Johnson Controls

Object Library

S300 Reader Terminal

Object

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S300 READER TERMINAL OBJECT

INTRODUCTION

The S300 Reader Terminal object has the following functions:

- Forwards the card and keypad information received from the S300 task to the Access Control object.
- Provides portal contact and auxiliary input information to the Door Sequence object.
- Carries out the access decisions handed down from the Door Sequence object in accordance with the capabilities of the S300 hardware module.

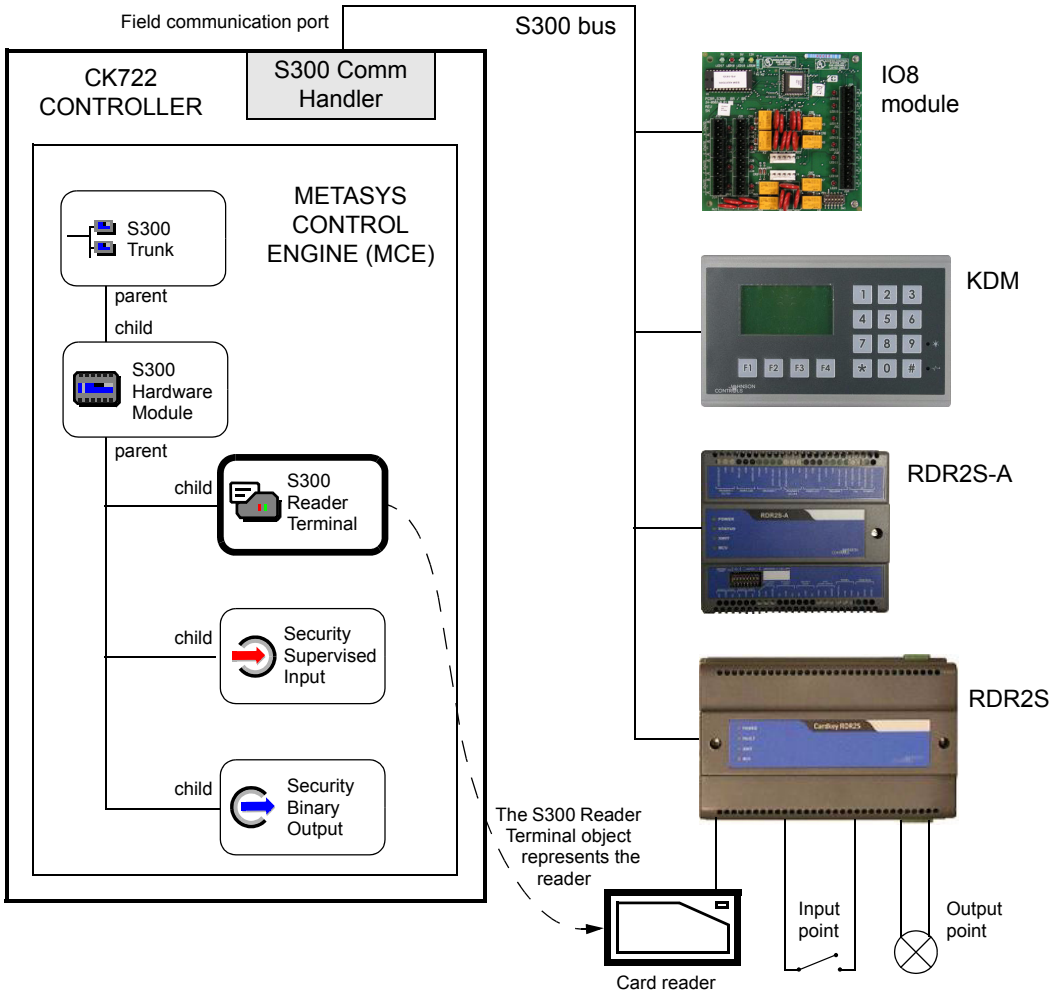

Figure 1: S300 Reader Terminal Object

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The S300 Reader Terminal object's functionality is dependent on the underlying S300 hardware module, therefore certain features are only available with selected S300 hardware module firmware versions.

NOTE

The RDR2S modules Revision P or lower are handled as RDR2 modules Revision E. To benefit from all the capabilities that the RDR2S hardware module offers, update the RDR2S modules to Revision Q.

There are three types of objects directly involved in S300 integration:

- Integration type object: S300 Trunk
- Field device type object: S300 Hardware Module
- Field point type objects: S300 Reader Terminal, Keypad/Display, Security Binary Output, and Security Supervised Input

ATTRIBUTES

This section describes visible attributes specific to the S300 Reader Terminal object. This object also contains:

- Attributes common to all objects in the P2000 Security Management System. For details, see the *General Object Information* document.
- Internal attributes, which are invisible to the user and cannot be modified directly, but may be referred to throughout this document.

Table 1: S300 Reader Terminal Object Attributes

Attribute Name	Attribute Number	Data Type	Notes	Initial Value	Values/Options /Range
Access Control Feedback	4718	Boolean	WCA	-	-
ADA Relay Connected[1]	3751	Enumeration	WCA	-	0 = Not Connected 1 = to Shunt Output 2 = to Green Light Output
ADA Relay Delay[1]	3753	Unsigned16	WCA	-	In milliseconds More than 0 Less than or equal to 3000
ADA Relay Time[1]	3752	Unsigned16	WCA	1	In seconds More than 1 Less than or equal to 120
Aux Input Connected	4289	Enumeration	WCA	1	0 = Not Connected[5] 1 = to REX Input 2 = to REX and Reader Spare Inputs[5]

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Table 1: S300 Reader Terminal Object Attributes

Attribute Name	Attribute Number	Data Type	Notes	Initial Value	Values/Options /Range
Connector	3715	Enumeration	WCA	-	See Table 2
Debounce Time	3717	Unsigned16	WCA	100	In milliseconds More than or equal to 20 Less than or equal to 800
Hardware Module Number	3711	Unsigned8	-	-	Value is inherited from parent object
Hardware Module Type	3710	Enumeration	-	-	Value is inherited from parent object
Offline Card Type	3755	Enumeration	WCA	-	0 = None 1 = Standard Wiegand 2 = Encrypted Wiegand 3 = Binary BaFe 4 = Magnetic Stripe 5 = Eyecam Prox 6 = 26 bit Sensor Forward 7 = 26 bit Sensor Reverse 8 = HID Corporate 1000[5] 9 = Custom[5] See note[6]
Offline Facility Code	3754	Unsigned16	WCA	-	See note[6]
Offline Mag Stripe Table[6]	3756	Octet String	WCA	See next column	String size = 10 Initial value set to interpret Cardkey Magstripe format: 20, 48, 4, 36, 80, 0, 0, 0, 0, 0
Offline PIN After Card	3760	Boolean	WCA	-	See note[6]
Offline PIN Digits	3758	Enumeration	WCA	-	See note[6] 0 = 4 Digits 1 = 5 Digits
Offline PIN Required	3757	Boolean	WCA	-	See note[6]
Offline PIN Scramble Mode	3759	Unsigned8	WCA	-	0 to 7 See note[6]
Portal Contact Connected	3750	Boolean	WCA	-	1
Present Value	85	Enumeration	F	-	0 = Not initialized 1 = Locked 2 = Locked and Closed 3 = Locked and Open 4 = Unlocked 5 = Unlocked and Closed 6 = Unlocked and Open 7 = Forced Open 8 = Propped Open 9 = Unknown 10 = Fault
Reader Input Counter	3835	Unsigned32	F	-	-

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Table 1: S300 Reader Terminal Object Attributes

Attribute Name	Attribute Number	Data Type	Notes	Initial Value	Values/Options /Range
Reader Status	4298	Enumeration	F	-	0 = Not initialized 1 = Operational 2 = Unknown 3 = Fault
Reader Type[2]	4019	Enumeration	WCA	-	0 = Wiegand
Repeat Filter Depth	3748	Unsigned16	WCA	-	0 to 100
Repeat Filter Time	3749	Unsigned32	WCA	15	In seconds Less than or equal to 86400
Trunk Number	549	Unsigned8	-	-	Value is inherited from parent object

A - Archive, C - Configurable, F - PMI (Person/Machine Interface) refreshing, W - Writable

[1] Requires an RDR2 of Revision E or higher, an RDR2S of any revision, or an RDR2S-A.

[2] Not currently supported.

[3] Initial value obtained by computation during startup method.

[4] Requires an RDR2S of Revision Q or higher or an RDR2S-A.

[5] Requires an RDR2S-A Revision B or higher.

[6] See the *CK722 Commissioning Guide* for information on configuring offline mode options.

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Table 2: Connector Attribute Values

***Hardware Module Type* Attribute**	**Values**
Generic	0 to 100: 0 = Reader 1 1 = Reader 2 etc.
RDR2	0 = RDR1 1 = RDR2
RDR2S	0 = DATA0 / DATA1 (top) 1 = DATA0 / DATA1 (bottom)
RDR2S-A	0 = Reader 1 Data 0 / Data 1 1 = Reader 2 Data 0 / Data 1
RDR8S	0 = Reader 1 Data 0 / Data 1 1 = Reader 2 Data 0 / Data 1 2 = Reader 3 Data 0 / Data 1 3 = Reader 4 Data 0 / Data 1 4 = Reader 5 Data 0 / Data 1 5 = Reader 6 Data 0 / Data 1 6 = Reader 7 Data 0 / Data 1 7 = Reader 8 Data 0 / Data 1
IO8, SIO8, SI8, I16	No selection available
KDM	No selection available

Access Control Feedback – Both Access Control objects and Door Sequence objects forward access decisions to the S300 Reader Terminal Object. In most cases, the Door Sequence object should be the sole source of access decision for the S300 Reader Terminal object, hence there is no need for any access decisions received by Access Control objects to be indicated as well, so this flag can remain unchecked. Only in cases where there is no Door Sequence object associated with the S300 Reader Terminal object, it is recommended to set this attribute to true, to allow the access decision to be displayed.

ADA Relay Connected – Specifies which pin of the RDR2, RDR2S, or RDR2S-A should be used to deliver the ADA Relay pulse. This attribute is only effective on RDR2 of Revision E or higher, RDR2S, and RDR2S-A.

ADA Relay Delay – Specifies the length of the ADA Relay pulse delay after alternate access is granted. This attribute is only effective on RDR2 of Revision E or higher, RDR2S, and RDR2S-A.

ADA Relay Time – Specifies the time after which the ADA Relay pulse should end, measured from the time an alternate access is granted. This attribute is only effective on RDR2 of Revision E or higher, RDR2S, and RDR2S-A.

Aux Input Connected – Specifies how the auxiliary access (“Request-to-Exit”) function is connected to the hardware module's contacts.

- Not Connected - Not currently supported. Currently the REX function is always

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connected to the REX input, so when you activate that input, the shunt will be active and (if configured) the Strike will be unlocked.

- to REX Input - Auxiliary access for a specific reader is invoked when the electrical signal at the hardware module's designated “Request-to-Exit” input for that reader is determined to be in the “Alarm” state.
- to REX and Reader Spare Inputs - Auxiliary access for a specific reader is invoked when any electrical signal at the hardware module's designated “Request-to-Exit” or “Reader Spare” inputs is determined to be in the “Alarm” state. This attribute value is only effective on RDR2S-A.

Connector – Specifies the physical reader connector on the hardware module that this object is associated with. The enumeration set varies with the current value of the *Hardware Module Type* attribute.

Debounce Time – Specifies the number of milliseconds that the portal contact or the auxiliary input have to be in a certain state before that state is accepted by the hardware module’s software. This attribute is provided for RDR2 modules of any revision or for STI-MUX. The RDR2S of Revision Q or higher and RDR2S-A allow Security Supervised Input objects to be mapped to the portal contact and the auxiliary input, which offer individual debounce time settings.

Hardware Module Number – Indicates the logical hardware module number set by the least significant DIP switches of the S300 device that this object is associated with. The object obtains the value for this attribute from its parent.

Hardware Module Type – Indicates the type of hardware module that this object is associated with. The object obtains the value for this attribute from its parent.

Offline Card Type – Specifies the card format that a card must have for the offline facility code to be in effect in case the hardware module is disconnected from the supervisory controller. The offline card type “Custom” requires customized firmware inside the hardware module, running a hard-coded offline card format interpreter.

Offline Facility Code – Specifies the facility code that a card must have to be automatically granted access in case the hardware module is disconnected from the supervisory controller. If no access should be granted, this value shall be set to 0.

Offline Mag Stripe Table – Specifies how magnetic cards are to be interpreted when the hardware module is disconnected from the supervisory controller. The initial value of this attribute is set to interpret the Cardkey Magstripe format.

Offline PIN After Card – Specifies whether the algorithmic PIN can be entered after the card is presented in case the hardware module is disconnected from the supervisory controller.

Offline PIN Digits – Specifies whether the required algorithmic PIN has 4 or 5 digits in case the hardware module is disconnected from the supervisory controller.

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Offline PIN Required – Specifies whether an algorithmic PIN is required in case the hardware module is disconnected from the supervisory controller.

Offline PIN Scramble Mode – Specifies the scramble mode that determines the algorithmic PIN in case the hardware module is disconnected from the supervisory controller.

Portal Contact Connected – Specifies whether the portal contact is connected at the hardware module. This setting is required to compute the *Present Value* attribute.

Present Value – Indicates the principal condition that the reader terminal is in:

- Not initialized - The reader terminal condition has not yet been obtained
- Locked - The strike is locked and the portal contact is not defined
- Locked and Closed - The strike is locked and the portal contact is closed
- Locked and Open - The strike is locked and the portal contact is open
- Unlocked - The strike is unlocked and the portal contact is not defined
- Unlocked and Closed - The strike is unlocked and the portal contact is closed
- Unlocked and Open - The strike is unlocked and the portal contact is open
- Forced Open - The portal contact was opened without the portal being shunted
- Propped Open - The portal contact is open after the portal was being unshunted
- Unknown - The reader terminal is offline
- Fault - The reader terminal is in a fault condition

Reader Input Counter – Indicates the number of reader input messages received by the S300 Reader Terminal Object since the controller was last started. This attribute is provided for diagnostic purposes.

Reader Status – Indicates the condition of the reader portion of the reader terminal.

- Not initialized - The reader condition has not yet been obtained
- Operational - The reader is determined to be working correctly
- Unknown - The reader is offline
- Fault - The reader is determined to be faulty

Reader Type – Specifies the type of reader connected. The enumeration values of this attribute will be expanded to allow integration of future readers that need special handling by the hardware module, such as LCD readers connected to the RDR2S or RDR2S-A.

Repeat Filter Depth – Specifies how many different reader input data streams shall be cached and filtered out for the time specified in the *Repeat Filter Time* attribute.

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Repeat Filter Time – Specifies the minimum time between reporting the same input data stream to the Access Control object, provided the input data stream can be found in the cache.

Trunk Number – Indicates the trunk that this object belongs to. The object obtains the value for this attribute from its parent.

COMMANDS

This section describes commands that can be issued to this object from SCT.

Table 3: S300 Reader Terminal Object Commands

Command Name	Description
`Change Attribute`	See the description below.

The `Change Attribute` is a generic command available for writing the attributes of an object. It is mainly used to change an attribute value from those features which work only with commands. For the sole purpose of giving a generic example, there is no command defined to change the *Notify Priority* attribute of an object. `Change Attribute` could, therefore, be used to change the *Notify Priority* attribute through an interlock or multiple command, both features which require commands to be entered. The `Change Attribute` command requires two parameters:

- Attribute - This parameter specifies which attribute of the object is to be written. Only writable attributes may be changed by this command.
- New value - This parameter specifies new value to be written and must be the same data type as the attribute. The only data types allowed in this command are those allowed as command parameters. A command priority can be specified if the attribute to be changed is a prioritized attribute.

VIEWS

This section illustrates how the System Configuration Tool displays properties of the S300 Reader Terminal object. This screen also allows you to set the values of configurable attributes. For more information refer to the *System Configuration Tool (SCT)* manual.

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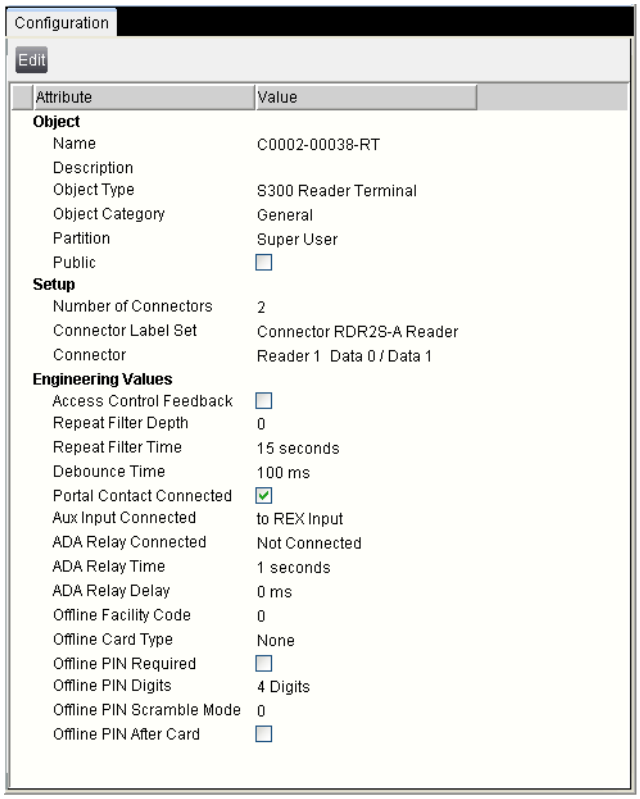

Figure 2: Configuration View

DESCRIPTION OF OPERATION

The S300 Reader Terminal object must be a "child" of an S300 Hardware Module object, from which it obtains the value of its own attributes:

- *Trunk Number*
- *Hardware Module Type*
- *Hardware Module Number*
- *Hardware Module Address*

The S300 Reader Terminal object forwards the card and keypad information received from the S300 task to the Access Control object.

The S300 Reader Terminal object provides portal contact and auxiliary input information to the Door Sequence object, and carries out the access decisions handed down from the Door Sequence object in accordance with the capabilities of the S300 hardware module.

The S300 Reader Terminal object's functionality is dependent on the underlying S300 hardware module. As firmware revisions have progressed, certain features are only available

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with newer S300 hardware module firmware. The oldest version of the RDR2 supported is PS-201 D, although prior versions are talked to by the S300 task as if they were of Revision D.

Firmware Restrictions

RDR2 Firmware Revision PS-201 D

The following restrictions apply to RDR2 Firmware Revision PS-201 D:

- When the Door Sequence object's *Portal Mode* attribute is set to "Lockdown," the red light will not be constantly lit.
- There is no differentiation between the Door Sequence object handing down a *Decision Category* attribute value of "Denied" and "Unidentified." Both decisions turn the red light on for 1.5 seconds.
- The value of the *Access Time* attribute is capped at 25 seconds inside the RDR2 hardware module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Aux Mode* attribute is set to "Disabled." This case is handled as if the Door Sequence object's *Aux Mode* attribute were set to "Shunt Only." If auxiliary access is not desired, the auxiliary input must not be connected at the module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Portal Mode* attribute is set to "Lockdown." This case is handled as if the Door Sequence object's *Portal Mode* attribute were set to "Normal." If auxiliary access is not desired, the auxiliary input must not be connected at the module.
- The *Aux Input Connected* attribute value "to REX and Reader Spare Inputs" is not supported. The hardware modules operate as if the attribute was set to the value "to REX Input."
- Calibration of portal contact and auxiliary input is not supported.
- Alternate access grants are not supported. The Door Sequence object handing down a *Decision Category* attribute value of "Granted Alternate" causes the same sequence as a decision of type "Granted."
- The Door Sequence object's *Anti-Tailgating* attribute option "Re-lock on Open" is not supported. This case is handled as if the Door Sequence object's *Anti-Tailgating* attribute were set to "Re-lock on Close."
- The Door Sequence object's *Timed Override Mode* attribute option "Timed Shunt" is not supported.

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RDR2 Firmware Revision PS-201 E

The following restrictions apply to RDR2 Firmware Revision PS-201 E:

- When the Door Sequence object's *Portal Mode* attribute is set to "Lockdown," the red light will not be constantly lit.
- There is no differentiation between the Door Sequence object handing down a *Decision Category* attribute value of "Denied" and "Unidentified." Both decisions turn the red light on for 1.5 seconds.
- The value of the *Access Time* attribute is capped at 25 seconds inside the RDR2 hardware module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Aux Mode* attribute is set to "Disabled." This case is handled as if the Door Sequence object's *Aux Mode* attribute were set to "Shunt Only." If auxiliary access is not desired, the auxiliary input must not be connected at the module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Portal Mode* attribute is set to "Lockdown." This case is handled as if the Door Sequence object's *Portal Mode* attribute were set to "Normal." If auxiliary access is not desired, the auxiliary input must not be connected at the module.
- The *Aux Input Connected* attribute value "to REX and Reader Spare Inputs" is not supported. The hardware modules operate as if the attribute was set to the value "to REX Input."
- Calibration of portal contact and auxiliary input is not supported.

RDR2S Firmware Revision PS-215 Q or Lower

- The *Aux Input Connected* attribute value "to REX and Reader Spare Inputs" is not supported. The hardware module operate as if the attribute was set to the value "to REX Input."
- When the Door Sequence object's *Portal Mode* attribute is set to "Lockdown," the red light will not be constantly lit.
- There is no differentiation between the Door Sequence object handing down a *Decision Category* attribute value of "Denied" and "Unidentified." Both decisions turn the red light on for 1.5 seconds.
- The value of the *Access Time* attribute is capped at 25 seconds inside the RDR2 hardware module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Aux Mode* attribute is set to "Disabled." This case is handled as if the Door Sequence object's *Aux Mode* attribute were set to "Shunt Only." If auxiliary access is not desired, the auxiliary input must not be connected at the module.

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- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Portal Mode* attribute is set to "Lockdown." This case is handled as if the Door Sequence object's *Portal Mode* attribute were set to "Normal." If auxiliary access is not desired, the auxiliary input must not be connected at the module.

RDR2S-A

The following restrictions apply to RDR2 Firmware Revision PS-215 Q or Lower:

- The *Aux Input Connected* attribute value "Not Connected" is not supported. The hardware module will operate as if the attribute was set to the value "to REX Input."
- When the Door Sequence object's *Portal Mode* attribute is set to "Lockdown," the red light will not be constantly lit.
- There is no differentiation between the Door Sequence object handing down a *Decision Category* attribute value of "Denied" and "Unidentified." Both decisions turn the red light on for 1.5 seconds.
- The value of the *Access Time* attribute is capped at 25 seconds inside the RDR2 hardware module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Aux Mode* attribute is set to "Disabled." This case is handled as if the Door Sequence object's *Aux Mode* attribute were set to "Shunt Only." If auxiliary access is not desired, the auxiliary input must not be connected at the module.
- The auxiliary access functionality cannot be disabled by software, even when the Door Sequence object's *Portal Mode* attribute is set to "Lockdown." This case is handled as if the Door Sequence object's *Portal Mode* attribute were set to "Normal." If auxiliary access is not desired, the auxiliary input must not be connected at the module.

Repeat Message Filters

The S300 Reader object forwards to the S300 task the settings that govern the repeat message filter. The *Repeat Filter Depth* attribute specifies how many different reader input data streams shall be cached. Since this cache is memory intensive, it should only be used when a lot of repeat messages are expected, such as messages from a long range reader. The *Repeat Filter Time* attribute specifies the minimum time between reporting the same input data stream to the Access Control object, provided the input data stream can be found in the cache.

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