



## RTU range Technical specifications



Bringing advanced capabilities, IP connectivity, and open programming to remote measurement and control applications.

The Kingfisher Plus RTU is a modular automation platform for SCADA applications.

The 32-bit processing platform operates seamlessly with intelligent communications and I/O modules. Features include three levels of redundancy — communications, power and processor — to satisfy a range of availability specifications. An array of communication modules and protocols provide broad network compatibility. The DNP3 protocol implementation is among the strongest in the industry, exceeding Level 3 and including Secure Authentication (master & slave).

Kingfisher's programmable automation environment supports all IEC 61131-3 languages. A rich library provides numerous pre-engineered function blocks, which project engineers find invaluable. Kingfisher Plus combines advanced technology with proven hardware and software in an easy-to-configure RTU that achieves exceptional performance.

## Advanced hardware platform

The modular construction allows you to match the needs of practically any application. Multiple backplanes can be chained together to provide scalable communications and I/O expansion. Configurations can include up to 1008 I/O points.



## Redundancy

Reducing risk of systems failure, Kingfisher Plus can be ordered with redundant processors, power supply and communications modules. Processor modules support hot standby redundancy; switchover from the primary to the backup processor will occur upon failure of I/O module scan, communications failure on selected ports, Toolbox command, or a ladder logic command. All modules are 'hot swappable' without needing to restart the RTU.

## Protocols

For compatibility with a broad range of SCADA networks and intelligent devices, Kingfisher Plus supports many protocols. These include:

- Kingfisher
- DNP3 (master/slave)
- Modbus (master/slave)
- Allen Bradley DF1
- SNMP
- TCP/IP
- UDP

## Intelligent I/O modules

I/O modules designed for applications that require accuracy and performance.

Capabilities include:

- input counting up to 10kHz
- quadrature counting
- sequence-of-events (SOE) monitoring on a 1mS interval
- GPS receiver support for time synchronisation
- configurable, fail-safe output settings

|                    | AI-1  | AI-10 | DI-5        | DI-10 | DI-10-GPS | AO-3           | DO-1                    | DO-2              | DO-6            | IO-2      | IO-3/IO-5 | IO-4      |
|--------------------|-------|-------|-------------|-------|-----------|----------------|-------------------------|-------------------|-----------------|-----------|-----------|-----------|
| DI Digital inputs  |       |       | 16          | 16    | 16        |                |                         |                   |                 | 8         | 4         | 8         |
| DO Digital outputs |       |       |             |       |           |                | 8                       | 16                | 16              | 8         | 4         | 2         |
| AI Analog inputs   | 8     | 8     |             |       |           |                |                         |                   |                 |           | 4         | 2         |
| AO Analog outputs  |       |       |             |       |           | 4              |                         |                   |                 |           | 1         |           |
| GPS                |       |       |             |       | 1         |                |                         |                   |                 |           |           |           |
| Descriptions       | 12bit | 16bit | Dry contact | SOE   | SOE + GPS | 0-20 or 4-20mA | Relay outputs N.O./N.C. | Relay output N.O. | Open drain FETs | Multi I/O | Multi I/O | Multi I/O |

## Field swappable communication option cards

Option cards are available for CP (processor) and MC (communications) modules, providing additional connectivity to the intelligent devices and networks used throughout today's measurement and control systems.



|             | OPT-A3                                     | OPT-D         | OPT-F                                    | OPT-H                           | OPT-I   | OPT-I2   | OPT-L                                       | OPT-R2/<br>R3/                       | OPT-T3                     |
|-------------|--|---------------|--|---------------------------------|---|--|---|--------------------------------------|----------------------------|
| Name        | Fibre Ethernet                             | Dial-up modem | Fibre serial                             | HART                            | Isolated                                      | Isolated   | Line & radio FSK                            | Spread spectrum                      | Ethernet                   |
| Description | Optically isolated Ethernet communications | PSTN modem    | Optically isolated serial communications | Communicate using HART protocol | Isolated serial communications RS-232/485/422 | Dual Isolated serial RS-232/485/422 (for CP-30/MC-31 only) | Leased line and packet radio interface V.23 | Wireless licence free communications | 10/100 Mbit Ethernet RJ-45 |

## Toolbox software



Eliminating the need to open and switch between multiple software packages, this integrated environment combines configuration, program development and maintenance in one simple-to-use package. View, edit and diagnose a Kingfisher Plus solution with a highly intuitive user interface. Toolbox Plus embeds the ISaGRAF IEC-61131-3 compliant environment and supports all five of the control languages it offers. In addition, the library of pre-programmed function blocks, which includes

operations such as AGA flow calculations, simplifies applications development and makes it easy to add new capabilities to your RTU solution.

Toolbox Plus is used in conjunction with the CP-30 processor module.

Systems using the CP-12 processor module are programmed using the Toolbox 32 environment, which supports ladder logic as well as the Kingfisher library of proven function blocks. Capabilities including drag and drop, online help and applications examples, which are designed to streamline programming, testing and startup efforts.

## Processor modules

Processor modules are available in two levels of capability to allow users to best match applications requirements and budget constraints.

|             | CP-30/MC-31                          | CP-12/MC-12                         |
|-------------|--------------------------------------|-------------------------------------|
| Description | Toolbox Plus IEC 61131-3 programming | Toolbox 32 ladder logic programming |

## Applications

The Kingfisher Plus RTU brings cost effective IP connectivity, advanced I/O capabilities and open programming to applications in many end-user industries. Users in the broadcast/telecom, oil and gas, power, transportation, water/wastewater industries or where remote processing and communications power is essential, will benefit from a Kingfisher Plus solution.

# Kingfisher specifications

## INPUTS & OUTPUTS

|                          |  |
|--------------------------|--|
| Maximum I/O points       | 1008   |
| Backplanes               | Up to 4 × 12 slot backplanes and 4 × 4 slot backplanes per RTU |
| I/O configuration        | Automatic/manual   |
| Backplane sizes          | 2 / 4 / 6 / 12 slots   |
| Removable I/O connectors | Yes  |
| Digital modules          | Max. 16 inputs or 16 outputs/module                            |
| Analog modules           | Max. 8 inputs or 4 outputs/module                              |

## PROCESSOR UNIT

|                 | CP-12                                    | CP-30       |
|-----------------|--|-------------|
| Type            | x86                                      | Cirrus ARM9 |
| Flash RAM       | 512 KB                                   | 16 MB       |
| RAM             | 512 KB                                   | 64 MB       |
| Real-time clock | Yes                                      |             |
| Battery backup  | RAM/RTC — Lithium >7 years               |             |
| RTU address     | 1 to 255 or 1-65535 (protocol-dependent) |             |
| Event logging   | Up to 100,000 events                     |             |

## COMMUNICATIONS SUPPORTED

|                   |  |
|-------------------|--|
| Total Ports / RTU | CP-12 = 16 max.<br>CP-30 = >20*  |
| Master/slave      | Yes  |
| Peer-to-peer      | Yes  |
| Fallback levels   | Yes  |
| PC link           | Yes  |
| Protocol          | Modbus<br>DNP3<br>SNMP,<br>Kingfisher<br>Allen Bradley<br>TCP/IP<br>UDP<br>Others available on request |

## CONFIGURATION

|                                   |             |
|-----------------------------------|-------------|
| Local (PC/Laptop)                 | Yes         |
| Remote via network                | Yes         |
| IEC 61131-3 (5 languages)         | Yes (CP-30) |
| ISaGRAF flow chart (6th language) | Yes (CP-30) |
| Toolbox 32 ladder                 | Yes (CP-12) |

## DEBUG

|                       |     |
|-----------------------|-----|
| Local watchdog timer  | Yes |
| Communication status  | Yes |
| Configuration display | Yes |
| I/O status            | Yes |
| Debug                 | Yes |

## OPTION CARDS

|                        |   |
|------------------------|---|
| CP-12                  | 1 × standard serial port,<br>2 × option card slots  |
| CP-30                  | 1 × standard Ethernet port,<br>2 × option card slots  |
| MC-12                  | 1 × standard serial port,<br>2 × option card slots  |
| MC-31                  | 1 × standard Ethernet port,<br>2 × option card slots  |
| Available option cards | A3 - Ethernet fibre<br>D - PSTN modem<br>F - Serial multimode fibre<br>H - HART interface<br>I - Serial copper<br>I2 - Dual serial copper<br>L - Private line<br>R2 - SS radio 900MHz Australia<br>R3 - SS radio 2.4GHz Int<br>R4 - SS radio 900MHz USA |

## DIAGNOSTICS

|                         |      |
|-------------------------|------|
| Pre-programmed          | Yes  |
| I/O modules             | LEDs |
| CPU modules             | LEDs |
| Power supply modules    | LEDs |
| Report via network      | Yes  |
| Software                | Yes  |
| Communications analyser | Yes  |
| Service Report          | Yes  |

## POWER

|                         |                                  |
|-------------------------|----------------------------------|
| AC supply               | 100 to 240 VAC                   |
| DC supply               | 20 to 60 VDC<br>or 96 to 300 VDC |
| Solar supply            | 10.5-16.0 VDC                    |
| Power down modes        | Yes                              |
| Battery backup          | Yes                              |
| Battery size            | Various                          |
| Battery charging option | Yes                              |

## ENVIRONMENTAL

|                     |  |
|---------------------|--|
| Ambient temperature | -40° to 85°C<br>(see hardware manual for exceptions) |
| Storage temperature | -40° to 85°C   |
| Humidity            | 5% to 98% RH<br>non-condensing                       |

## REDUNDANCY LEVELS

|                     |   |
|---------------------|---|
| CPUs/RTU            | 2 |
| Power supplies/rack | 2 |

\*Overall communications performance based on total CPU loading.



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