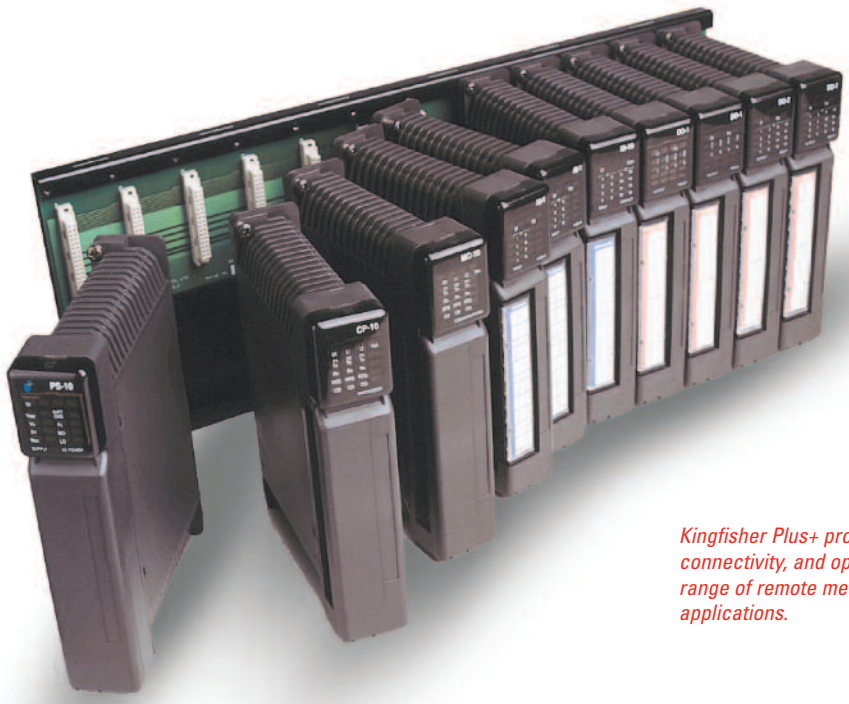
KINGFISHER

Semaphore Kingfisher Plus+



Kingfisher Plus+ provides advanced capabilities, IP connectivity, and open programming to a broad range of remote measurement and control applications.

The Kingfisher Plus+ RTU is an advanced automation technology platform for SCADA applications. Designed as an enabling technology, Kingfisher Plus+ brings only strengths without the technical constraints that have traditionally limited RTU applications.

The high-performance, 32-bit processing platform works with intelligent communications and I/O modules to meet all scanning and throughput requirements. Numerous advanced features include three levels of redundancy — communications, power, and processor — in order to satisfy a range of availability specifications.

A complete array of communication modules and extensive protocols library provide broad network compatibility. In addition, the Kingfisher DNP3 protocol implementation is among the strongest in the industry. It exceeds level 3 and includes such functionality as Secure Authentication master.

Kingfisher's open, programmable automation environment is based on ISaGRAF version 5 and supports all IEC 61131-3 languages as well as IEC 61499 for distributed processing. A rich library provides numerous pre-engineered function blocks, which project engineers find invaluable.

Kingfisher Plus+ combines the benefits of advanced technologies with proven hardware and software in an easy-to-configure RTU that achieves exceptional performance.

Kingfisher Plus+ advanced hardware platform

The modular construction of Kingfisher Plus+ allows it to perfectly match the needs of practically any application. Multiple backplanes can be chained together to provide communications and I/O expansion. Kingfisher Plus+ configurations range from 3 to 16 communication ports and 4 to 1024 I/O points.

Processor modules

Kingfisher Plus+ processor modules are available in three levels of processing capability and memory capacity to allow users to best match applications requirements and budget constraints.

	CP-30	CP-12	PC-1	MC-12/31
DESCRIPTIONS	Toolbox Plus+ IEC 61131-3 programming	Toolbox32 ladder logic programming	Integrated processor & power supply	3 port communications module

Redundancy

For users who demand reduced risk of systems failures, Kingfisher Plus+ can be ordered with redundant processors, power supply modules, and communications modules. The CP-12 and CP-30 processor modules support hot standby redundancy. A switchover from the primary to the backup processor will occur upon failure of an I/O module scan, communications failure on selected ports, Toolbox command, or a ladder logic command.

High-performance I/O modules

Intelligent I/O modules are designed for applications that require high accuracy and performance. Advanced capabilities include high-speed scanning; input counting up to 10 kHz; quadrature counting; sequence-of-events (SOE) monitoring on a 1 ms interval; and configurable, fail-safe output settings.

	AI-1	AI-10	DI-5	DI-10	AO-3	DO-1	DO-2	DO-6	IO-2	IO-3/IO-5	IO-4
DI Digital inputs			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	
DESCRIPTIONS	0-20 or 4-20 mA inputs	High performance	Dry contact inputs	Sequence-of-events (SOE)	Analog outputs	Relay outputs N.O./N.C.	Relay output N.O.	Open drain FETs	Multi 10	Multi 10	Multi 10

Communication option cards

A broad offering of communication options provides connectivity with the intelligent devices and networks that are used throughout today's measurement and control systems. Communication option cards are compatible with Kingfisher Plus+ processor modules and the MC-12 and MC-31 communications modules.

	OPT-A3	OPT-D	OPT-F	OPT-H	OPT-I	OPT-L	OPT-R2/R3/R4	OPT-T3
Name	Fiber Ethernet	Dial-up modem	Fibre serial	HART	Isolated	Line & radio FSK	Spread spectrum	Ethernet
DESCRIPTIONS	Optically isolated Ethernet communications	PSTN modem for worldwide phone system V.34	Optically isolated serial communications	Communicate using HART protocol	Isolated serial communications RS-232/485/422	Leased line & pocket radio interface V.23	Wireless license free communications	Communicate over 10/100 Mbit Ethernet RJ-45

Users can quickly become familiar with the Outlook-style displays Toolbox Plus+ provides for advanced configuration and diagnostics.

Communication 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, and SNMP.

Toolbox software

Semaphore's Toolbox Plus+ integrated operating environment combines configuration, program development, and maintenance in one simple-to-use package. Systems integrators and end users alike can view, edit, and diagnose a Kingfisher Plus+ solution with a highly intuitive, Outlook-style user interface.

Toolbox Plus+ eliminates the need to open — and switch between — multiple software packages, or engage in complicated programming. Toolbox Plus+ embeds the ISaGRAF IEC-61131-compliant environment and supports all five of the control languages it offers. This is also the first IEC 61499-compliant configuration environment that is intended for RTU products. In addition, the Kingfisher library of preprogrammed function blocks, which includes operations such as AGA flow calculations, simplifies applications development and makes it easy to add new capabilities to a Kingfisher Plus+ RTU solution.

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

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

Applications

The Kingfisher Plus+ RTU brings IP connectivity, powerful processing, advanced I/O capabilities, and open programming to applications in Semaphore's traditional end-user industries. Users in the broadcast/telecom, oil & gas, power, transportation, and water/wastewater industries will find a Kingfisher Plus+ configuration cost-effective over a broad range of installations.

KINGFISHER Plus+ SPECIFICATIONS

Designation	Industrial-grade remote terminal unit (RTU)

INPUTS & OUTPUTS

Maximum I/O points	1024
Backplanes	Up to 4 x 12 slot backplanes and 4 x 4 slot backplanes per RTU
I/O configuration	Automatic/manual
Backplane sizes	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

Type	PC-1: 80C188/IA188ES, 16 MHz
	CP-12: x86, 40 MHz
	CP-30: Cirrus ARM9 166 MHz
Flash RAM	PC-1: 128 KB
	CP-12: 512 KB
	CP-30: 16 MB
RAM	PC-1: 256 KB
	CP-12: 512 KB
	CP-30: 32 MB
Real-time clock	Yes
Battery backup	RAM/RTC — Lithium >7 years
RTU address	1 to 255 or 1-65535 (protocol-dependent)

SCAN RATE

Digital	0.5 ms/module
Analog	1.5 ms/module
PID	4/s

COMMUNICATIONS SUPPORTED

Total Ports / RTU	16
Master/slave	Yes
Peer-to-peer	Yes
Fallback levels	Yes
PC link	Yes
Protocol	Kingfisher, Modbus, DNP3, SNMP, Allen Bradley, and numerous other protocols available on request

OPTION CARDS

PC-1	1 x standard serial port, 1 x option port
CP-12	1 x standard serial port, 2 x option ports
CP-30	1 x standard Ethernet port, 2 x option ports
Available options	A3 (fiber Ethernet)
	D (dial-up modem)
	F (fiber serial)
	H (HART)
	I (isolated serial)
	L (line & radio FSK)
	R2 — 900 MHz Australia
	R3 — 2.4 GHz International
	R4 — 900 MHz USA
	T3 (Ethernet)

CONFIGURATION

Local (portable PC)	Yes
Remote via network	Yes
IEC 61131-3 (5 languages)	Yes
ISaGRAF flow chart (6th language)	Yes
Toolbox 32 ladder	Yes
IEC 61499 distributed processing	Yes

DIAGNOSTICS

Preprogrammed	Yes
I/O modules	LEDs
CPU modules	LEDs
Power supply modules	LEDs
Report via network	Yes
Software	Yes
Wireshark comms analyzer	Yes

DEBUG

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

POWER

AC supply	90 to 260 V
DC supply	20 to 60 V or 96 to 340 V
Solar supply	12 V dc
Power down modes	Yes
Battery backup	Yes
Battery size	Various
Battery charging option	Yes

ENVIRONMENTAL

Ambient temperature	-20° to 70°C
Storage temperature	-40° to 85°C
Humidity	5% to 98% RH noncondensing

REDUNDANCY LEVELS

CPUs/RTU	2
Power supplies/rack	2

COMPLIANCE STANDARDS

Generic emission standards	EN61000-6-4
Generic immunity standards	EN61000-6-2
Environmental standards	IEC 60068-2-3/IEC 60068-2-1

www.cse-semaphore.com

U.S.A.
CSE Semaphore Inc.
1200 Chantry Place
Lake Mary, FL 32746
U.S.A.
P +1 (407) 333 3235
F +1 (407) 386 6284

Australia
CSE-Semaphore
Unit 8, 3-5 Gilda Crt
Mulgrave, Victoria 3170
Australia
P +61 (03) 8544 8544
F +61 (03) 8544 8555

Europe
CSE-Semaphore Belgium
Waterloo Office Park — Building "M"
Dreve Richelle, 161
B-1410 Waterloo
Belgium
P +32 (2) 387 42 59
F +32 (2) 387 42 75

1061050 12/11

SEMAPHORE
a CSE-Global Group Company