Ametek_LIB

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Chapter 1

File Index

1.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 2

File Documentation

2.1 C:/Users/jai_prajapati/Documents/SourceLibraries/Serial_LIB/↩ Ametek_LIB/AMETEK_LIB.c File Reference

Serial communication wrapper for Ametek used in RCM8 Run-In-Tester.

```
#include "toolbox.h"
#include <userint.h>
#include <ansi_c.h>
#include "AMETEK_LIB.h"
```

Functions

- int Initialize_AMETEK_LIB (char errmsg[ERRLEN])

  Initialize Ametek library. Requires SerialComm_LIB to be previously initialized and configured.
- int GetStatus_ESR (char errmsg[ERRLEN])

  Get Event status register.
- int GetStatus_SCPI (char errmsg[ERRLEN])

  Get SCPI status.
- int GetStatus_PROT (char errmsg[ERRLEN])

  Get protection fault status.
- int GetStatus_ERRs (char errmsg[ERRLEN])

  Gets the errror status.
- int GetStatus_OUT (char errmsg[ERRLEN])

  Get protection falut status.
- double GetStatus_TRIP (char errmsg[ERRLEN])

  Get tripped status.
- double GetVoltage (char errmsg[ERRLEN])

  Get voltage output level.
- double GetCurr (char errmsg[ERRLEN])

  Get current output level.
- int SetVolt (double Volts, char errmsg[ERRLEN])

  Sets the voltage on the PSU from the paramter given.

- int SetLimit_Curr (double Current, char errmsg[ERRLEN])

  Sets the current limit on the PSU from the paramter given.
- int SetFold (int Type, char errmsg[ERRLEN])

  Sets the protection type on the PSU from the paramter given.
- int SetPolarity (int Pol, char errmsg[ERRLEN])

  Sets the polarity of the PSU from the paramter given.
- int SetSense (int Sense, char errmsg[ERRLEN])

  Sets the sense relay signal open/closed on the PSU from the paramter given.
- int SetState (int State, char errmsg[ERRLEN])

  Sets the output on the PSU from the paramter given.
- int SetIsolation (int Iso, char errmsg[ERRLEN])

  Sets the isolation relay control signal on the PSU from the parameter given.
- int SetDelay (double Time, char errmsg[ERRLEN])

  Sets the delay for fault reporting on the PSU from the paramter given.
- int InitPSU (double Volts, double Curr, char errmsg[ERRLEN])

  Intializes the PSU based off the inputs.
- int SelfTest (char errmsg[ERRLEN])

  Let the PSU Self-Check.
- int ClearPSUStatus (char errmsg[ERRLEN])

  Clears PSU registers.
- int ResetPSU (char errmsg[ERRLEN])

  Clears PSU registers and resets to default settings.
- int **ReportErrors** (int nestNum, int testNum, char errmsg[ERRLEN])
- void **SetPSUName** (char ∗Name)

Variables

- char **psuName** [25] = {0}
- char **projectDir** [MAX_PATHNAME_LEN] = {0}

2.1.1 Detailed Description

Serial communication wrapper for Ametek used in RCM8 Run-In-Tester.

Author

Dwayne Alex

Copyright

Date

8/1/2019 3:38:29 PM

A longer description

Version	Date	Author	Description
1.0.0	Aug 1, 2019	Dwayne Alex	Initial Release
1.0.1	Nov 9, 2020	Jai Prajapati	Updated with library format

2.1.2 Function Documentation

2.1.2.1 GetCurr()

```
double GetCurr (
            char errmsg[ERRLEN] )
```

Get current output level.

/return Double value of current.

2.1.2.2 GetStatus_ERRs()

```
int GetStatus_ERRs (
            char errmsg[ERRLEN] )
```

Gets the errror status.

This keeps a queue of the last 10 errors to occur. The error list is extensive, refer to the M9 Programming Manual, section 3.2.5 Error/Event Queue. The ClearPSU() function is used to clear all errors.

2.1.2.3 GetStatus_ESR()

```
int GetStatus_ESR (
            char errmsg[ERRLEN] )
```

Get Event status register.

/return errror code listed below Possible vals: 1 - Operation Complete 2 - Request control - not used 4 - Query Error 8 - Device Dependent Error 10 - Execution error 20 - Command error 40- User Request - not used 80 - Power On

2.1.2.4 GetStatus_OUT()

```
int GetStatus_OUT (
            char errmsg[ERRLEN] )
```

Get protection falut status.

Returns

1 - Output ON. 0 - Output off.

2.1.2.5 GetStatus_PROT()

```
int GetStatus_PROT (
            char errmsg[ERRLEN] )
```

Get protection fault status.

/return errror code listed below Possible vals: 1 - Constant Voltage 2 - Constant current 4 - Not used 8 - Over voltage protection tripped 10 - Overtemperature protection tripped 20 - Supply external shutdwn active 40- Foldback mode operation 80 - Remote programming error

2.1.2.6 GetStatus_SCPI()

```
int GetStatus_SCPI (
            char errmsg[ERRLEN] )
```

Get SCPI status.

/return errror code listed below Possible vals: 1 - Not used 2 - PROT Event 4 - error/event queue message available 8 - Questionable Status 10 - Message available 20 - Summary bit for ESR 40 - Request service bit 80 - Operational Status

2.1.2.7 GetStatus_TRIP()

```
double GetStatus_TRIP (
            char errmsg[ERRLEN] )
```

Get tripped status.

Returns

0 - Not tripped. 1 - Tripped.

2.1.2.8 GetVoltage()

```
double GetVoltage (
            char errmsg[ERRLEN] )
```

Get voltage output level.

Returns

Double value of voltage.

2.1.2.9 SelfTest()

```
int SelfTest (
            char errmsg[ERRLEN] )
```

Let the PSU Self-Check.

Returns

0 - No errors, 1 - Error(s) occured

2.1.2.10 SetDelay()

```
int SetDelay (
            double Time,
            char errmsg[ERRLEN] )
```

Sets the delay for fault reporting on the PSU from the paramter given.

Parameters

in	*Time*	time in seconds

2.1.2.11 SetFold()

```
int SetFold (
            int Type,
            char errmsg[ERRLEN] )
```

Sets the protection type on the PSU from the paramter given.

The control type is fold, there are three modes: type = 0: Do nothing type = 1: Program to down to zero volts upon entering constant voltage mode type = 2: Program down to zero upon entering constant current mode.

2.1.2.12 SetIsolation()

```
int SetIsolation (
            int Iso,
            char errmsg[ERRLEN] )
```

Sets the isolation relay control signal on the PSU from the parameter given.

Parameters

in	*Iso*	1 - ON, 2 - OFF

2.1.2.13 SetSense()

```
int SetSense (
            int Sense,
            char errmsg[ERRLEN] )
```

Sets the sense relay signal open/closed on the PSU from the paramter given.

Parameters

in	*Sense*	1 - ON, 2 - OFF

2.1.2.14 SetState()

```
int SetState (
            int State,
            char errmsg[ERRLEN] )
```

Sets the output on the PSU from the paramter given.

Parameters

in	*State*	1 - ON, 2 - OFF

2.2 C:/Users/jai_prajapati/Documents/SourceLibraries/Serial_LIB/↩ Ametek_LIB/AMETEK_LIB.h File Reference

```
#include <ansi_c.h>
#include "SerialComm_LIB.h"
#include "ArxtronToolslib.h"
```

Functions

- int Initialize_AMETEK_LIB (char errmsg[ERRLEN])

  Initialize Ametek library. Requires SerialComm_LIB to be previously initialized and configured.
- void **GetStandardErrMsg** (int error, char errmsg[ERRLEN])
- int CVICALLBACK **FunctionSelect** (int panel, int control, int event, void ∗callbackData, int eventData1, int eventData2)
- int CVICALLBACK **RunFunction** (int panel, int control, int event, void ∗callbackData, int eventData1, int eventData2)

- int GetStatus_ESR (char errmsg[ERRLEN])

  Get Event status register.
- int GetStatus_SCPI (char errmsg[ERRLEN])

  Get SCPI status.
- int GetStatus_PROT (char errmsg[ERRLEN])

  Get protection fault status.
- int GetStatus_ERRs (char errmsg[ERRLEN])

  Gets the errror status.
- int GetStatus_OUT (char errmsg[ERRLEN])

  Get protection falut status.
- double GetStatus_TRIP (char errmsg[ERRLEN])

  Get tripped status.
- double GetVoltage (char errmsg[ERRLEN])

  Get voltage output level.
- double GetCurr (char errmsg[ERRLEN])

  Get current output level.
- int SetVolt (double Volts, char errmsg[ERRLEN])

  Sets the voltage on the PSU from the paramter given.
- int SetLimit_Curr (double Current, char errmsg[ERRLEN])

  Sets the current limit on the PSU from the paramter given.
- int SetFold (int Type, char errmsg[ERRLEN])

  Sets the protection type on the PSU from the paramter given.
- int SetPolarity (int Pol, char errmsg[ERRLEN])

  Sets the polarity of the PSU from the paramter given.
- int SetSense (int Sense, char errmsg[ERRLEN])

  Sets the sense relay signal open/closed on the PSU from the paramter given.
- int SetState (int State, char errmsg[ERRLEN])

  Sets the output on the PSU from the paramter given.
- int SetIsolation (int Iso, char errmsg[ERRLEN])

  Sets the isolation relay control signal on the PSU from the parameter given.
- int SetDelay (double Time, char errmsg[ERRLEN])

  Sets the delay for fault reporting on the PSU from the paramter given.
- int InitPSU (double Volts, double Curr, char errmsg[ERRLEN])

  Intializes the PSU based off the inputs.
- int SelfTest (char errmsg[ERRLEN])

  Let the PSU Self-Check.
- int ClearPSUStatus (char errmsg[ERRLEN])

  Clears PSU registers.
- int ResetPSU (char errmsg[ERRLEN])

  Clears PSU registers and resets to default settings.
- int **ReportErrors** (int NestNum, int TestNum, char errmsg[ERRLEN])
- void **SetPSUName** (char ∗Name)

2.2.1 Detailed Description

Author

Dwayne Alex

Copyright

Date

8/1/2019 3:38:29 PM

2.2.2 Function Documentation

2.2.2.1 GetCurr()

```
double GetCurr (
            char errmsg[ERRLEN] )
```

Get current output level.

/return Double value of current.

2.2.2.2 GetStatus_ERRs()

```
int GetStatus_ERRs (
            char errmsg[ERRLEN] )
```

Gets the errror status.

This keeps a queue of the last 10 errors to occur. The error list is extensive, refer to the M9 Programming Manual, section 3.2.5 Error/Event Queue. The ClearPSU() function is used to clear all errors.

2.2.2.3 GetStatus_ESR()

```
int GetStatus_ESR (
            char errmsg[ERRLEN] )
```

Get Event status register.

/return errror code listed below Possible vals: 1 - Operation Complete 2 - Request control - not used 4 - Query Error 8 - Device Dependent Error 10 - Execution error 20 - Command error 40- User Request - not used 80 - Power On

2.2.2.4 GetStatus_OUT()

```
int GetStatus_OUT (
            char errmsg[ERRLEN] )
```

Get protection falut status.

Returns

1 - Output ON. 0 - Output off.

2.2.2.5 GetStatus_PROT()

```
int GetStatus_PROT (
            char errmsg[ERRLEN] )
```

Get protection fault status.

/return errror code listed below Possible vals: 1 - Constant Voltage 2 - Constant current 4 - Not used 8 - Over voltage protection tripped 10 - Overtemperature protection tripped 20 - Supply external shutdwn active 40- Foldback mode operation 80 - Remote programming error

2.2.2.6 GetStatus_SCPI()

```
int GetStatus_SCPI (
            char errmsg[ERRLEN] )
```

Get SCPI status.

/return errror code listed below Possible vals: 1 - Not used 2 - PROT Event 4 - error/event queue message available 8 - Questionable Status 10 - Message available 20 - Summary bit for ESR 40 - Request service bit 80 - Operational Status

2.2.2.7 GetStatus_TRIP()

```
double GetStatus_TRIP (
            char errmsg[ERRLEN] )
```

Get tripped status.

Returns

0 - Not tripped. 1 - Tripped.

2.2.2.8 GetVoltage()

```
double GetVoltage (
            char errmsg[ERRLEN] )
```

Get voltage output level.

Returns

Double value of voltage.

2.2.2.9 SelfTest()

```
int SelfTest (
            char errmsg[ERRLEN] )
```

Let the PSU Self-Check.

Returns

0 - No errors, 1 - Error(s) occured

2.2.2.10 SetDelay()

```
int SetDelay (
            double Time,
            char errmsg[ERRLEN] )
```

Sets the delay for fault reporting on the PSU from the paramter given.

Parameters

in	*Time*	time in seconds

2.2.2.11 SetFold()

```
int SetFold (
            int Type,
            char errmsg[ERRLEN] )
```

Sets the protection type on the PSU from the paramter given.

The control type is fold, there are three modes: type = 0: Do nothing type = 1: Program to down to zero volts upon entering constant voltage mode type = 2: Program down to zero upon entering constant current mode.

2.2.2.12 SetIsolation()

```
int SetIsolation (
            int Iso,
            char errmsg[ERRLEN] )
```

Sets the isolation relay control signal on the PSU from the parameter given.

Parameters

in	*Iso*	1 - ON, 2 - OFF

2.2.2.13 SetSense()

```
int SetSense (
            int Sense,
            char errmsg[ERRLEN] )
```

Sets the sense relay signal open/closed on the PSU from the paramter given.

Parameters

in	*Sense*	1 - ON, 2 - OFF

2.2.2.14 SetState()

```
int SetState (
            int State,
            char errmsg[ERRLEN] )
```

Sets the output on the PSU from the paramter given.

Parameters

in	*State*	1 - ON, 2 - OFF

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