

# PACSystems™ Industrial Ethernet Switches

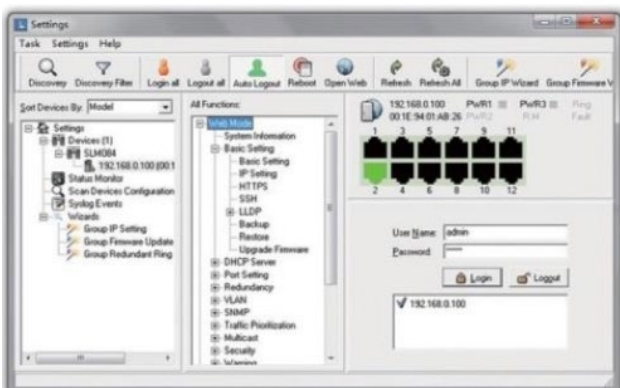
## Provide fast, seamless, and resilient connectivity

At Emerson, we've thought differently about what you need at the point of control and have engineered powerful, rugged, and compact industrial Ethernet switches to provide critical machine-to-machine information:

- Standalone and connected devices to support unmanaged, fully managed, rack mounted, and PROFINET applications
- Designed for plant process areas to work in harsh environments subject to extreme, temperatures, humidity, and vibration
- Work with an Ethernet LAN to replace proprietary networks, improve network reliability, and simplify deployment

### High performance & Connectivity

Our industrial-grade managed Ethernet switches, with redundant ring technology, reliably support the largest amounts of real-time data in the market. Managed switches protect your mission-critical applications from network interruptions or temporary malfunctions with Fast Network Recovery technology. PACSystems industrial Ethernet switches offer one of the fastest recovery times in the industry.



### Rugged & Reliable

PACSystems industrial Ethernet switches are uniquely designed with redundant power inputs, the broadest operating temperature range available, and Fast Network Recovery technology to enable outstanding reliability and stability in harsh environments.

This superior, rugged design makes the PACSystems industrial Ethernet Switch ideal for Pipeline, Transportation, Well2Tank, Water/ Waste Water, and other demanding applications.

### Easy to Troubleshoot

Available PROFINET Managed switches make it easier for OT Operators to troubleshoot since they can view the switches as part of their control system. With the network management software, the network administrator can manage centralized configuration, visualize management, and complete network monitoring with an early warning system. These features work together to maintain a stable and reliable industrial network.

Unmanaged & Lite Managed Switch Specification

| Part Number                  | IC086SLN050  | IC086SLN080              | IC086SLN040  | IC086SLM042MM<br>IC086SLN042SS   | IC086SLM042MM<br>IC086SLM042SS     |
|------------------------------|--|--------------------------|--|--|------------------------------------|
| Managed                      | No   | No                       | No   | Yes  | Yes                                |
| 10/100BaseT(X) Ports         | 5  | 8                        | 24   | 4  | 4                                  |
| 100Base-FX Ports             | -  | -                        | -  | 2  | 2                                  |
| Fiber Mode                   | -  | -                        | -  | MM – Multi Mode<br>SS- Single Mode   | MM – Multi Mode<br>SS- Single Mode |
| Ethernet Standard            | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX<br>IEEE 802.3x for Flow control                                    |                          | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3x for Flow control | IEEE 802.3: 10Base-T<br>IEEE 802.3u: 100Base-TX and 100Base-FX<br>IEEE 802.3x for Flow control<br>IEEE 802.1D: STP<br>IEEE 802.1w: RSTP<br>IEEE 802.1AB: LLDP) |                                    |
| MAC Table                    | 1024   | 2048                     | 8192   | 2048   | 1024                               |
| Processing                   | Store-and-Forward  | Store-and-Forward        | Store-and-Forward  | Store-and-Forward  | Store-and-Forward                  |
| Redundant Input Power        | Yes  | Yes                      | Yes  | Yes  | Yes                                |
| Power Consumption (Typ.)     | 3 Watts  | 4 Watts                  | 9.6 Watts  | 7 Watts  | 7 Watts                            |
| Overload Current Protection  | Yes  | Yes                      | Yes  | Yes  | Yes                                |
| Reverse Polarity Protection  | Yes  | Yes                      | Yes  | Yes  | Yes                                |
| Enclosure                    | IP30   | IP30                     | IP30   | IP30   | IP30                               |
| Dimensions (W x D x H in mm) | 26.1 x 70 x 95   | 26.1 x 94.9 x 144.3      | 96.4x108.5 x 154   | 52 x 106.1 x 144.3   | 52 x 106.1 x 145.4                 |
| Weight                       | 205g   | 391g                     | 1052g  | 382g   | 670g                               |
| Storage Temperature          | -40°C to +85°C   | -40°C to +85°C           | -40°C to +85°C   | -40°C to +85°C   | -40°C to +85°C                     |
| Operating Temperature        | -40°C to +70°C   | -40°C to +70°C           | -40°C to +70°C   | -40°C to +70°C   | -40°C to +70°C                     |
| Operating Humidity           | 5% to 95% non-condensing   | 5% to 95% non-condensing | 5% to 95% non-condensing   | 5% to 95% non-condensing   | 5% to 95% non-condensing           |
| EMI                          | FCC Part 15, CISPR (EN55022) class A   |                          |  |  |                                    |
| EMS                          | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 |                          |  |  |                                    |
| Shock                        | IEC60060-2-27  |                          |  |  |                                    |
| Free Fall                    | IEC60068-2-32  |                          |  |  |                                    |
| Vibration                    | IEC60068-2-6   |                          |  |  |                                    |
| Safety                       | EN62368-1  |                          |  |  |                                    |

**Managed Switch Specification**

| Part Number   | IC086SLM082   | IC086SLM162 | IC086SLM084  |
|---|---|-------------|--|
| 10/100Base-T(X) Ports   | 8   | 16          | -  |
| 10/100/1000Base-T(X) Ports  | -   | -           | 8  |
| 100/1000Base-X SFP Port   | 2   | -           | 12   |
| Gigabit Combo Port with 10/100/1000Base-T(X) and 100/1000Base-X SFP ports | -   | 2           | -  |
| Ethernet Standard   | IEEE 802.3: 10Base-T<br>IEEE 802.3u: 100Base-TX and 100Base-FX<br>IEEE 802.3z 1000Base-X<br>IEEE 802.3x: flow control IEEE 802.3ad: LACP<br>IEEE 802.1D: STP<br>IEEE 802.1p: COS<br>IEEE 802.1Q: VLAN tagging IEEE 802.1W: RSTP<br>IEEE 802.1s: MSTP<br>IEEE 802.1X: Authentication IEEE 802.1AB: LLDP  |             | IEEE 802.3: 10Base-T<br>IEEE 802.3u: 100Base-TX and 100Base-FX<br>IEEE 802.3z: 1000Base-X<br>IEEE 802.3ab: 1000Base-T<br>IEEE 802.3x : flow control<br>IEEE 802.3ad: LACP<br>IEEE 802.1D: STP<br>IEEE 802.1p: COS<br>IEEE 802.1Q: VLAN tagging<br>IEEE 802.1W: RSTP<br>IEEE 802.1s: MSTP<br>IEEE 802.1x : Authentication<br>IEEE 802.1AB: LLDP   |
| MAC Table   | 8192  |             | 8192   |
| Processing  | Store-and-Forward   |             | Store-and-Forward  |
| Jumbo Frame   | -   |             | 9.6K   |
| Security Feature  | Enable/Disable ports,<br>MAC based ports security,<br>Port-based network access control (802.1x),<br>support Q-in-Q VLAN for performance & security to expand the VLAN space.<br>VLAN top segregate and secure network traffic,<br>RADIUS centralized password management,<br>SNMP v 1/v2c/v3 encrypted authentication and access security  |             | Device blinding security feature.<br>Enable/Disable ports.<br>MAC-based port security.<br>Port-based network access control (802.1x).<br>VLAN to segregate and secure network traffic. RADIUS centralized password management. SNMP v3 encrypted authentication and access security.   |
| Software Feature  | STP/RSTP/MSTP (IEEE802.1D/w/s)<br>Redundant Ring with recovery time less than 10ms over 250 units.<br>TOS/ Diffserv supported.<br>Quality of Service (802.1p) for real-time traffic.<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP Snooping for multicast filtering.<br>Port configuration, status, statistics, monitoring, security.<br>Sntp for synchronizing of clocks over network.<br>Support 1588 PTP Client (Precision Time Protocol) clock synchronization.<br>DHCP Server / Client support. Port Trunk support.<br>MVR (Multicast VLAN Registration) |             | STP/RSTP/MSTP (IEEE 802.1D/w/s).<br>Redundant Ring with recovery time less than 30ms over 250 units.<br>TOS/Diffserv supported.<br>Quality of Service (802.1p) for real-time traffic. VLAN (802.1Q) with VLAN tagging and GVRP supported.<br>IGMP Snooping.<br>IP-based bandwidth management.<br>Application-based QoS management. DOS/ DDOS auto prevention. Port configuration, status, statistics, monitoring, security. DHCP Client/ Server. |

Managed Switch Specification (Continued)

| Part Number                 | IC086SLM080   | IC086SLM162                                       | IC086SLM084   |
|-----------------------------|---|---|---|
| Network Redundancy          | STP, RSTP, MSTP<br>Redundant-Ring   |   | STP, RSTP, MSTP<br>Redundant-Ring   |
| QoS                         | Yes   |   | Yes   |
| Warning/ Monitoring         | Relay output for fault event alarming. Syslog server / client to record and view events.<br>Include SMTP for event warning notification via email. Event selection support. |   | Relay output for fault event alarming. Syslog server / client to record and view events.<br>Include SMTP for event warning notification via email. Event selection support. |
| Redundant Input Power       | Triple DC inputs. 12~48VDC on 7-pin terminal block, 12~45VDC on power jack  | Dual DC inputs. 12~48 VDC on 6-pin terminal block | Dual DC inputs. 12~48 VDC on 6-pin terminal block   |
| Power Consumption (Typ.)    | 9 Watts   | 12 Watts  | 16.8 Watts  |
| Overload Current Protection | Yes   | Yes   | Yes   |
| Reverse Polarity Protection | Yes   | Yes   | Yes   |
| IP degree                   | IP30  | IP30  | IP30  |
| Dimension (W x D x H in mm) | 52 x 106.1 x 144.3  | 96.4 x 108.5 x 154                                | 96.4 x 108.5 x 154  |
| Weight                      | 730g  | 1220g   | 1210g   |
| Storage Temp                | -40°C to +85°C  |   |   |
| Operation Temp              | -40°C to +70°C  |   |   |
| Operation Humidity          | 5% to 95% non-condensing  |   |   |
| EMI                         | FCC Part 15, CISPR (EN55022) class A  |   |   |
| EMS                         | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11  |   |   |
| Shock                       | IEC60068-2-27   |   |   |
| free fall                   | IEC60068-2-32   |   |   |
| Vibration                   | IEC60068-2-6  |   |   |
| Safety                      | EN60950-1   | EN62368-1   | EN60950-1   |

**Rack Mounted [Layer 3] Switch Specification**

| Part Number   | IC086SLM242   | IC086SLM168  |
|---|---|--|
| 10/100Base-T(X)   | 24  | -  |
| 100/1000Base-X SFP Port   | -   | 8  |
| Gigabit Combo Port with 10/100/1000Base-T(X) and 100/1000Base-X SFP ports | 2   | 16   |
| Ethernet Standards  | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1D for STP (Spanning Tree Protocol)<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q VLAN Tag<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple spanning tree protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)                     |
| MAC Table   | 8192  | 8192   |
| Priority Queues   | 4   | 4  |
| Processing  | Store-and-Forward   | Store-and-Forward  |
| Switch Properties   | Switching latency: 7 us<br>Switching bandwidth: 8.8Gbps<br>Max. Number of Available VLANs: 4095<br>IGMP multicast groups: 256 for each VLAN<br>Port rate limiting: User Define  | Switching latency: 7 us<br>Switching bandwidth: 48Gbps<br>Max. Number of Available VLANs: 4095<br>IGMP multicast groups: 256 for each VLAN<br>Port rate limiting: User Define  |
| Jumbo Frame   | 9.6K  | 9.6K   |
| Security Feature  | Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>VLAN (802.1Q ) to segregate and secure network traffic<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security  | HTTPS/SSH Enhanced network security protocol<br>Safety device binding<br>Enable/disable ports, MAC based port security<br>Port based network access control (802.1x) single 802.1x and multi 802.1x<br>MAC address based authentication<br>QoS distribution<br>Visitor VLAN<br>The MAC address restriction<br>Authentication and authorization of Web and CLI<br>VLAN (802.1Q ) to segregate and secure network traffic<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security |

**Rack Mounted [Layer 3] Switch Specification (Continued)**

| Part Number                 | IC086SLM242  | IC086SLM168  |
|-----------------------------|--|--|
| Software Feature            | STP/RSTP (IEEE 802.1D/w)<br>Redundant Ring with recovery time less than 10ms over 250 units<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP v2/v3 (IGMP snooping support) for multi-cast filtering<br>Port configuration, status, statistics, monitoring, security<br>SNTP for synchronizing of clocks over network<br>DHCP Server / Client support<br>Port Trunk support | STP/RSTP (IEEE 802.1D/w)<br>Redundant Ring with recovery time less than 30ms over 250 units<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP snooping<br>Bandwidth management based on IP<br>Management application based on QoS<br>DoS/DDoS automatic defense<br>Port configuration, monitoring, security, state<br>DHCP client / server / relay<br>SMTP client<br>Modbus TCP |
| Network Redundancy          | Redundant-Ring, STP, RSTP  | Redundant-Ring, STP, RSTP, MSTP  |
| QoS                         | Yes  | Yes  |
| Warning/ Monitoring         | The fault alarm output<br>Through the system log /server/client record and browse events<br>Support SMTP through Email issued warning notice<br>Support system log event selection   | Through the system log /server/client record and browse events<br>Support SMTP through Email issued warning notice<br>Support system log event selection   |
| Input Power                 | Dual 100-240VAC  | 100-240VAC   |
| Power Consumption (Typ.)    | 15.2Watts  | 28.2 W   |
| Overload Current Protection | Yes  | -  |
| IP degree                   | IP30   | IP30   |
| Dimension (W x D x H mm)    | 440 x 200 x 44   | 431 x 342 x 44   |
| Weight (g)                  | 2695g  | 4117g  |
| Storage Temp                | -40°C to +85°C   |  |
| Operation Temp              | -40°C to +70°C   |  |
| Operation Humidity          | 5% to 95% non-condensing   |  |
| EMI                         | FCC Part 15, CISPR (EN55032) class A   |  |
| EMS                         | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11   |  |
| Shock                       | IEC60068-2-27  |  |
| Free Fall                   | IEC60068-2-32  |  |
| Vibration                   | IEC60068-2-6   |  |
| Safety                      | EN62368-1  |  |

**Rack Mounted [Layer 3] Switch Specification (Continued)**

| Part Number               | IC086SLM244  | IC086SLM244LL (Layer 3)  |
|---------------------------|--|--|
| 10/100Base-T(X)           | 24   | 24   |
| 100/1000Base-X SFP Port   | 4  | -  |
| 1000/10000Base-X SFP Port | -  | 4  |
| Ethernet Standards        | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol )<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q VLAN Tag<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple spanning tree protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)  | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3ae: 10Gigabit Ethernet IEEE<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol )<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q VLAN Tag<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple spanning tree protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) |
| MAC Table                 | 8192   | 32K  |
| Priority Queues           | 8  | 8  |
| Processing                | Store-and-Forward  | Store-and-Forward  |
| Switch Properties         | Switching latency: 7 us<br>Switching bandwidth: 56Gbps<br>Max. Number of Available VLANs:4095<br>IGMP multicast groups: 256 for each VLAN<br>Port rate limiting: User Define   | Switching latency: 7 us<br>Switching bandwidth: 128Gbps<br>Max. Number of Available VLANs: 4095<br>IGMP multicast groups: 128 for each VLAN<br>Port rate limiting: User Define   |
| Jumbo Frame               | 10K  | 10K  |
| Security Feature          | HTTPS/SSH Enhanced network security protocol<br>Safety device binding<br>Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>single 802.1x and multi 802.1x<br>MAC address based authentication<br>QoS distribution<br>Visitor VLAN<br>Specifications<br>The MAC address restriction<br>TACACS+<br>Authentication and authorization of Web and CLI<br>VLAN (802.1Q ) to segregate and secure network traffic<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security | Device binding security feature.<br>Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>single 802.1x and multi 802.1x<br>MAC address based authentication<br>QoS distribution<br>Visitor VLAN<br>The MAC address limit TACACS+ VLAN (802.1Q ) to segregate and secure network traffic<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security.<br>Web and CLI authentication and authorization (15 Levels)<br>IP source guard.                            |

**Rack Mounted [Layer 3] Switch Specification (Continued)**

| Part Number                 | IC086SLM242  | IC086SLM168   |
|-----------------------------|--|---|
| Software Feature            | <p>STP/RSTP (IEEE 802.1D/w)<br/>                     Redundant Ring with recovery time less than 30ms over 250 units<br/>                     Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported<br/>                     IGMP snooping<br/>                     Bandwidth management based on IP<br/>                     Management application based on QoS<br/>                     DoS/DDoS automatic defense<br/>                     Port configuration, monitoring, security, state<br/>                     DHCP client / server / relay<br/>                     The SMTP client<br/>                     Modbus TCP</p> | <p>Hardware routing, RIP and static routing.<br/>                     IEEE 1588 v2 clock synchronization<br/>                     IEEE 802.1D Bridge, auto MAC address learning/aging and MAC address(static)<br/>                     Multiple Registration Protocol (MRP)<br/>                     Multiple VLAN Registration Protocol (MVRP)<br/>                     TOS/Diffserv supported<br/>                     QoS (802.1p) for real time traffic<br/>                     VLAN(802.1Q) with VLAN tagging and GVRP support<br/>                     Voice VLAN<br/>                     IGMP v2/v3 Snooping<br/>                     IP-based bandwidth management<br/>                     Application-based QoS management<br/>                     DOS/DDOS auto prevention<br/>                     Port Configuration, status, statistics, monitoring, security<br/>                     DHCP Sever/Client/Snooping, DHCP Relay<br/>                     DNS client proxy<br/>                     ARP inspection<br/>                     SMTP client</p> |
| Network Redundancy          | Redundant-Ring, STP, RSTP, MSTP  | Redundant-Ring, STP, RSTP, MSTP   |
| Warning/ Monitoring         | <p>Through the system log /server/client record and browse events<br/>                     Support SMTP through Email issued warning notice<br/>                     Support system log event selection</p>  | <p>Through the system log /server/client record and browse events<br/>                     Support SMTP through Email issued warning notice<br/>                     Support system log event selection</p>   |
| Input Power                 | 100-240VAC   | Dual 100-240VAC/100-370VDC  |
| Power Consumption (Typ.)    | 36Watts  | 43.5 W  |
| Overload Current Protection | -  | Yes   |
| IP degree                   | IP30   | IP30  |
| Dimension (W x D x H mm)    | 431.7 x 342 x 44   | 440x 356 x 44   |
| Weight (g)                  | 4210g  | 6600g   |
| Operation Temp              | -40°C to +70°C   |   |
| Operation Humidity          | 5% to 95% non-condensing   |   |
| EMI                         | FCC Part 15, CISPR (EN55032) class A   | FCC Part 15, CISPR (EN55032) class A<br>EN50155 (EN50121-3-2, EN55011, EN50121-4)   |
| EMS                         | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11   |   |
| Shock                       | IEC60068-2-27  |   |
| Free Fall                   | IEC60068-2-32  |   |
| Vibration                   | IEC60068-2-6   |   |
| Safety                      | EN60950-1  |   |



**PROFINET Ethernet Switch Specification**

| Part Number             | IC086GLM064  | IC086GLM082 | IC086GLM104 |
|-------------------------|--|-------------|-------------|
| 10/100Base-T(X)         | 6  | 8           | 10          |
| 100/1000Base-X SFP Port | 4  | 2           | 4           |
| Ethernet Standards      | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1Q VLAN Tag<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple spanning tree protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) |             |             |
| MAC Address             | 8K   |             |             |
| Priority Queues         | 8  |             |             |
| Processing              | Store-and-Forward, L2 wire-speed/non-blocking switching engine   |             |             |
| Switch Properties       | VLANs: 256<br>IGMP v1, v2 and V3<br>IGMP snooping and querying   |             |             |
| Jumbo Frame             | 9K Bytes   |             |             |
| Security Feature        | HTTP, HTTPs, SSH<br>IP and MAC-based access control<br>IEEE 802.1X authentication Network Access Control<br>Multicast/Broadcast/Flooding Storm Control<br>Port-based /tag-based VLAN, IEEE 802.1ad/QinQ VLAN, Protocol-based VLAN<br>Radius Client for Management<br>Cisco-like CLI (command line interface)<br>WEB-based Management<br>SNMP v1, v2c & v3<br>Telnet (5 sessions)<br>Configuration import/export<br>Firmware upgrade                                |             |             |
| Software Feature        | IGMP v1, v2 and v3 with up to 512 multicast groups<br>IGMP snooping and querying<br>Immediate leave and leave proxy<br>Throttling and filtering<br>IEEE 802.1ab Link layer Discovery Protocol (LLDP)<br>DHCP Client, Server, Snooping, Relay<br>Media Redundancy Protocol  |             |             |
| PROFINET Feature        | PROFINET GSD file, PROFINET I/O parameters, I/O cyclic data<br>PROFINET IO version 2.3, GSDML V2.25<br>Plug-and-play operation and compatibility with the PROFINET standard v2.3<br>PNIO System Redundancy<br>MRP Manager<br>MRP Client  |             |             |

**PROFINET Ethernet Switch Specification (Continued)**

| Part Number              | IC086GLM064  | IC086GLM082    | IC086GLM104    |
|--------------------------|--|----------------|----------------|
| Network Redundancy       | Link loss recovery < 20ms<br>Single & Multiple rings; dual-homing; ring-coupling;<br>IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP<br>Static trunk or Dynamic via LACP (Link Aggregation Control Protocol) |                |                |
| Diagnostic               | Syslog<br>Ethernet Copper connection diagnostic tool   |                |                |
| Redundant Input Power    | 12-58VDC   |                |                |
| Power Consumption (Typ.) | Max. 14Watt  | Max. 12.5Watt  | Max. 17Watt    |
| Transient Protection     | > 15,000 watts peak  |                |                |
| Reverse Power Protection | Yes  |                |                |
| IP degree                | IP30   |                |                |
| Dimension (W x D x H mm) | 77 x 128 x 154   | 77 x 128 x 154 | 77 x 128 x 154 |
| Weight (g)               | 1049g  | 1047g          | 1077g          |
| Operation Temp           | -40°C to +70°C   |                |                |
| Operation Humidity       | 5% to 95% non-condensing   |                |                |
| EMI                      | FCC Part 15, CISPR (EN55032) class A   |                |                |
| EMS                      | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS)  |                |                |
| Shock                    | IEC60068-2-27  |                |                |
| Free Fall                | IEC60068-2-32  |                |                |
| Vibration                | IEC60068-2-6   |                |                |
| Safety                   | UL/CSA C22, EN61010-1, CE  |                |                |

## Accessories

| Part Number   | IC086SFP1MM   | IC086SFP1SS   | IC086SFP2MM   | IC086SFP2SS   | IC086SFP3MM   |
|---|---------------|---------------|---------------|---------------|---------------|
| Speed   | 100Mbps       | 100Mbps       | 1000Mbps      | 1000Mbps      | 10000Mbps     |
| Fiber Mode  | Multi-Mode    | Single-Mode   | Multi-Mode    | Single-Mode   | Multi-Mode    |
| Typical Distance                                      | 2 km          | 30 km         | 550 m         | 10 km         | 300m          |
| Operating Temperature                                 | 40°C to +85°C | 40°C to +85°C | 40°C to +85°C | 40°C to +85°C | 40°C to +85°C |
| Wavelength  | 1310 nm       | 1310 nm       | 850 nm        | 1310 nm       | 850 nm        |
| Optical Output Power<br>9/125µm fiber<br>(Max. TX)    | -             | -8 dBm        | -             | -3 dBm        |               |
| Optical Output Power<br>9/125µm fiber<br>(Min. TX)    | -             | -15 dBm       | -             | -9.5 dBm      |               |
| Optical Output Power<br>62.5/125µm fiber (Max.<br>TX) | -14 dBm       | -             | -4 dBm        |               | -1dBm         |
| Optical Output Power<br>62.5/125µm fiber<br>(Min. TX) | -20 dBm       | -             | -9.5 dBm      |               | -6.5 dBm      |
| Optical Output Power<br>50/125µm fiber<br>(Max. TX)   | -14 dBm       | -             | -4 dBm        | -             | -1dBm         |
| Optical Output Power<br>50/125µm fiber<br>(Min. TX)   | -23.5 dBm     | -             | -9.5 dBm      | -             | -6.5 dBm      |
| Optical Input Power-<br>minimum (Sensitivity)         | -31 dBm       | -34 dBm       | -18 dBm       | -20 dBm       | -9.9 dBm      |
| Optical Input Power<br>maximum (Saturation)           | -8 dBm        | 0 dBm         | 0 dBm         | -3 dBm        | -1dBm         |
| Link Budget   | 7.5 dB        | 19 dB         | 8.5 dB        | 10.5 dB       | 3.4 dB        |

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