



Remote Programmable Smart RTUs



Product at a glance

SCADAPack[™] x70 is the latest generation of SCADAPack Smart RTUs. Optimized for remote operations, the SCADAPack 570, 574 and 575 Smart RTUs are included in this series.

Simplicity: SCADAPack RemoteConnect configuration software facilitates configuration, logic development, data logging, and diagnostics in a single application, helping to reduce costs and overhead associated with maintaining multiple software applications for managing a single device. The SCADAPack 57x has ready-to-use Realflo[™] Oil and Gas Flow Computer solutions.

Efficiency: The SCADAPack x70 Logic Editor within RemoteConnect software is based on EcoStruxure[™] Control Expert software components, allowing for code reuse and sharing between Schneider Electric Modicon[™] PLCs and SCADAPack Smart RTUs.

Rugged: Designed with Cybersecurity and ruggedized communications in mind, SCADAPack 47x hardware features conformal-coated boards and wide operating temperatures of -40...70 °C (-40...158 °F). Class I, Div. 2 and Zone 2 hazardous area certifications are included.

Green Premium™ ecolabel product – Sustainable performance, by design

Remote Programmable Smart RTUs

Product Highlights:

Flexible Protocol Implementation

- Open standard telemetry protocols such as DNP3 level 4 with Security Suite (Secure Authentication) and IEC 60870-5-104
- Easily associate Modbus™ and DNP3 protocols to database objects and variables
- DNP3 routing and Modbus Store and Forward facilitate communications bridge functionality using either protocol

Tagged (named) Object Database

- Improved readability and debugging of configuration and logic
- Easy-to-use object data logging

Microsoft® Excel Export & Import of Database

Objects

- Create external templates for reuse and manipulation of configurations
- Reduce engineering time and costs for large systems with common configurations

x70 Logic Editor

- Based on EcoStruxure Control Expert (Unity Pro) software with 5-language support for IEC 61131-3
- Code segment and function block export & import for code sharing between Schneider Electric Modicon PLCs and SCADAPack RTUs
- Leverage experience and personnel training across remote (RTU) and in-plant (PLC) projects

Remote Maintenance

- Update firmware, load/update logic, load configurations, and view diagnostics remotely or locally with RemoteConnect software
- Manage and configure multiple devices such as HART® instruments, actuators, variable frequency drives (VFDs), and other devices using plug-in DTMs for FDT2 and FDT1.2 within RemoteConnect software

Remote Ready Hardware

- 12...30 Vdc Input Power with input voltage monitor
- Wide operating temperature -40...70 °C (-40...158 °F)
- · Conformal-coated circuit boards



Typical applications for SCADAPack 570/575 RTUs

Oil and Gas

- Support for Realflo™ Flow Computer, SCADAPack Smart RTU-based flow measurement application, providing flow computation for natural gas, hydrocarbon liquids and produced water
- Tank monitoring & automation
- Well test automation
- Well production and optimization

Water & Wastewater

- Leakage detection
- Equipment monitoring & control
- Water quality monitoring
- Irrigation
- DMAs (District Metering Areas), PMAs (Pressure Monitoring Areas)
- Monitoring flow / level / pressure and temperature, and many others...

Solution Ready

· Available Realflo Oil and Gas flow computer

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Configuring and programming SCADAPack 57x RTUs

RemoteConnect Software

RemoteConnect software facilitates configuration, diagnostics, logic development, and device management:

- Locally through any of the communication ports
- Remotely through serial or TCP/IP networks, modems and radios

Device Management

- Upgrade of SCADAPack firmware
- Upgrade of I/O expansion module firmware¹
- HART device configuration and data monitoring via vendor supplied plug-in DTMs²
- Asset Management Software (AMS) TCP/IP network access to HART instruments and actuators via HART pass through

Logic Development

RemoteConnect includes the SCADAPack x70 Logic Editor with which users can:

- Choose from five IEC 61131-3 compliant languages
- Use compiled run-time code for fast execution
- Import and export logic code segments for use in other SCADAPack projects or sharing³ with Modicon PLC projects
- Perform online debugging and logic modifications from the x70 Logic Editor
- Develop and write logic to a running system without interruption to the logic
- Deploy new logic code between scans with minimal effect on execution time
- Using the EFB Toolkit, C programming can be used to create custom functions and function blocks



Configuration

- Use descriptive naming of objects to enhance development, debugging, and translation to host systems
- Import or export configurations for templating and bulk editing externally in Excel
- Group, filter, and sort objects for easy viewing and editing with RemoteConnect software object browsers

Datalogging

- RemoteConnect includes the SCADAPack x70 data logger. This feature can be used to provide a detailed record of a remote asset when investigating its operation remotely or on site.
- Use the RemoteConnect object browser to configure database objects for periodic or event-driven data logging.
- RemoteConnect's visualization tool can be used to display logged data when connected to the SCADAPack.
- Store up to 1,000,000⁴ event records using internal memory and over 100,000,000 records using a USB drive.

Diagnostics

- View system information and status from object browsers within RemoteConnect software
- View advanced diagnostics using the Telnet command line interface, including built-in protocol analyzers for DNP3, IEC 60870-5-104 and Modbus

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Specifications

Architecture

Processor	SPEAr 1380 32-bit dual-core Cortex A9 microcontroller, 500 MHz
Memory	 128 MB NAND FLASH, 128 MB DDR3 RAM Non-Volatile RAM CMOS SRAM with lithium battery retains contents for 2 years with no power
Events and datalogging	 DNP3 and IEC 60870-5-104 events: 40,000⁵, store up to 1,000,000 events using internal file system Store up to 100,000,000 events using USB drive
Database capacity	 Maximum number of database objects: Typically 15,000 Maximum number of database objects linked with logic programming: Typically 6,000 Object memory: Typical 2,600,000 bytes (event buffer at 5000 events) Maximum: 2,756,800 bytes (event buffer at 100 events) Minimum: 1,480,000 bytes (event buffer at 40,000 events)
Maximum DNP3 Outstation devices ⁵	Approximately 90
Maximum DNP3 Outstation objects ⁵	Approximately 15,000 ⁶ across DNP3 Outstation devices
Maximum Modbus Server Devices ⁷	150
Maximum objects mapped from Modbus devices	3,000 ⁶
File system storage	Internal: 70 MB usable; External: 32 GB (using optional USB memory stick)
USB host storage	 Single-partition plug-in USB mass storage devices up to 32 GB⁸ File format: FAT32

Communications

Serial Ports: Serial1, Serial2	 RS-232 port, 8-pin modular RJ45 jack, +5 Vdc power control, hardware handshaking, maximum baud rate 115,200 bps Rated to ±15 kV (IEC 61000-4-2, Air Discharge) static protection
Serial Ports: Serial3, Serial4	 Configurable as: RS-232 or RS-485 two-wire, half-duplex, maximum baud rate 115,200 bps 8-pin modular RJ45 jack, rated to ±15 kV (IEC 61000-4-2, Air Discharge) static protection
Serial Protocols	DNP3 level 4 server/client and peer-to-peer, Modbus RTU server/client
Ethernet Ports: Eth1, Eth2, Eth3	8-pin modular RJ45 jack, 10/100 Mbps UTP (10/100 Base-T), transformer-isolated
IP Protocols	 DNP3 level 4 in TCP or in UDP Client/Server and peer-to-peer, Modbus/TCP Server, Modbus/TCP Client IEC 60870-5-104 controlled station Telnet Server, FTP Server HART pass through over TCP when connected to SCADAPack 6602 modules
USB Device Port	USB 2.0 compliant "B"-type receptacle, for local configuration
USB Host Port	USB 2.0-compliant "A"-type receptacle, supports USB memory sticks up to 32 GB6

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Specifications - cont'd

General	
Logic Control	RemoteConnect software (five IEC 61131-3 languages)
I/O Terminations	Plug-in terminal blocks 0.08103.31 mm ² (2812 AWG), solid or stranded
Dimensions	 SCADAPack 570: 150.5 mm x 134.8 mm x 74.9 mm (5.93 in. wide x 5.31 in. high x 2.95 in. deep) SCADAPack 574: 150.5 mm x 181.7 mm x 91.0 mm (5.93 in. wide x 7.15 in. high x 3.58 in. deep) SCADAPack 575: 150.5 mm x 182.3 mm x 86.5 mm (5.93 in. wide x 7.18 in. high x 3.41 in. deep)
Packaging	 Corrosion-resistant; zinc-plated steel base and stainless steel cover with black enamel paint G3 conformal-coated circuit boards
Environment	 Operating temperature -4070 °C (-40158 °F), storage temperature, -4085 °C (-40185 °F) 5% RH to 95% RH, non-condensing
Shock	IEC 61131-2 mechanical shock (tested up to 15 g shock)
Vibration	 IEC 61131-2 58.4 Hz: Amplitude controlled, 7.0 mm (0.28 in) peak-to-peak 8.4150 Hz: Acceleration controlled, 1.0 g peak
Realflo Flow Computer	 Flow Run License Options: 3 Runs - any combination of gas, liquid or water totaling 3 runs (gas runs include gas transmission option) 6 Runs - any combination of gas, liquid or water totaling 6 runs (gas runs include gas transmission option) 12 Runs - any combination of gas, liquid or water totaling 12 runs (gas runs include gas transmission option) 20 Runs - any combination of gas, liquid or water totaling 20 runs (gas runs include gas transmission option)

Power Supply

Rated Voltage and Power	 1230 Vdc: SCADAPack 570 typical 4.3 W SCADAPack 574 typical 6.5 W, Max. 9.2 W SCADAPack 575 typical 5.4 W, Max. 9.1 W Class 2 power supply required
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Certifications

EMC & Radio Frequency	 FCC 47 CFR Part 15, Subpart B ICES-003 CE and RCM markings
General Safety	 SCADAPack 570 and 575: UL 508 SCADAPack 574: IEC 61010-2-201; UL; CSA
Hazardous locations (option)	 cCSAus Non-Incendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D and Class I, Zone 2 SCADAPack 570 and 575: IECEx/ATEX Ex nA IIC T4 Gc -40 °C ≤ Ta ≤ +70 °C SCADAPack 574: ATEX Ex nA IIC T4 Gc -40 °C ≤ Ta ≤ +70 °C For the latest information regarding product environmental compliance visit the Schneider Electric Check a Product portal at https://checkaproduct.se.com/ For Eurasian Economic Union: EAC

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Specifications - cont'd

Digital and Analog Inputs/Outputs

	Digital inputs		Digital outputs		Counter inputs			Analog	Analog
	Controller Board: 10 ms SOE	Lower IO Module: 1 ms SOE	Controller Board:	Lower IO Module:	Controller Board: 10 KHz (shared)	Lower IO Module: 1.5 KHz (shared)	Lower IO Module: 150 Hz (shared)	Lower IO Module:	outputs (option) Lower IO Module:
SCADAPack 570	2	-	1	-	2	-	-	-	-
SCADAPack 574	2	16	1	10	2	-	-	8	2
SCADAPack 575	2	16	1	8	2	4	4	6	2

Digital Inputs	 Controller Board: 2 Din12 1224 Vdc DC input current: 0.4 mA at 12 Vdc, 0.8 mA at 24 Vdc Ground return connected to Chassis Ground Lower IO Module 574: 16 D1015 1224 Vdc, Turn-on voltage: 9 Vdc (minimum), Turn off voltage: 4 Vdc (maximum) Over-voltage tolerance: 150% sustained over-voltage without foreseeable damage DC input current: 0.67 mA typical at 24 Vdc Isolation: in groups of 8, 1500 Vac from logic supply and chassis Lower IO Module 575: 16 D1116 1224 Vdc Isolation: in 2 groups of 8. Isolation from RTU logic and chassis: 1000 Vac/ 1500 Vdc
Counter Inputs	Controller Board: 2 • DI12 • Shared with 2 digital input channels • 010 kHz Lower IO Module 575: 8 • DI14: 01.5 kHz • DI58: 0150 Hz • Shared with first 8 digital input channels on lower I/O board
Digital Outputs	Controller Board: 1 • Dout • Sinking MOSFET output, rated 30 Vdc, 0.5 A, ground return connected to Chassis Ground Lower IO Module 574: 10 • DO09 • Dry-contact or solid-state relays (Form A - normally open) • 5 contacts share one common • Isolation: Chassis or logic to contact 1500 Vac (1 min.) • Controls: (DNP3 protocol) Direct Operate, Select Before Operate, Trip/Close, Latch, Pulse Dry-contact relays: • Contact rating 3 A, 30 Vdc (resistive), 12 A maximum per common Solid-state relays: • Load voltage 30 Vdc maximum • Load current 2 A continuous max at 50 °C (122 °F), or 1.33 A at 70 °C (158 °F) ambient Lower IO Module 575: 8 • DO18 • DO18 • 2 Form C relays: SPDT, separate Normally Open/Normally Closed/Common) • 6 Form A relays: Normally Open, one shared common Isolation: 500 Vac minimum to RTU logic • Maximum Switching Voltage: 30 Vdc or 25 Vac Maximum Switching Voltage: 30 Vdc or 25 Vac • Maximum Switching Ioad: 60 W or 50 VA (2 A) • Status & Reporting: Individual relay status feedback to software for quality indication • Controls (DNP3 Protocol): Direct Operate, Select Before Operate, Trip/Close, Latch, Pulse

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Specifications - cont'd

I/O Expansion Limits9

Digital and Analog Inputs/Outputs

Analog Inputs	 Lower IO Module 574: 8 AI07 Software-configurable: 020 mA, 420 mA, 05 Vdc or 010 Vdc, plus over range Resolution: 15-bit ADC (15-bit in measurement range 010 Vdc, and 14-bit in 5 Vdc or 20 mA input ranges) Accuracy: ±0.1% of full scale at 25 °C (77 °F), ±0. 2% over temperature range Input Resistance: 250 Ω in current ranges, 20 kΩ in voltage ranges Normal mode rejection: 27 dB at 60 Hz Sampling rate: 170 ms Isolation: 500 Vac from logic and chassis
	Lower IO Module 575: 6 • Al16 Dipswitch-configurable to current or voltage input • Input ranges: 020 mA, 420 mA, 05 Vdc, 15 Vdc • Uni-polar, differential • Resolution: 24-bit ADC (19-bit over the measurement range) • Accuracy: ±0.1% of full scale at 25 °C (77 °F), ±0.2% over temperature range • Isolation: 250 Vac isolation from channel to channel and from logic and chassis • Input Resistance: 250 Ω or 800 kΩ in current/voltage configurations • Under range: 420 mA measures to 0 mA • Common Mode Rejection: -80 dB @ 50/60 Hz • Sampling rate: software-selectable to 30 ms (unfiltered) or 500 ms (filtered)
Analog Outputs	 Lower IO Module 574: 2 AO01 Optional 020 mA or 420 mA, voltage output may be accomplished with external precision resistor. Lower IO Module 575: 2 AO12 Optional Output ranges: 020 mA, 420 mA, voltage output may be accomplished with external precision resistor Uni-polar Resolution: 12-bit over 020 mA range Accuracy: ±0.15% at 25 °C, ±0.35% of full scale over temperature range Power Supply: 1230 Vdc, external, Current: 50 mA Isolation: transformer, 500 Vdc maximum to RTU logic and chassis Load Range: 12 Vdc: 0475 Ω, 24 Vdc: 01075 Ω Status & Reporting: Individual Open Loop status to software for quality indication Controls DNP3 Protocol: Direct Operate, Select Before Operate
Internal Power Monitor	Input voltage monitor with low voltage indicationMemory/RTC battery voltage monitor with low voltage indication
Internal Temperature Monitor	Measurement range -4075 °C (-40167 °F)
Additional I/O	
Supported Modules	 Supported modules: 5304, 5405, 5410, 5414, 5415, 5505, 5506, 5606, 5607, 6601, 6602, 6607 When SCADAPack 57x controller is used with 5000 series modules, order one adaptor cable ref. TBUM297138 to adapt from 20 conductors to 16 conductors).

Refer to the SCADAPack x70 Documentation Set > Hardware Manuals for further details.
Maximum intermodule cable length (not including the short cables that come with each module) is 1.82 m (75 in.)

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Model Code

TEOF 37 30A30AB003 is an example of a SCADAFack 373 part number using the model codes below
Select: Hardware platform
SCADAPack 570, 32-bit controller, Dual Core, SCADAPack x70 Firmware (RemoteConnect Configuration & IEC 61131-3 programming software, included)
SCADAPack 574, 32-bit controller, Dual Core, comes with additional I/O, SCADAPack x70 Firmware (RemoteConnect Configuration & IEC 61131-3 programming software, included)
SCADAPack 575, 32-bit controller, Dual Core, comes with additional I/O, SCADAPack x70 Firmware (RemoteConnect Configuration & IEC 61131-3 programming software, included)
Select: SCADA Security
Standard security features, includes DNP3 Secure Authentication SAv2 (Security Administrator application required)
Select: Protocol Ontion
DNP3 Serial/IP client/server/peer-to-peer, Modbus RTU/TCP client/server, TCP/IP, and IEC 60870-5-104
Select: License Option
Standard DNP3 features, includes DNP3 Data Concentrator Controlling Station License
Select: Analog Inputs
SCADAPack 570: None SCADAPack 574: adds 8, selectable as 020 mA, 420 mA, 05 Vdc, 15 Vdc, or 010 Vdc SCADAPack 575: adds 6, selectable as 020 mA or 420 mA
SCADAPack 575: adds 6, shipped selectable as 05 Vdc or 15 Vdc
Select: Digital Inputs/Outputs
SCADAPack 570: • 2 Digital Inputs (1224 Vdc) • 1 Digital Output (open collector)
 SCADAPack 574 adds: 16 Digital Inputs (1224 Vdc) 10 Digital Outputs (Dry Contact relays) SCADAPack 575 adds: 16 Digital Inputs (1224 Vdc) 8 Dry Contact Relay outputs (6 Form A, 2 Form C)
SCADAPack 574 adds: • 16 Digital Inputs (1224 Vdc) • 10 Digital Outputs (Solid State relays)

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Model Code cont'd

	TBUP575UA56AB00S is an example of a SCADAPack 575 part number using the model codes below
Code	Select: Analog Outputs
0	None
1	SCADAPack 574 and SCADAPack 575: 2 channel, shipped selectable as 020 mA or 420 mA, external DC supply required

Code	Select: Realflo Flow Computer - Flow Run License Options
0	None
3	3 Runs - any combination of gas, liquid or water totalling 3 runs (gas runs include gas transmission option)
6	6 Runs - any combination of gas, liquid or water totalling 6 runs (gas runs include gas transmission option)
Т	12 Runs - any combination of gas, liquid or water totalling 12 runs (gas runs include gas transmission option)
V	20 Runs - any combination of gas, liquid or water totalling 20 runs (gas runs include gas transmission option)

Code	Select: Certifications
S	 IEC 61010-2-201; UL; CSA; EMC and radio frequency; FCC 47 CFR Part 15, Subpart B; ICES-003; CE and RCM markings For Eurasian Economic Union: EAC
X	 SCADAPack 570 and 575: Adds IECEx/ATEX: Ex nA IIC T4 Gc -40 °C ≤ Ta ≤ +70 °C SCADAPack 574⁸: Adds ATEX: Ex nA IIC T4 Gc -40 °C ≤ Ta ≤ +70 °C For Eurasian Economic Union: EAC
U	 Adds cCSAus Non-Incendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D and Class I, Zone 2 For Eurasian Economic Union: EAC

I/O Expansion Modules (6xxx)⁷

Part No.	Expansion Modules (complete the following part numbers with an S, U, or X suffix depending on certification required)
Models supported by SCADAPack 530E/535E/570/574/575 models only	
TBUX297583	Model 6601-20mA, 16 D/I 1224 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/420 mA)
TBUX297585	Model 6601-20mA, 16 D/I 1224 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/420 mA), 2 A/O (external DC supply)
TBUX297590	Model 6602, Analog I/O, HART, 8 A/I, 4 A/O, 420 mA (requires external DC supply)
TBUX297591	Model 6602, Analog I/O, HART, 8 A/I, 420 mA

1. I/O expansion module firmware upgrades are supported on 6xxx modules only.

2. DTM is Device Type Manager – vendor-supplied device driver for device-specific configuration and data display. RemoteConnect software is an FDT1.2

(Field Device Tool version 1.2) and FDT2 (Field Device Tool version 2) container for compatible DTMs.

3. Sharing of logic code does not include hardware specific functions or system variables that are not common to both platforms.

4. Internal memory can be configured to limit internal event storage. External events are stored on a device formatted to 32 GB.

5. Polled by the SCADAPack when it is operating as a DNP3 Controlling Station

6. Varies depending on object types, event storage, and integrated application memory usage.

7. Refer to product manual for details as actual maximum number of Modbus server devices depends on polling method(s) and port type (serial or Ethernet).

8. Larger USB mass storage devices may be formatted to 32 GB FAT32.

9. Additional power supply modules (model 5103 or 6103) may be required for additional bus power, depending on how many expansion modules are included on the bus.

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Note: Refer to the SCADAPack x70 Documentation Set for further details.

Disclaimer:

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Part Number TBULM08039-08 v34

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