

ODOT Automation · DU03 Series

# Medium-to-Large IEC61499 & IEC 61131-3 PROFINET \*/ EtherCAT/ Modbus Master PLC

Industry Revolution / Commercial Benchmark

Compliant with IEC 61499 Standard / IEC 61131-3 Standard

Supports motion control, built-in Web HMI functionality

Supports high-level languages, web-based programming

Supports PROFINET master and EtherCAT master



## DU03L maximum load: 32 remote I/O slaves

### ► Master Optional, Comprehensive Protocols

Supports optional PROFINET and EtherCAT masters

Later can support more masters such as EtherNet/IP

### ► Industry Revolution, Commercial Benchmark

World's first IEC 61499 + PROFINET solution, supports commercial use

IEC 61499 Standard: Distributed, hardware-software decoupling, object-oriented design, etc.

### ► Ecosystem Sharing, Cost Reduction

Programming software free to use, helps enterprises reduce costs

### ► Equipped with AIOSYS

Digital open control software platform



### DU03G\*

Maximum load: 64 distributed I/O slaves



### DU03P\*

Maximum load: 128 distributed I/O slaves



### DU03M\*

Maximum load: 256 distributed I/O slaves

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# Medium-to-Large IEC61499 & IEC 61131-3 PROFINET \*/ EtherCAT/ Modbus Master PLC

| Product Models                            | DU03L                                                                             | DU03G*                                                                            | DU03P*                                                                            | DU03M*                                                                             |
|-------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Product Appearance                        |  |  |  |  |
| <b>1. Structural Features</b>             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Structure Type                            | Split Removable design                                                            | Split Removable design                                                            | Split Removable design                                                            | Split Removable design                                                             |
| Width*Height*Depth (mm)                   | 83*119*80                                                                         | 116*119*80                                                                        | 140*119*80                                                                        | 165*119*80                                                                         |
| Terminal Type                             | Plug-in spring-guided light terminals                                             | Plug-in spring-guided light terminals                                             | Plug-in spring-guided light terminals                                             | Plug-in spring-guided light terminals                                              |
| <b>2. General Parameters</b>              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Rated Value                               | 24V DC                                                                            | 24V DC                                                                            | 24V DC                                                                            | 24V DC                                                                             |
| Maximum Input Current                     | 8A                                                                                | 8A                                                                                | 8A                                                                                | 8A                                                                                 |
| <b>3. Software Standards</b>              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Compliant Standards                       | IEC 61131-3, IEC 61499                                                            | IEC 61131-3, IEC 61499                                                            | IEC 61131-3, IEC 61499                                                            | IEC 61131-3, IEC 61499                                                             |
| <b>4. Operating Performance *</b>         |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Bit Operations                            | Less than 3.5ns                                                                   | Less than 2ns                                                                     | Less than 0.5ns                                                                   | Less than 0.3ns                                                                    |
| Word Operations                           | Less than 7ns                                                                     | Less than 4ns                                                                     | Less than 0.5ns                                                                   | Less than 0.3ns                                                                    |
| Floating-point Operations                 | Less than 15ns                                                                    | Less than 8ns                                                                     | Less than 3ns                                                                     | Less than 2ns                                                                      |
| <b>5. Memory Size *</b>                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Data Memory                               | Not less than 20M Bytes                                                           | Not less than 20M Bytes                                                           | Not less than 80M Bytes                                                           | Not less than 150M Bytes                                                           |
| Program Memory                            | Not less than 160k step instructions                                              | Not less than 260k step instructions                                              | Not less than 500k step instructions                                              | Not less than 1000k step instructions                                              |
| <b>6. Local Expansion Module Capacity</b> |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Local Expansion Module Capacity           | Not supported                                                                     | Not supported                                                                     | 1 module                                                                          | 2 modules                                                                          |
| <b>7. Backplane Bus</b>                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Dual Backplane Bus Redundancy             | Supported                                                                         | Supported                                                                         | Supported                                                                         | Supported                                                                          |
| Backplane Bus Rate                        | 16M bit/s                                                                         | 16M bit/s                                                                         | 16M bit/s                                                                         | 16M bit/s                                                                          |
| Maximum Expansion Modules                 | 32                                                                                | 32                                                                                | 32                                                                                | 32                                                                                 |

Note: "\*" indicates "coming soon"

| Product Models                                               | DU03L                                              | DU03G*                                             | DU03P*                                             | DU03M*                                             |
|--------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| <b>8. Communication Interfaces</b>                           |                                                    |                                                    |                                                    |                                                    |
| <b>RJ45 Interface</b> >>                                     |                                                    |                                                    |                                                    |                                                    |
| Number of Interfaces                                         | 3                                                  | 4                                                  | 4                                                  | 4                                                  |
| Cable Length                                                 | Maximum 100m between two stations (segment length) | Maximum 100m between two stations (segment length) | Maximum 100m between two stations (segment length) | Maximum 100m between two stations (segment length) |
| Transmission Rate                                            | 10/100 Mbit/s                                      | 10/100 Mbit/s                                      | 10/100 Mbit/s                                      | 10/100 Mbit/s                                      |
| <b>CAN Interface</b> >>                                      |                                                    |                                                    |                                                    |                                                    |
| Number of Interfaces                                         | 1                                                  | 2                                                  | 2                                                  | 2                                                  |
| Minimum Transmission Rate                                    | 10 kbit/s                                          | 10 kbit/s                                          | 10 kbit/s                                          | 10 kbit/s                                          |
| Maximum Transmission Rate                                    | 1000 kbit/s                                        | 1000 kbit/s                                        | 1000 kbit/s                                        | 1000 kbit/s                                        |
| <b>RS485 Interface</b> >>                                    |                                                    |                                                    |                                                    |                                                    |
| Number of Interfaces                                         | 2                                                  | 2                                                  | 2                                                  | 2                                                  |
| Communication Rate                                           | 300bps~500Kbps                                     | 300bps~500Kbps                                     | 300bps~500Kbps                                     | 300bps~500Kbps                                     |
| <b>9. Other External Interfaces</b>                          |                                                    |                                                    |                                                    |                                                    |
| Display Screen                                               | 1.3 inch                                           | 2.4 inch                                           | 2.4 inch                                           | 2.4 inch                                           |
| TF Card / Reset Button                                       | Supported                                          | Supported                                          | Supported                                          | Supported                                          |
| Run/Stop Button                                              | Not supported                                      | Supported                                          | Supported                                          | Supported                                          |
| <b>10. Communication Capability</b>                          |                                                    |                                                    |                                                    |                                                    |
| PROFINET Master (Maximum PROFINET Slave Connections)         | 32*                                                | 64*                                                | 128*                                               | 256*                                               |
| EtherCAT Master (Maximum EtherCAT Slave Connections)         | 32*                                                | 64*                                                | 128*                                               | 256*                                               |
| Modbus TCP Client (Modbus Function Codes)                    | 01/02/03/04/05/06/15/16/23                         | 01/02/03/04/05/06/15/16/23                         | 01/02/03/04/05/06/15/16/23                         | 01/02/03/04/05/06/15/16/23                         |
| Maximum Modbus TCP Server Connections                        | 32*                                                | 64*                                                | 80*                                                | 128*                                               |
| OPC UA Server (Maximum OPC UA Client Connections)            | 16*                                                | 30*                                                | 50*                                                | 50*                                                |
| CANopen Master (Maximum CANopen Slave Connections)           | 31 per channel                                     | 31 per channel                                     | 31 per channel                                     | 31 per channel                                     |
| Modbus RTU Master (Maximum Modbus RTU Slave Connections)     | 31 per channel                                     | 31 per channel                                     | 31 per channel                                     | 31 per channel                                     |
| CAN Pass-through / RS485 Pass-through / TCP/UDP Pass-through | Supported                                          | Supported                                          | Supported                                          | Supported                                          |

Note: "\*" indicates "coming soon"

| Product Models                                                                              | DU03L                                                                                                                                                          | DU03G*                                  | DU03P*                                  | DU03M*                                    |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| 11. Motion Control *                                                                        |                                                                                                                                                                |                                         |                                         |                                           |
| Axis Types                                                                                  | Real axis, virtual axis                                                                                                                                        | Real axis, virtual axis                 | Real axis, virtual axis                 | Real axis, virtual axis                   |
| Real Axis Types                                                                             | EtherCAT servo axis, CANopen servo axis                                                                                                                        | EtherCAT servo axis, CANopen servo axis | EtherCAT servo axis, CANopen servo axis | EtherCAT servo axis, CANopen servo axis   |
| Maximum Axis Control Quantity                                                               | 16                                                                                                                                                             | 32                                      | 64                                      | 128                                       |
| Motion Control Algorithms                                                                   | Speed control, position control, torque control, jog control, electronic gearing, electronic cam, linear interpolation, 2D & 3D linear, circular interpolation |                                         |                                         |                                           |
| Synchronization Cycle                                                                       | 1ms 4 axes, 2ms 16 axes                                                                                                                                        | 500μs 4 axes, 1ms 16 axes, 2ms 36 axes  | 500μs 8 axes, 1ms 32 axes, 2ms 64 axes  | 250μs 8 axes, 500μs 32 axes, 2ms 128 axes |
| 12. Software Features                                                                       |                                                                                                                                                                |                                         |                                         |                                           |
| Software Name                                                                               | AIOSYS                                                                                                                                                         | AIOSYS                                  | AIOSYS                                  | AIOSYS                                    |
| Installation Environment                                                                    | Cross-platform, supports server installation, local installation, PLC embedded, supports Linux system, Windows system                                          |                                         |                                         |                                           |
| Programming Method                                                                          | Web-based programming, supports installation-free programming                                                                                                  |                                         |                                         |                                           |
| Programming Languages                                                                       | FBD, LD, ST, C, C++, Python*                                                                                                                                   |                                         |                                         |                                           |
| 13. Environmental Parameters *                                                              |                                                                                                                                                                |                                         |                                         |                                           |
| Horizontal (DIN rail horizontal) installation/<br>Vertical (DIN rail vertical) installation | -30℃~60℃                                                                                                                                                       | -30℃~60℃                                | -30℃~60℃                                | -30℃~60℃                                  |
| Storage Temperature                                                                         | -40℃~85℃                                                                                                                                                       | -40℃~85℃                                | -40℃~85℃                                | -40℃~85℃                                  |
| Protection Rating                                                                           | IP20                                                                                                                                                           | IP20                                    | IP20                                    | IP20                                      |
| 14. Electromagnetic Compatibility (EMC) *                                                   |                                                                                                                                                                |                                         |                                         |                                           |
| EMC                                                                                         | Complies with IEC 61131-2 2017 relevant requirements                                                                                                           |                                         |                                         |                                           |

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