Embedded OPC UA server realizes robust control system

The MELSEC iQ-R Series OPC UA server module integrates the OPC UA server directly into the equipment control system as a robust alternative to a computer-based configuration.

Simple data management

Efficient tag data management provided utilizing data structure format and storage of tag names within the equipment. Implementation of an IT system is improved such as with SCADA simply by selecting the stored tag.

Flexible and robust security

OPC UA security function such as certificate, encrypt and signature can be set based on system requirements.

Easy implementation using configuration software

This intuitive setup tool enables easy system configuration, reducing overall development time. In addition, import of GX Works3 project data allows labels used for the programmable CPU to be utilized directly as OPC UA tags.

Wide-ranging applications

Embedding the OPC UA server into the control equipment increasing the various applications based on OPC UA.

Highlights

- Embedded OPC UA server
- Simple data management
- Flexible and robust security
- Intuitive configuration software
- Vendor-neutral control system
OPC Unified Architecture

OPC Unified Architecture (OPC-UA) is a platform-independent communications standard developed by the OPC foundation that offers reliable and secure data communications between the manufacturing-level and IT-level systems. OPC-UA is easily ported across various platforms, providing a highly scalable, vendor-neutral control system that ensures secure and reliable communications between the plant floor and IT systems, such as Mitsubishi SCADA MC Works64 or an ERP system.

1. Robust security with protection against unauthorized data access

The MELSEC iQ-R Series OPC UA server module utilizes the robust security features of OPC UA, together with dual Ethernet ports, it offers multifaceted security settings between the OPC UA server-embedded control system and client IT system.

2. Embedded OPC UA server improves system reliability and reduces cost

The OPC UA server module can be installed directly on the MELSEC iQ-R Series base unit realizing an embedded OPC UA server within the machine. This improves reliability by eliminating the requirement for a computer-based server, which can be vulnerable to high security risks such as computer viruses. Less hardware maintenance is required, reducing overall system cost as industrial control systems have a longer product service life compared to computers. Efficient tag data management provided utilizing data structure format and storage of tag names within the equipment. Implementation of an IT system is improved such as with SCADA simply by selecting the stored tag.
Reduce overall development time with easy-to-use configuration software

Utilizing MX OPC UA Module Configuration-R, intuitive features such as the wizard-based settings can substantially reduce development time, enable easy registration of tag data by importing GX Works3 project label data, and simplify server module maintenance.

Flexible configuration supports seamless connectivity

The MELSEC iQ-R Series OPC UA server module enables data collection through seamless communication between an OPC UA client and MELSEC-Series controllers, such as the MELSEC iQ-R Series, Q Series and L Series. Seamless connectivity is supported on CC-Link IE, CC-Link and Ethernet-based networks, supporting utilization with both new and existing control systems.
### OPC UA server module hardware specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>RD81OPC96</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD memory card slot</td>
<td>SD memory card/SDHC memory card (2…16 GB)</td>
</tr>
<tr>
<td>Ethernet port</td>
<td></td>
</tr>
<tr>
<td>Number of channels</td>
<td>2</td>
</tr>
<tr>
<td>Data transmission speed</td>
<td>1 Gbps, 100 Mbps, 10 Mbps</td>
</tr>
<tr>
<td>Max. number of cascaded stages*1</td>
<td>2 (100 Mbps), 4 (10 Mbps)</td>
</tr>
<tr>
<td>Max. segment length*2 (m)</td>
<td>100 (between hub and node)</td>
</tr>
<tr>
<td>Interface</td>
<td>RJ45</td>
</tr>
</tbody>
</table>

*1. Based on use with a repeater hub. For switching hub, refer to the manufacturer's documentation.  
*2. For maximum segment length between hubs, refer to switching hub manufacturer documentation.

### OPC UA server module software specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile</td>
<td>Embedded UA Server Profile 1.03</td>
</tr>
</tbody>
</table>
| Encryption setting        | • None: no security  
                              • Basic128Rsa10: 128 bit encryption  
                              • Basic256: 256 bit encryption  
                              • Basic256Sha256: 256-bit encryption (using Sha256 algorithm) |
| Signature setting         | • None: add signature  
                              • Sign: add signature  
                              • Sign & Encrypt: add signature and encryption |
| User authentication setting | • Anonymous  
                              • User name/password  
                              • Certificate validation |

### Basic operating specifications

- Connection method: Ethernet IPv4
- Simultaneously connected configuration software: 1
- Device memory input/output specifications:
  - Max. number of tags: 10000
  - Access device:
    - Max. number: 8  
    - Type:  
      - RCPU  
      - QCPU (Q mode)  
      - LCPU  
  - Data collection period:
    - Max. number of definitions: 8  
    - Setting cycle: 200 ms…24 h  
- Connected OPC UA clients:
  - Max. number of connections: 15  
  - Connectable Ethernet port: CH1

---

OPC UA logo and OPC CERTIFIED logo are registered trademarks of OPC Foundation. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).