



39RTMCAN 16207-61/13

Siemens APACS+ Resistance Temperature Module

Product scope

- Interfaces RTDs and other resistance input signals to a control module IOBUS.
- Provides 16 configurable channels isolated in eight groups of two channels.
- Supports RTD input and resistance input channel types with configurable filtering and response time.
- Requires the installed assembly code and channel configuration to be checked before legacy-system replacement.

Manufacturer source

Siemens APACS+ and QUADLOG Product Line Cancellation Announcement, Appendix A

The enclosed Siemens pages identify 39RTMCAN as an APACS+ resistance temperature module and reproduce the related module-family configuration pages where available. The complete order and nameplate identifier is retained on this Apter cover for procurement matching.

Request a fast quote	Product reference	
Email: info@apterpower.com Phone: +86 18106909650 apter.com/inquiry.php	39RTMCAN 16207-61/13	

The enclosed manufacturer pages are reproduced without alteration to technical content. External interactive links and unrelated pages are excluded from this web-optimized copy.

September 1, 2011

Reference: APACS+ and QUADLOG Product Line Cancellation Announcement

Appendix A:

UPH:16804-48	IFI QUADLOG Star Kit	Yes	
UPH:16807-33	POWER SUPPLY FILTER	Yes	
UPH:16809-10	SRSA WIRE TYPE KIT FOR 48VDC,	Yes	
UPH:16809-12	SRSA PLUG TYPE KIT FOR 48VDC,	Yes	
UPH:16809-6A	SRSA WIRE TYPE KIT-FOR 24VDC	Yes	
UPH:16809-8A	SRSA PLUG TYPE KIT-FOR 24VDC	Yes	
UPH:39ACM24BEN	CONTROLLER ADVANCED MODULE-4MB - APACS+	No	October 1, 2011
UPH:39ACM28AEN	CONTROLLER ADVANCED MODULE-8MB - APACS+	No	October 1, 2011
UPH:39ACM34AAN	CONTROLLER ACCEL ADVANCED 4MEG - APACS+	No	October 1, 2011
UPH:39ACM38AAN	CONTROLLER ACCEL ADVANCED 8MEG - APACS+	No	October 1, 2011
UPH:39BCMNB	MODULE BUS CONTINUATION - APACS+	Yes	
UPH:39BDMNB	MODULE BUS DIVERter - APACS+	Yes	
UPH:39EAMCB	MODULE ENHANCED ANALOG - APACS+	Yes	
UPH:39HFM2CB	MODULE HART FIELDBUS - APACS+	Yes	
UPH:39IDM115ACB	MODULE STANDARD DISCRETE INPUT - APACS+	Yes	
UPH:39ODM115ACB	MODULE STANDARD DISCRETE OUTPUT - APACS+	Yes	
UPH:39PFMAAN	MODULE PROFIBUS INTERFACE	Yes	
UPH:39PSR2ANCN	POWER RACK 200 WATT 115/230VAC	No	October 1, 2011
UPH:39PSR4ANDN	POWER RACK 400 WATT 115/230VAC	No	October 1, 2011
UPH:39PSR4ANEN	POWER RACK 400 WATT 115/230VAC	Yes	
UPH:39RTMCAN	MODULE RESISTANCE TEMPERATURE - APACS+	Yes	
UPH:39SAIAAN	MODULE STANDARD ANALOG INPUT - APACS+	Yes	
UPH:39SAMCAN	MODULE STANDARD ANALOG - APACS+	Yes	
UPH:39SCMNNNAAN	SATELLITE CONTROLLER MODULE	No	October 1, 2011
UPH:39SDM024DCCB	MODULE STANDARD DISCRETE -24V - APACS+	Yes	
UPH:39SDM048DCCB	MODULE STANDARD DISCRETE -48V - APACS+	Yes	
UPH:39VIMCCN	MODULE VOLTAGE INPUT - APACS+	Yes	
UPH:QLBCMNB	MODULE BUS CONTINUATION - QUADLOG	Yes	
UPH:QLBDMNB	MODULE BUS DIVERter - QUADLOG	Yes	
UPH:QLCAMAAN	MODULE CRITICAL ANALOG I/O - QUADLOG	Yes	
UPH:QLCAIAAN	MODULE CRITICAL ANALOG INPUT MODULE - QUADLOG	Yes	
UPH:QLCCM22AAN	MODULE CRITICAL CONTROL MODULE - QUADLOG	No	October 1, 2011
UPH:QLCCM24AAN	MODULE CRITICAL CONTROL MODULE - QUADLOG	No	October 1, 2011
UPH:QLCCM32AAN	MODULE CRITICAL CONTROL MODULE - QUADLOG	No	October 1, 2011
UPH:QLCCM36AAN	MODULE CRITICAL CONTROL MODULE - QUADLOG	No	October 1, 2011
UPH:QLCDM024DCBAN	MODULE CRITICAL DISCRETE IN 24V QUADLOG	Yes	
UPH:QLCDM048DCBAN	MODULE CRITICAL DISCRETE IN 48V QUADLOG	Yes	
UPH:QLCDODCAAN	MODULE CRITICAL DISCRETE OUT MODULE 24VDC to 125 VDC	Yes	
UPH:QLEAMBBN	MODULE ENHANCED ANALOG I/O - QUADLOG	Yes	
UPH:QLIDM115ACBBN	MODULE STANDARD DISCRETE INPUT (115VAC)	Yes	
UPH:QLODM115ACBBN	MODULE OUTPUT DISCRETE (32 CH, 115VAC)	Yes	
UPH:QLRTMBAN	MODULE RESISTANCE TEMPERATURE - QUADLOG	Yes	
UPH:QLSAMBAN	MODULE STANDARD ANALOG I/O - QUADLOG	Yes	

I/O Module and Channel Parameters

Note

As listed above, there are two possibilities for an output channel to fail off. One way is when the hard fuse blows (it is not field replaceable); the other is when the soft-fuse trips (it is locally or remotely resettable). The soft-fuse trip error cannot be disabled by the softlist.

Shutdown_Channel: When TRUE and channel quality is BAD or QUESTIONABLE, the SDM+ module disables (0 mA) all of its output channels and reports a shutdown error (Class 4, SSC 37, EC 31). Based on the default configuration supplied with QUADLOG, a class 4 error causes all outputs to shut down to their de-energized state (i.e. 0 volts or 0 mA). The configuration can be changed to only shut down the affected outputs or not to shut down at all. Only channels that are critical to the process should be configured as shutdown_channels. Note that in rack-to-rack redundant systems, a switchover to the standby side, rather than a system shutdown, occurs if an I/O failure occurs. Both sides of a redundant system would have to fail for a shutdown to occur. Refer to the section titled [Shutdown Logic](#).

7.8 QUADLOG Resistance Temperature Module (RTM)

The RTM interfaces RTDs (resistance temperature devices) and other resistance input signals to a control module's IOBUS. It provides 16 configurable channels isolated into eight groups of two channels each. Each input circuit is isolated from the module's CPU, IOBUS, and ground. In addition, each two-channel group is electrically isolated from the other groups.

QUADLOG RTM CHANNEL TYPES

The channel types supported for the RTM are listed here. For information on configuring this channel type, see the sections titled [QUADLOG RTM RTD Input \(RTD\)](#) and [QUADLOG RTM Resistance Input \(RIC\)](#). In a DP/IO Bus Link environment, this information in these section supersedes the information in the "Configuring I/O Channels" section of [Using the 4-mation Configuration Software](#) (document number CG39-20).

- RTM RTD Input (RTD)
- RTM Resistance Input (RIC)

7.8.1 QUADLOG RTM RTD Input (RTD)

The RTD Input channel type returns a REAL variable. The table below shows the softlist parameters for this channel type.

PARAMETER	SELECTION	DEFAULT
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I/O Module and Channel Parameters

PARAMETER	SELECTION	DEFAULT
RTD_Type	Pt_100_IEC/DIN Pt_100_JIC/SAMA Pt_200_IEC/DIN Pt_200_JIC/SAMA Ni_100_DIN Linear	Pt_100_IEC/DIN
Alpha	Any REAL Number	0.00385
Resistance	10.0 to 200.0 Ohms	100.0
Bias	Any REAL Number	0.0
EngUnits	DegF, DegC, DegK, Deg R	Deg C
MinRange	Any REAL Number >= MinRange of selected RTD	Min Range of selected RTD Type (on-line) -200.0 (off-line)
MaxRange	Any REAL Number <= MaxRange of selected RTD	Max Range of selected RTD Type (on-line) +850.0 (off-line)
Scale_To_Percent	Yes_No Enforced by RTM board	No
InputFaultState	No_Change, MinRange, MaxRange	MinRange
DigFiltTimeCnst	0.0 to 159.0 sec.	0.016
StepResponseTime	0.100 to 40.000 sec.	1.0

RTD_Type: Select from the list of supported RTD types. If Linear is selected, the measured input, R, is linearized using a straight line approximation as detailed in [ProcessSuite® 4-mation Configuration QUADLOG® I/O Module Configuration Version 3.32 or Higher](#) (CGQL-4).

Alpha: Alpha is the average percent change, in resistance per degree, of a pure metal resistance device between 0 and 100 C. The most commonly used element material is the standard platinum with a resistance of 100 ohms at 0 degC and a temperature coefficient resistance of 0.00385 ohms/ohm/ C (IEC 751 and DIN 43760).

This parameter need only be specified when the RTD_Type specified is Linear.

Resistance: The resistance, in ohms, of the RTD at 0°C. This parameter need be specified only when the RTD Type specified is Linear.

Bias: You can enter a bias, in engineering units, on a per channel basis to compensate for known offsets. The bias value is added to the linearized input.

EngUnits: You can select from the following engineering units: DegF, DegC, DegK, DegR.

MinRange: MinRange is an optional parameter that allows you to specify a minimum operating value in EngUnits. If the reading drops 5% below this value, an underrange error is reported.

MaxRange: MaxRange is an optional parameter that allows you to specify a maximum operating value in EngUnits. If the reading goes 5% above this value, an overrange error is reported.

I/O Module and Channel Parameters

Scale_To_Percent: If Scale_To_Percent is TRUE, the linearized temperature reading, T, is scaled to a percent.

InputFaultState (hidden from HW Config, cannot be changed in HW Config): For QUADLOG input channels, Siemens strongly recommends that customers configure and use the channel driver's substitute value to ensure that the input value is safe under fault conditions. Doing so may allow out-of-range values to be input for one or two scans, but then the channel driver stabilizes to the substitute value.

The original description of **InputFaultState** is as follows:

"If a channel is faulted (quality is set to bad or questionable), you can select to have the module return the actual reading (No_Change), the largest value for the channel (MaxRange), or the smallest value (MinRange). The default is to return the MinRange. "

DigFiltTimeCnst: Digital filtering can be applied to RTD input signals to reduce the effects of electrical noise. The digital filter is a first order lag, adjustable for time constants of 0.0159 to 159.0 seconds. Equivalent breakpoint frequencies are 10.0 to 0.001 Hz. The default value can be increased for noisy signals.

StepResponseTime: This parameter determines the time for the channel to fully respond to a step input. A longer StepResponseTime will provide more accurate readings. The valid range is between 0.100 and 40.00 seconds.

7.8.2 QUADLOG RTM Resistance Input (RIC)

The Resistance Input channel type returns a REAL variable. The table below shows the softlist parameters for this channel type.

EngUnits (engineering units) is an optional parameter (no engineering units is an acceptable choice)

PARAMETER	SELECTION	DEFAULT
MinRange	15 to 1015 Ohms	15.0
MaxRange	15 to 1015 Ohms	1015
MinScale	Any REAL Number	0.0
MaxScale	Any REAL Number	100.0
EngUnits	ACFH, ACFM, AMPS, ATM, bar, BARG, bbl, bhp, BPD, bph, Btu, Btu/hr, Btu/lbm, Btu/SCF, cal, cal/hr, cal/lbm, cal/SCF, cm, cps, days, deg, degC, degF, degK, degR, ft, ft/sec, ft/sec2, ft3, ft3/lb, g, g/cm3, gal, gal/day, gal/hr, gal/min, GPD, GPH, GPM, hp, hr, Hz, in, in3, InH2O, InHg, joules, kcal, kcal/hr, kcal/lbm, kcal/SCF, kg, kg/cm2, kg/day, kg/hr, kg/m3, kPa, kPaa, kPag, KPPH, kVA, kW, 1/day, 1/hr, 1/min, lb, lb/ft3, lb/hr, liter, m, m/sec, m/sec2, m3, m3/day, m3/hr, m3/kg, mA, mbar, MBRA, MBRG, MCFH, mhos, mil, min, ml, Mlb/hr, mm, mmHg, mol, mol/m3, ms, mS/cm, mV, MW, NM3/H, Ohms, Percent, PCT_LVL, pH, PPH, ppm, psi, psia, psig, pulses, rad, rpm, S/cm, SCCM, SCFH, SCFM, sec, t/day, ton, tonne, tonne/day, VA, vars, Volts, W, yd3/day, yd3/hr	Percent
Bias	Any REAL Number	0.0
InputFaultState	No_Change, MinRange, MaxRange	MinRange
DigFiltTimeCnst	0.0 to 159.0 sec.	0.016
StepResponseTime	0.100 to 40.000 sec.	1.0



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