SCADAPack
314 | 330 | 334

Smart Remote
Terminal Units

Built on the proven SCADAPack™ 300 controller platform that adheres to open standards and can operate in the harsh demands of a remote environment, the SCADAPack 314/330/334 Smart RTUs feature various communication links, a wide range of analog and digital I/O and a 12...30 Vdc supply.

The SCADAPack 314/330/334 Smart RTU helps to ease operations with:

• Simple ladder logic option (Telepace™ Studio)

• 28,192 permanent Modbus™ registers for use with logic and C++ applications

• on SCADAPack 330/334, USB host port for data logging to USB memory stick

• Up to 39 integrated digital/analog inputs/outputs, and more with I/O expansion modules

• Advanced power management

• Tool-less DIN rail mounting system

• IP2x terminal blocks

• Operation from –40 to +70°C (–40 to +158°F)

• Cost-effective, compact form factor

And provides powerful software tools and firmware features:

• Struxureware™ SCADA Expert ClearSCADA™ driver for Realflo™ remote configuration and data acquisition

• Optional open-standard IEC 61131-3 programming environment

• C/C++ programming support

• Open-standard industrial protocols Modbus RTU/TCP/UDP and DF1 master/slave, and open-standard telemetry protocol DNP3 level 2

• Store & forward mechanism between upstream and downstream SCADAPack 300 controllers

• RealfloTM flow computer for gas and liquids (including specific protocols used for Flow Measurement: Realflo Modbus and Enron Modbus)

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Specifications – General characteristics

Controller

Processor	• 32-bit ARM7 microcontroller, 32 MHz clock, integrated watchdog timer. • Microcontroller, co-processor, 20 MHz clock
Memory	• 16 MB FLASH ROM, 4MB CMOS RAM, 4kB EEPROM • CMOS SRAM with lithium battery retains contents for 2 years with no power
Datalog Capacity	465,000 words
File system Typical storage	Internal: 6MB, external : up to 32GB on USB memory stick

Communications

Serial Port : COM1, COM2	RS-232 port, 8-pin modular RJ45 jack, full or half duplex, or RS-485 port, 2-wire, half-duplex, supports baud rates up to 115,200 bps in RS-232 mode
Serial Port : COM3	P330/P334 only, RS-232 port, 8-pin modular RJ45 jack, full or half duplex with RTS/CTS control and operator interface power control, supports baud rates up to 115,200 bps.
Embedded Wireless	Specific controller versions embed a license-free radio module (different options: 900 Mhz, 2.4 Ghz) that uses one of the serial ports
Serial Protocols	Modbus slave/master, DF1 master/slave, DNP3 level 2 slave
Ethernet port (330/334 only)	8-pin modular RJ45 jack, 10/100 Mbps UTP (10/100Base-T), transformer-isolated
IP Protocols (330/334 only)	• Modbus/TCP Server, Modbus/TCP Client, Modbus RTU in TCP Client , DNP3 level 2 in TCP Slave • FTP Server
Store & Forward	Stores & forwards frames between upstream and downstream SCADAPack 300 Smart RTUs
USB Device	USB 2.0 compliant "B"-type receptacle, for local configuration
USB Host	330/334 only: USB 2.0 compliant "A"-type receptacle, supports USB devices up to 32 GB (specific memory sticks supported)

General

Logic Control	SCADAPack Telepace Studio ladder logic or IEC 61131-3 SCADAPack Workbench programming suite (LD, ST, FBD & SFC)
I/O Terminations	SCADAPack 330: 6,pole connector, 0.0810...3.31mm2 (28...12 AWG), solid or stranded SCADAPack 314/334: 5, 6, 7, 9, pole connectors, 0.0810...3.31mm2 (28...12 AWG), solid or stranded
Dimensions	SCADAPack 330: 144.0 mm (5.65") wide, 140.04 mm (5.53") high, 46.5 mm (1.83") deep SCADAPack 314/334: 144.0 mm (5.65") wide, 181.0 mm (7.13") high, 66.0 mm (2.60") deep
Enclosure	Corrosion resistant zinc-plated steel with black enamel paint
Environment	• Conformally coated • –40°C (–40°F) to 70°C (158°F) operating, –40°C (–40°F) to 85°C (185°F) storage • 5% RH to 95% RH, non-condensing
Shock & Vibration	IEC 60068-2-27 (tested up to 15g), IEC 60068-2-6
Warranty	3 years on parts and labor

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Specifications – General characteristics

Power Supply

Rated Voltage	12...30 Vdc. Limit voltage: 11.5...32 Vdc; turn on voltage: 10...11.5 Vdc; turn off voltage: 9...10 Vdc
Maximum Power	7 W at 24 Vdc (internal 5 Vdc supply fully loaded)
Power Requirements	SCADAPack 330, 314 and 334 support 3 power modes: sleep, normal clock speed and reduced clock speed • typical power consumption (at 20°C/ 68°F):

SCADAPack Model	Ethernet/ USB	DO Relays	At normal clock speed		At reduced clock speed	
			12 Vdc	24 Vdc	12 Vdc	24Vdc
Sleep mode			80mW	240mW	80mW	240mW
330	OFF		0.7 W	0.9 W	0.5 W	0.7 W
	ON	—	1.8 W	2.0 W	1.6 W	1.8 W
314	—	OFF	0.9 W	1.2 W	0.7 W	1.0 W
	—	ON	2.9 W	3.4 W	2.7 W	3.2 W
334	OFF		0.9 W	1.2 W	0.7 W	1.0 W
	OFF	ON	2.9 W	3.4 W	2.7 W	3.2 W
	ON	OFF	2.4 W	2.8 W	2.3 W	2.6 W
	ON		4.0 W	4.5 W	3.8 W	4.3 W

Certifications

EMC and Radio Frequency	• ICES-003 Issue 5 August 2012 • CE and RCM markings
General Safety	UL 508
Hazardous Locations	• cCSAus Non-incendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D • IECEx/ATEX Class I, Zone 2 (does not include embedded Wireless versions)

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Specifications – Digital and Analog Inputs/Outputs

Controller Board

Counter Inputs	• 1, 0...10Hz (dry contact) • 2, 0...10kHz (turbine or dry contact)
Internal Power monitor	Power input - analog input and low indication, onboard lithium battery - low indication
Internal Temperature Monitor	Controller temperature range -40°C…+75°C (-40°F...+167°F)

I/O board (314/334 only)

Analog Inputs	8, software-configurable to 0...20, 4...20mA , 0...5 or 0...10V, plus over range • Resolution: 15-bit ADC (15-bit over the measurement range in 10V, 14-bit in 20mA) • Accuracy: ±0.1% of full scale at 25°C (77°F), ±0. 2% over temperature range • Input Resistance: 250 Ω or 20 kΩ in 20mA or 10V configurations (60 kΩ for 32.768V) • Normal rejection mode: 27 dB at 60 Hz • Sampling rate: 170ms • Isolation: 500 Vac from logic and chassis
Analog Outputs	2 (optional), 0...20/4...20mA, voltage output may be accomplished with external precision resistor Same features as for the analog outputs located on the controller board
Digital Inputs	16, 12…24 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 at 24 Vdc • Time stamping : 170ms • Isolation : in group of 8, 1500 Vac from logic supply and chassis
Digital Outputs	10, relays (Form A) • 4 contacts share one common • Isolation : isolated in groups of 4. Isolated from RTU logic, RTU chassis and other groups to 1500 Vac • Maximum Switching Voltage: 30 Vdc or 250 Vac (resistive) • Maximum Switching Load: 150 W or 1250 VA (5 A)

Additional I/O

I/O Expansion	Supported modules : • Current 5000 modules (except 5608 and 5610 models) Maximum number of modules per unit: • SCADAPack 330: 8 (*) • SCADAPack 314/334: 7 (*) (*): to reach this limit, additional power supply modules (reference: 5103) are required

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Model Code

	SCADAPack 314/330/334
Model	**Select: Controller**
TBUP314	SCADAPack314, Controller 32 bits, 8 Analog Inputs,2 Analog Outputs, 26 Digital I/O, 3 High Speed Counter Inputs
TBUP 330	SCADAPack330, Controller 32 bits, comes with 3 high speed CTR
TBUP334	SCADAPack334, Controller 32 bits, comes with the above plus additional inputs/outputs

Code	**Select: Future Option**
1	None

Code	**Select: Gas & Liquids Flow Run-Time Option**
A	none
	Gas Only Flow Computer Options
G	2 Run Gas Flow
F	4 Run Gas Flow
V	2 Run Gas Flow - Gas Transmission Version (Requires RealFLO 6.72+)
W	4 Run Gas Flow - Gas Transmission Version (Requires RealFLO 6.72+)
X	Gas Flow Controller with 3 Pemex Gas Transmission flow runs (requires Reaflo 6.82+)
	Gas & Liquids Flow Computer Options
L	Gas & Liq 1: Supports 1 Gas run, 1 Liquid run, and 1 Water run
M	Gas & Liq. 2: Supports 2 Gas runs, 2 Liquid runs, and 2 Water runs
N	Gas & Liq. 3: Supports 3 Gas runs, 3 Liquid runs, and 3 Water runs
P	Liq. 4: Supports 4 Liquid runs and 4 Water runs

Code	**Select: Protocol Option**
2	Modbus and DNP3 level 2 protocol emulation

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Model Code

	SCADAPack 314/330/334
Code	**Select: Programming Environment**
0	Telepace Ladder logic and C language firmware loaded – IEC 61131-3 enabled (Programming tools sold separately)
1	IEC 61131-3 and C language firmware loaded – Telepace enabled (Programming tools sold separately)

Code	**Select: Analog Inputs**
A	P330: none. P314/334 : 8 selectable as 0...20mA, 4...20mA, 0...5V or 0...10V

Code	**Select: Digital Inputs/Outputs**
A	P330 only: none
B	P314/334 only: adds 32 16 digital inputs (12-24V), 10digital outputs (Dry Contact relay for Class I Div 2, Solid State relay for IECEx/ATEX)

Code	**Select: Analog Outputs**
0	None
1	P314/334 only: 2 channel Analog Output, 0..20 mA, external DC supply

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Model Code

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Code	Select: Integrated Communications Interfaces
0	None
	FreeWav & MD Radios (requires one RS232 port)
1	900Mhz FreeWave Spread Spectrum Radio
A	900MHz MDS Spread Spectrum Radio
	Trio™ Radios - 900MHz (requires one RS232 port)
B	900MHz Trio Spread Spectrum Radio with encryption, 902-928MHz (FCC / IC)
C	900MHz Trio Spread Spectrum Radio with encryption, 915-928MHz (AUS)
D	900MHz Trio Spread Spectrum Radio, 915-928MHz (BRAZIL)
E	900MHz Trio Spread Spectrum Radio, 921-928MHz (NZ)
	Trio Radios - 2.4GHz (requires one RS232 port)
J	2.4GHz Trio Spread Spectrum Radio, ETSI/100mW, ATEX (EUROPE)
K	2.4GHz Trio Spread Spectrum Radio with Encryption, 500mW (CANADA, USA & AUSTRALIA)
L	2.4GHz Trio Spread Spectrum Radio, 500mW (OUTSIDE OF EUROPE, CANADA, USA & AUSTRALIA)

Code	Select: Certifications
S	With FCC, UL508, CE marking and RCM
X	Adds IECEx/ATEX Class I, Zone 2
U	Adds cCSAus Nonincendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D

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