Improve Reliability, Availability, and Serviceability With a Rugged Computer

The SEL-3355 Computer uses a high-performance x86-64 architecture processor to support modern operating systems like Microsoft Windows and Linux. The extremely rugged SEL hardware of the SEL-3355 enables you to use your choice of computer operating system and software in very harsh environments not suitable for general purpose computers.

Integrate the SEL-3355 in computing applications that demand high performance, reliability, and low maintenance in extreme, harsh environments. The SEL-3355 offers a mean time between failure (MTBF) of at least ten times that of typical industrial computers by: eliminating all moving parts, including rotating hard drives and fans; using high-quality solid-state drives; and using error-correcting memory technology. By eliminating vent holes, the SEL-3355 significantly reduces dust buildup and foreign contaminants. Dual modular, hot-swappable, ac/dc power supplies eliminate the need for external inverters and enhance system reliability, availability, and serviceability. You can install software from SEL and third-party software vendors to customize the SEL-3355 for your specific applications. Every SEL-3355 comes with the unprecedented ten-year, worldwide SEL warranty.

Key Features and Benefits

The SEL-3355 provides a rugged, easy-to-use computing platform for substation, industrial, or other harsh environments.

➤ **x86-64 Architecture With Intel Core i7 Performance.** The SEL-3355 uses the Intel Core i7 microprocessor architecture to deliver very high performance and broad operating system and software compatibility. Multiple processor cores and Intel Hyper-Threading Technology enable you to run multiple time-critical applications simultaneously. Choose between 2.5 GHz dual-core and 2.1 GHz quad-core CPU options.

➤ **Wide Power Supply Range.** The SEL-3355 supports two load-sharing, hot-swappable power supply modules, enabling you to power the SEL-3355 from two independent power sources for maximum availability and without inverters.
More and Faster Mass Storage. The SEL-3355 supports four, hot-swappable, 2.5” solid-state Serial Advanced Technology Attachment (SATA) drives easily accessible from the front panel. The integrated SATA controller has support for Redundant Arrays of Independent Disks (RAID) to maximize data availability and improve storage performance. High-performance, industrial-rated solid-state drives (SSD) are available as ordering options.

Versatile Display Interfaces. One or two simultaneous independent high-definition display interfaces can be used to connect Digital Visual Interface (DVI) or DisplayPort monitors. Other video connections, such as High-Definition Multimedia Interface (HDMI), are available when using interface adapters.

Flexible System Interconnection. A choice of 6 USB ports and as many as 26 serial ports (with SEL-3390S8 serial expansion card) support optimized I/O connections to various peripherals.

PCle Expandability. The SEL-3355 supports as many as five standard PCI/PCle form factor expansion cards, enabling you to customize the system I/O to meet your application needs. Choose from a selection of SEL expansion cards, or install your own custom third-party expansion card enabling new or legacy applications.

High-Speed Network Access. Two 10/100/1000 Mbps Ethernet connections on the rear-panel support high-speed network connectivity and enable connections to independent networks, or redundant paired network connections. Optional network interface cards, such as the SEL-3390E4 quad-gigabit Ethernet card, may be added to the SEL-3355 for additional network connectivity.

Remote Management. Remote access over Ethernet using Windows Remote Desktop or Intel vPro Active Management Technology enables full access to the system video, keyboard, mouse, and storage.

Increased Reliability. The SEL-3355 is designed and built to operate reliably in harsh environments, conforming to IEEE C37.90 and IEC 60255 Protective Relay Standards and IEEE 1613 Standard Environmental and Testing Requirements for Communication Networking Devices in Electric Power Substations. The computing platform meets or exceeds specifications for vibration, electrostatic discharge, fast transient, radiated emissions, dielectric strength, and pulse magnetic field disturbances.

Increased Availability. RAID capabilities, teamed network interfaces, and redundant power supplies provide even higher data availability and maximize system uptime.

Increased Serviceability. Error-correcting code (ECC) system memory can be field upgraded to 16 GB. An easily accessible front-panel drive bay enables field upgrade or replacement of SATA drives. RAID technology and hot-swappable drives allow for replacement or adding storage capacity without taking the computing system out of service. Add capabilities with field-serviceable PCle expansion cards. Achieve a new level of remediation and repair capabilities with Intel vPro technology for local and remote monitoring and repair.
Functional Overview

Watchdog Functionality
An embedded controller provides an extra level of computer system reliability. One function of the embedded controller is to restart the computer if there is an operating system problem or a problem with specific software services running on the operating system.

SEL System Monitor
SEL System Monitor software monitors system performance and component health. Alerts for alarm conditions are issued on configurable thresholds. Example thresholds include CPU usage, free disk space, and available system memory.

Ethernet
Ethernet connections allow the SEL-3355 to connect to as many as ten separate, high-speed Ethernet networks via two built-in gigabit Ethernet ports, plus eight additional ports by using two SEL-3390E4 PCIe network interface cards. Aggregate several ports for increased performance or redundancy or separate local area networks (LANs) for control, data, or engineering access.

Time
The SEL-3390S8 serial expansion card accepts IRIG-B time-code input for precise time input and distribution to connected devices.

EIA-232/EIA-485/EIA-422 Ports
The SEL-3355 computing platform comes standard with two built-in EIA-232 DB-9 ports and, optionally, as many as 24 rear-panel EIA-232/422/485 ports with RJ45 format connectors by using the SEL-3390S8 PCIe serial expansion card. Serial expansion communications ports are software selectable to function as standard EIA-232/422/485 ports with +5 V power.

Alarm Output
An alarm contact output on the rear panel can be used to signal internal errors and operating system malfunctions.

Programmable LEDs
Program three front-panel bicolor LEDs for use with your custom applications.

Out-of-Band Management
Intel vPro Active Management Technology (AMT) provides out-of-band management for security, configuration, and monitoring.
Application Examples

Virtualization for HMI and Other Applications

Create your own virtualization appliance by leveraging Intel Virtualization Technology (VT-x) to allow one hardware platform to function as multiple “virtual” platforms. Isolate your computing activity onto separate virtual machines to maintain productivity and realize improved manageability and reduced downtime. For example, run a virtualized OS specifically for your HMI or other essential but noncritical applications. Should your HMI require that the system be restarted, simply restart the virtual machine and avoid an outage for your other critical processes. Similarly, multiple SEL-3355 computing platforms may be virtualized and entire operating systems transparently migrated from one physical SEL-3355 to another for hardware upgrades, security or software updates, or testing purposes.

Control System Applications

Use the SEL-3355 for process control applications, including as a human-machine interface (HMI) or for protocol conversion and high-speed control when working with other SEL products and solutions.

Security Applications

Improve security with a single sign on (SSO), enabled through using the SEL-3355 as a local Lightweight Directory Access Protocol (LDAP) server. Centrally manage user accounts and group memberships with Microsoft Active Directory or with your choice of back-end database support.

Disturbance Recording System for PRC-002-2

Event Collection Applications

Event Collection Applications
Diagrams and Dimensions

Figure 7 SEL-3355 Front Panel Diagram

1. **LAMP TEST** Button. Press and hold to test front-panel LEDs. Can be programmed to be an on/off or reset button.
2. **ENABLED** and **ALARM** LEDs provide operational status. A green ENABLED LED indicates normal operation. The ALARM LED illuminates red when a nonoptimal system condition exists.
3. **ETHERNET** Status Indicators. Link (LNK) indicates that the port is connected, and activity (ACT) indicates when data are being transmitted and received.
4. **SERIAL** Status indicators. Transmit (TX) and receive (RX) LEDs indicate activity on serial ports.
5. **PINHOLE** Button. Provide reset and power functions, and requires a push-pin to prevent accidental use.
6. **HDD** Activity Indicator. Illuminates when SATA drives are accessed.
7. **AUXILIARY** Status Indicators. Three programmable, bicolor LEDs for your custom application.
8. **USB** Ports. Two easily accessible ports to connect USB 2.0 peripherals.
9. **SATA** Drive Bay. Removable cover plate enables easy access to SATA drives from the front panel.
10. **DVI-D**. Connect digital monitors by using native DVI or an HDMI adapter.
11. **DVI-I**. Connect either digital or analog monitors by using native DVI, an HDMI adapter, or a VGA adapter.
12. **ETH1** and **ETH2**. Onboard independent Gigabit Ethernet interfaces.
13. **USB** Ports. Connect as many as four USB 2.0 peripherals at the rear panel.
14. **AUDIO** Ports. Line Input (blue), Line Output (green), and Microphone Input (pink).
15. **COM1** and **COM2**. Standard EIA-232 serial ports with configurable +5 Vdc power on Pin 1.
16. **DISPLAYPORT**. Connect new digital monitors supporting the DisplayPort interface.
17. **ALARM**. The Form C alarm contact output can be wired either normally closed or normally open.
18. **PCI Expansion Slots**. Install SEL or third-party PCI or PCI Express expansion cards for additional network, serial, or other application-specific I/O.
19. **Earth Ground** Terminal Screw. The earth ground connection for the SEL-3355.
20. **POWER** supply modules. The rated input voltage is clearly marked on the chassis near the terminals.

Figure 8 SEL-3355 Rear Panel Diagram
Figure 9  SEL-3355 Dimensions for Rack- and Panel-Mount Models
Specifications

Compliance

Designed and manufactured under an ISO 9001 certified quality management system

47 CFR 15B, Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

UL Recognized to U.S. and Canadian safety standards (File E220228, NRAQ2, NRAQ8)

CE Mark

General

Supported Operating Systems

Microsoft Windows 7
Microsoft Windows 8/8.1
Microsoft Windows 10*
Microsoft Windows Server 2008 R2
Microsoft Windows Server 2012 R2*
Microsoft Windows Server 2016*
CentOS Linux 6
CentOS Linux 7
Red Hat Enterprise Linux 6
Red Hat Enterprise Linux 7
VMware ESXi 5.x

* Orderable as a factory-installed option.

CPU

Intel Core i7-3555LE Dual-Core
Speed: 2.5 GHz base, 3.2 GHz turbo
Cache: 2 x 256 KB L2, 4 MB L3

Intel Core i7-3612QE Quad-Core
Speed: 2.1 GHz base, 3.1 GHz turbo
Cache: 4 x 256 KB L2, 6 MB L3

RAM

4–16 GB DDR3 ECC PC3-10600 (1333 MHz)

Chipset

Intel QM77 Express Chipset

Mass Storage

Internal Drive Bay:
- Supports 2.5 inch SATA drives
- four industrial-grade drives
- two consumer-grade drives
- SATA II 3.0 Gb/s
- RAID level 0, 1, 5, 10
- Hot-Swap Support

Optional SATA Drives:
- Industrial-Grade SLC SSD 30–250 GB
- 10-year warranty
- Industrial-Grade iMLC SSD 120–480 GB
- 5-year warranty
- Consumer-Grade MLC SSD 240–1920 GB
- 3-year warranty

Video

Intel HD Graphics 4000 Controller
Dual Independent Displays
From 2 of the 3 Outputs:
- DVI-I (digital + VGA) maximum resolution 1920 x 1200 @ 32 bpp
- DVI-D (digital only) maximum resolution 1920 x 1200 @ 32 bpp
- DisplayPort 1.1 maximum resolution 1920 x 1200 @ 32 bpp
- Cable length <10 m

Audio

TSI (IDT) 92HD91 HD Audio Codec
- 3 Analog 3.5 mm TRS Jacks:
  - Line input
  - Line/headphone output
  - Microphone input
- Cable length <2 m

Intel Display Audio
- Digital Audio Outputs: DVI-I, DVI-D, DisplayPort

USB

4 Rear-Panel ports, 2 Front-Panel Ports
USB 2.0 Compliant
800 mA Current Limit Each
Cable length <10 m

Expansion Cards

5 Half-Length, Full-Height
PCI Expansion Card Slots:
- 2 PCIe x4 (Revision 2.0)
- 2 PCIe x1 (Revision 2.0)
- 1 32-bit 5 V PCI

Ethernet

2 Rear-Panel 1 Gb Copper RJ45 Ports
ETH1: Intel 82579LM, 10/100/1000 Mbps RJ45 copper
ETH2: Intel 82574L, 10/100/1000 Mbps RJ45 copper
Optional SEL-3390E4 PCIe x4 Expansion Cards:
- As many as 8 additional 10/100/1000 Mbps ports, copper or LC fiber SFP

Serial Ports

Standard Ports: 2 EIA-232 ports, DB-9 connectors 300 to 115200 bps
Optional SEL-3390S8 PCIe x1 Expansion Cards:
- As many as 24 additional EIA-232/422/485 ports, RJ45 connectors 300 to 921600 bps

(Meets EIA/TIA-562 Specifications)

Time-Code Input/Output

Main Board (Input Only)
- Connector: COM1 DB-9 serial port
- Time-Code: Demodulated IRIG-B TTL compatible

SEL-3390S8 Expansion Card (Input/Output)
- Connector: RJ45 serial port
- Time-Code: Demodulated IRIG-B TTL compatible

Note: Output generated from either IRIG-B input or SEL-3355 clock.

Real-Time Clock/Calendar

Battery Type: IEC No. BR2335 Lithium
Battery Life: 10 years with power
2 years without power
BIOS
Phoenix SecureCore Tiano UEFI

Trusted Platform Module
Integrated TPM 1.2

Intel Active Management Technology
Intel AMT v8.1, accessible through ETH1

Power Supply
See Table 1 for additional burden information.

SEL-9331 160 W LV Power Supply
Voltage Rating: 48 Vdc
Voltage Range: 38–58 Vdc
Maximum Constant Burden: 149 W
Maximum Peak Burden: 225 W
DC Ripple: <15% rated voltage
Peak Inrush: 20 A
Insulation: 3600 Vdc
Isolated From Chassis Ground: Yes

SEL-9331 160 W HV Power Supply
Voltage Ratings: 125/250 Vdc or 120/220/240 Vac; 50/60 Hz
DC Range: 100–300 Vdc
Maximum DC Dropout: 88 Vdc
AC Range: 85–264 Vac
Frequency Range: 45–65 Hz
Maximum Constant Burden: 155 W, 160 VA
Maximum Peak Burden: 240 W, 248 VA
DC Ripple: <15% Rated Voltage
Peak Inrush: 20 A
Insulation: 3600 Vdc
Power Factor: >0.9 (at full load)
Isolated From Chassis Ground: Yes

Recommended External Overcurrent Protection
Breaker Type: Standard
Breaker Rating: 20 A at 250 Vdc
Current Breaking Capacity: 10 kA
Grounded Neutral Systems: Device in series with the HOT or energized conductor
DC and Isolated Systems: Device in series with both conductors

Fuse Ratings
LV Power Supply Fuse:
Rating: 15 A
Maximum Rated Voltage: 500 Vdc, 500 Vac
Breaking Capacity: 20 kA at 500 Vdc
Type: Time-lag T

HV Power Supply Fuse:
Rating: 5 A
Maximum Rated Voltage: 250 Vdc, 277 Vac
Breaking Capacity: 1500 A at 277 Vac
Type: Time-lag T
Heater Fuses F2, F3: 5 A, 125 V slow blow
125 Vdc/50 A break rating
Fuses are not serviceable.

Alarm Output Contact
Per IEC 255-0-20:1974, using the simplified method of assessment
Output Type: Relay, Form C, break-before-make
Power Supply Burden: <1 W maximum
Mechanical Life: 200000 operations
Operational Voltage: 250 Vac/Vdc
Make: 30 A at 250 Vdc
Carry: 6 A continuous at 70°C
1 s Rating: 50 A
MOV Protection: 270 Vac/360 Vdc, 75 J
Insulation Voltage: 300 Vac/Vdc
Pickup Time: <8 ms
Dropout Time: <8 ms
Breaking Capacity (10000 operations):
24 V 0.75 A L/R = 40 ms
48 V 0.50 A L/R = 40 ms
125 V 0.30 A L/R = 40 ms
250 V 0.20 A L/R = 40 ms
Cyclic Capacity (2.5 cycles/second):
24 V 0.75 A L/R = 40 ms
48 V 0.50 A L/R = 40 ms
125 V 0.30 A L/R = 40 ms
250 V 0.20 A L/R = 40 ms

Terminal Connections
Compression Screw Terminal
Power Wiring
Insulation: 300 V min.
Size: 12–18 AWG
Alarm Wiring
Insulation: 300 V min.
Size: 12–18 AWG
Tightening Torque
Minimum: 0.6 Nm (5 in-lb)
Maximum: 0.8 Nm (7 in-lb)
Crimp Ferrule Recommended
Mounting Ear Tightening Torque
Minimum: 0.18 Nm (1.6 in-lb)
Maximum: 0.25 Nm (2.2 in-lb)
Grounding Screw
Ground Wiring
Insulation: 300 V min.
Size: 12 AWG, length <3 m
Tightening Torque
Minimum: 0.9 Nm (8 in-lb)
Maximum: 1.4 Nm (12 in-lb)

Ring Terminal Recommended

Serial Port
Tightening Torque
Minimum: 0.6 Nm (5 in-lb)
Maximum: 0.8 Nm (7 in-lb)

Temperature Range
Operating
With i7-3555LE CPU: –40° to +75°C (–40° to +167°F)
With i7-3612QE CPU: –40° to +60°C (–40° to +140°F)

Note: UL ambient 40°C. See Safety Information in the SEL-3355 Instruction Manual for additional restrictions.

Storage
–40° to +85°C (–40° to +185°F)

Relative Humidity
5% to 95% noncondensing

Maximum Altitude
5000 m

Atmospheric Pressure
80–110 kPa

Overvoltage Category
Category II

Insulation Class
1

Pollution Degree
2

RoHS Compliance
Compliant with the European Union’s RoHS directive

Weight
9.072 kg (20 lb) maximum

Product Standards

Industrial Environment: IEC 61000-6-2:2005, IEC 61000-6-4:2006


Type Tests
Note: To ensure good EMI and EMC performance, type tests were performed using shielded Ethernet and serial cables with the shell grounded at both ends of the cable, and the USB, video, and audio cables with ferrite chokes. Double-shielded cables are recommended for best EMI and EMC performance.

Electromagnetic Compatibility Emissions
Conducted and Radiated Emissions:
CISPR 11:2009+A1:2010
CISPR 22:2008
CISPR 32:2015
IEC 61000-6-4:2006
IEEE C37.90.3-2001
FCC 15.107:2014
Severity Level: Class A

Harmonic Current: IEC 61000-3-2:2014
Severity Level: Class A

Voltage Flicker: IEC 61000-3-3:2013

Electromagnetic Compatibility Immunity
Conducted RF: IEC 61000-4-6:2013
Severity Level: 10 Vrms

Electrostatic Discharge: IEC 61000-4-2:2008
IEEE C37.90.3-2001
Severity Level: 2, 4, 6, 8 kV contact discharge; 2, 4, 8, 15 kV air discharge

Fast Transient/Burst: IEC 61000-4-4:2012
Severity Level: Class A
4 kV, 5 kHz on power supply and outputs;
2 kV, 5 kHz on communications lines

Magnetic Field: IEC 61000-4-8:2009
Severity Level: 1000 A/m for 3 s
100 A/m for 1 m

Power Supply: IEC 61000-4-11:2004
IEC 61000-4-29:2000

Radiated Radio Frequency: IEC 61000-4-3:2013
IEEE C37.90.2-2004
Severity Level: 20 V/m

Surge Withstand Capability:
IEC 61000-4-18:2006+A1:2010
Severity Level: Power supply and outputs
2.5 kV peak common mode
2.5 kV peak differential mode
2.5 kV communications ports
1.0 kV peak common mode
1.0 kV peak differential mode
IEEE C37.90.1-2012
Severity Level: 2.5 kV oscillatory
4 kV fast transient

Surge Immunity: IEC 61000-4-5:2005
0.5, 1 kV line-to-line
0.5, 1, 2 kV line-to-earth
0.5, 1, 2 kV communications ports

Environmental
Change of Temperature:
IEC 60068-2-14:2012
Severity Level: 5 cycles, 1°C per minute ramp
–40°C to +60°C (i7-3612QE CPU)
–40°C to +75°C (i7-3555LE CPU)
IEEE C37.90.1-2012
0.5, 1, 2 kV line-to-line
0.5, 1, 2 kV line-to-earth
0.5, 1, 2 kV communications ports

Cold, Operational:
IEC 60068-2-1:2007
Severity Level: 16 hours at –40°C
Cold, Storage: IEC 60068-2-1:2007
Severity Level: 16 hours at –40°C
IEC 60255-1:2009
IEC 61850-3:2013

Damp Heat, Cyclic: IEC 60068-2-30:2005
Severity Level:
12 + 12-hour cycle
25° to 55°C, 6 cycles, >93% r.h.

Severity Level:
40°C, 240 hours, >93% r.h.
IEC 61850-3:2013

Severity Level:
16 hours at 60°C (i7-3612QE CPU)
16 hours at 75°C (i7-3555LE CPU)
IEC 60255-1:2009
IEC 61850-3:2013

Severity Level: 16 hours at 85°C
IEC 60255-1:2009
IEC 61850-3:2013

Free Fall: IEEE 1613-2009
Severity Level: 100 mm

Vibration: IEC 60255-21-1:1988
Severity Level:
Endurance Class 2
Response Class 2
IEC 60255-21-2:1988
Severity Level:
Shock Withstand, Bump Class 1
Shock Response Class 2
IEC 60255-21-3:1993
Severity Level:
Quake Response Class 2

Safety

Severity Level: IP30

Dielectric Strength: IEC 60255-27:2013
IEEE C37.90-2005
Severity Level:
3600 Vdc on power supply
2500 Vac on contact output
1500 Vac Ethernet ports
Type tested for one minute

Impulse: IEC 60255-27:2013
IEEE C37.90-2005
Severity Level:
5 kV common mode, power supply, contact outputs
1.5 kV Ethernet ports
Table 1  System Power Consumption

<table>
<thead>
<tr>
<th>Component</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base System (Dual-Core CPU, 1 PSU, 4 GB RAM, 1 SATA Drive):</td>
<td>25 W</td>
<td>35 W</td>
<td>50 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Consumption From Optional Components</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quad-Core CPU:</td>
<td>+2 W</td>
<td>+5 W</td>
<td>+13 W</td>
</tr>
<tr>
<td>2nd Power Supply:</td>
<td>+10 W</td>
<td>+10 W</td>
<td>+13 W</td>
</tr>
<tr>
<td>2nd RAM Module (4–8 GB):</td>
<td>+2 W</td>
<td>+2 W</td>
<td>+3 W</td>
</tr>
<tr>
<td>Additional SATA Drives, each:</td>
<td>+1 W</td>
<td>+2 W</td>
<td>+3 W</td>
</tr>
<tr>
<td>SEL-3390E4 Ethernet Card</td>
<td>+6 W</td>
<td>+8 W</td>
<td>+10 W</td>
</tr>
<tr>
<td>SEL-3390S8 Serial Card</td>
<td>+4 W</td>
<td>+5 W</td>
<td>+7 W</td>
</tr>
<tr>
<td>Chipset Heater&lt;sup&gt;b&lt;/sup&gt;</td>
<td>N/A</td>
<td>N/A</td>
<td>+90 W</td>
</tr>
<tr>
<td>cold startup (&lt;5°C [41°F]);</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>continuous operation (0°C [32°F]):</td>
<td>0 W</td>
<td>+5 W</td>
<td>+10 W</td>
</tr>
<tr>
<td>continuous operation (–40°C [–40°F]):</td>
<td>0 W</td>
<td>+20 W</td>
<td>+40 W</td>
</tr>
</tbody>
</table>

<sup>a</sup> Minimum: 0% load on all components; minimum power consumption started and idle.
Typical: 25–50% load on all components; good indication of most application loads.
Maximum: 100% load on all components; generally cannot be reached in normal applications.
<sup>b</sup> Chipset heaters operate at low temperatures to keep the CPU and PCH within specified operating limits.

Table 2  Peripheral Connection Current Limits

<table>
<thead>
<tr>
<th>Connection</th>
<th>Current Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVI-I and DVI-D</td>
<td>0.2 A, +5 Vdc, 1 W total for both</td>
</tr>
<tr>
<td>DisplayPort</td>
<td>0.6 A, +3.3 Vdc, 2 W</td>
</tr>
<tr>
<td>COM 1 and COM 2</td>
<td>0.5 A, +5 Vdc, 2.5 W each</td>
</tr>
<tr>
<td>USB Ports</td>
<td>0.8 A, +5 Vdc, 4 W each</td>
</tr>
</tbody>
</table>

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:
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