDC (18-36VDC), screw terminal block        |
| 48S  | 48VDC (36-60VDC), screw terminal block        |
| PXXX | None (PS2 only)                               |

### E1 - Switched Ethernet Port

- |      |                                   |
|------|-----------------------------------|
| EXXX | None                              |
| 2F01 | 2 x 100FX - Multimode, 1310nm, ST |
| 2F02 | 2 x 100FX - Multimode, 1310nm, SC |
| 2C10 | 2x 10/100/1000TX RJ45             |

### HD - Flash Drive for Storage

- |        |                          |
|--------|--------------------------|
| HDXXX  | None                     |
| HD001* | 500GB SSD Flash Drive    |
| HD002* | 1TB SSD Flash Drive      |
| HD003* | 2 x 1TB SSD Flash Drives |

\* SSD Flash Drive sizes are approximate and subject to change without notice. Contact factory for exact size.

### S1, S2 - Camera Input Module

- |      |   |
|------|---|
| SXXX | None  |
| 8C01 | 8x 10/100TX Port Ethernet Card (RJ45)                       |
| 8F00 | 8x 100FX Port Ethernet Card (Blank SFP Slots)               |
| 8F01 | 8x 100FX Port Ethernet Card (LC, Multimode, 850nm)          |
| 8F02 | 8x 100FX Port IP Camera Input Card (LC, Singlemode, 1300nm) |

### S3, S4, S5, S6 - Expansion Slot

- |      |  |
|------|--|
| SXXX | None   |
| 4S01 | 4 x RS232/RS422/RS485 via DB9 module   |
| 8S02 | 8 x RS232/RS422/RS485 via RJ45 module  |
| 8D01 | 8 transient/surge protected two-state, dry contact, current loop inputs                  |
| 8D02 | 8 relay switch outputs (30VDC, 1 Amp / 50VAC, 5 Amp)                                     |
| 4D01 | 4 dry contact, current loop inputs + 4 relay switch output (30VDC, 1 Amp / 50VAC, 5 Amp) |



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