DCS_SDK

2.0.0

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Chapter 1

DCS-100 C++ SDK

This is a software development kit (SDK) for creating software that interacts with the Advanced illumination DCS-100E and DCS-103E devices. It is written using the 2011 ISO Standard for C++ (C++ 11).

1.1 Binary distribution

This release was compiled using the GNU toolchain version 9.3.0. Releases are available for Windows x86 and x64, and Linux x64.

See the changelog for more history.

1.2 Example Code

This example code queries each DCS device that is online and communicable, prints the ones it finds, and then connects to each and does the following:

For every channel:

- Sets channel to Continuous mode
- Pauses 200 milliseconds
- Sets the current on the channel to half of the light's continuous maximum
- Pauses 2 seconds
- Sets 0 current
- Sets the channel to Pulsed mode
- Sets the current on the channel to 1.2 A
- Sets pulse width to 10ms
- Sets pulse delay to 5us

- Sets trigger input to Input 3
- Pulses the light three times (500 ms between each)
- Sets the channel to 0 current

It then sets the device name to "Tested" and disconnects from the device.

```
#include "DCS100.h"
#include "DCS_Info.h"
#include <iostream>
#include <chrono>
#include <thread>
using namespace std;
namespace ai = AdvancedIllumination;
int main()
{
    auto list = ai::DCS_Info::findAllInNetwork(false);
    if(list.size() == 0) {
        cout « "No DCS units found.\n";
        return 0;
    }
    try
    {
        for (const ai::DCS_Info& dcs : list)
        {
            std::cout « "Found DCS: " « dcs.name() « " at " « dcs.host() « "\n";
            ai::DCS_100 device;
            device.connect(dcs.host());
            size_t N = device.ChannelCount();
            for (int i = 0; i < N; i++)
            {
                if (device[i].maxContinuous() == 0) continue;
                printf("Setting channel %d mode 1\n", i+1);
                device[i].mode(ai::Mode::Continuous);
                this_thread::sleep_for(chrono::milliseconds(200));
                double cc = 0.5*device[i].maxContinuous();
                printf("Setting channel %d current %.3f\n", i+1, cc);
                device[i].current(cc);
                this_thread::sleep_for(chrono::seconds(2));
                printf("Setting 0 current\n");
                device[i].current(0);
                printf("Setting strobe mode\n");
                device[i].mode(ai::Mode::Pulsed);
                printf("Setting 1.2A\n");
                device[i].current(1.2);
                printf("Setting PW 10ms\n");
                device[i].pulseWidth(10E-3);
                printf("Setting PD 5us\n");
                device[i].pulseDelay(5E-6);
                printf("Setting trigger input CH3\n");
                device[i].triggerInput(ai::Channel::Three);
                for (int j = 0; j < 3; j++)
                {
                    printf("(blink)\t");
                    device[i].trigger();
                    this_thread::sleep_for(chrono::milliseconds(500));
                }
                printf("\n");
                device[i].current(0);
                this_thread::sleep_for(chrono::milliseconds(500));
            }
            device.name("Tested");
            //device.ipAddress("10.1.103.50");
            device.webConfigEnabled(true);
            device.disconnect();
        }
    }
    catch (const ai::DeviceError& e)
    {
        cout « "Error: " « e.what() « "\n";
        return EXIT_FAILURE;
    }
    catch (const ai::DeviceWarning& e)
    {
        cout « "Warning: " « e.what() « "\n";
        return 1;
    }
    catch (const std::exception& e)
```

```
    {
        cout « "Exception: " « e.what() « "\n";

        return 1;
    }
    return 0;
}
```

Chapter 2

Changelog

2.1 1.0.0

Initial release. Depended on POCO external libraries.

2.2 1.1.0

Updated to support DCS-100E/103E RevA.

2.3 2.0.0

Major revision, removes all external dependencies, builds as static library. Includes TinyXML 2 for XML parsing (compiled in).

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 4

Hierarchical Index

4.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 5

Class Index

5.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 6

File Index

6.1 File List

Here is a list of all files with brief descriptions:

Chapter 7

Namespace Documentation

7.1 AdvancedIllumination Namespace Reference

Namespace containing AI-created functions and classes.

Classes

- class DCS_100

  Contains information and methods for working with DCS devices.
- class DCS_Info

  Class containing information about a DCS-100 device.
- class DeviceError

  An exception representing an error message from the device.
- class DeviceWarning

  An exception representing a warning message from the device.

Enumerations

- enum Mode { Mode::Off = 0, Mode::Continuous = 1, Mode::Pulsed = 2, Mode::Gated = 3 }

  Values that represent modes.
- enum Trigger { Trigger::Falling = 0, Trigger::Rising = 1 }

  Values that represent trigger edges (e.g.
- enum Channel { Channel::One = 1, Channel::Two = 2, Channel::Three = 3 }

  Values that represent channels.
- enum DCS_Type { DCS_Type::DCS_100E, DCS_Type::DCS_103E }

  Values that represents the type of DCS connected.

7.1.1 Detailed Description

Namespace containing AI-created functions and classes.

7.1.2 Enumeration Type Documentation

7.1.2.1 Channel

`enum AdvancedIllumination::Channel [strong]`

Values that represent channels.

Enumerator

One	The first channel.
Two	The second channel.
Three	The third channel.

7.1.2.2 DCS_Type

`enum AdvancedIllumination::DCS_Type [strong]`

Values that represents the type of DCS connected.

Enumerator

DCS_100E	An enum constant representing the DCS-100E (single output, three channel) device.
DCS_103E	An enum constant representing the DCS-103E (three output, single channel per output) device.

7.1.2.3 Mode

`enum AdvancedIllumination::Mode [strong]`

Values that represent modes.

Enumerator

Off	An enum constant representing the "Off" mode.
Continuous	An enum constant representing the Continuous current mode.
Pulsed	An enum constant representing the Pulsed mode.
Gated	An enum constant representing the Gated mode.

7.1.2.4 Trigger

`enum AdvancedIllumination::Trigger [strong]`

Values that represent trigger edges (e.g.

how each channel's triggering behaves).

Enumerator

Falling	A rising-edge trigger.
Rising	A falling-edge trigger.

Chapter 8

Class Documentation

8.1 AdvancedIllumination::DCS_100 Class Reference

Contains information and methods for working with DCS devices.

`#include <DCS100.h>`

Classes

- class DCS_Channel

  Encaspsulates the data related to a single DCS channel.

Public Member Functions

- DCS_Channel & Channel (size_t)

  Gets a channel by its number.
- DCS_Channel & operator[ ] (size_t)

  Array indexer operator.
- const std::string & name () const

  Gets the name.
- void name (const std::string &name)

  Sets the name of the device.
- const std::string & firmwareVersion () const

  Gets the firmware version.
- const std::string & ipAddress () const

  Get the IP address.
- void ipAddress (const std::string &ip)

  Sets the device (static) IP address.
- size_t ChannelCount () const

  Gets the channel count of the device.
- const std::string & profileName () const

Gets the active profile name.

- int profileNumber () const noexcept

  Gets the active profile number.
- void profileName (const std::string &)

  Sets the name of the active profile.
- void profileNumber (int)

  Sets the active profile number.
- void webConfigEnabled (const bool)

  Enable or disable the Web configuration interface.
- bool webConfigEnabled () const

  Determine if the Web configuration interface is enabled.
- void saveProfile ()

  Saves the profile.
- DCS_100 ()

  Default constructor.
- DCS_100 (const char *ip)

  Creates an instance and connects to the given device.
- void connect (const std::string &ip)

  Connects to a DCS at the given IP address.
- void disconnect ()

  Disconnects this object from the physical DCS.
- void refreshConfig ()

  Refresh configuration from device.
- const std::vector< std::string > & profileNames () const

  Gets the names of the saved profiles.
- ~DCS_100 ()

  Destructor.
- void refreshProfiles ()

  Refresh profile names from device.

Friends

- class DCS_Channel

8.1.1 Detailed Description

Contains information and methods for working with DCS devices.

8.1.2 Constructor & Destructor Documentation

8.1.2.1 DCS_100() [1/2]

```
AdvancedIllumination::DCS_100::DCS_100 ( )
```

Default constructor.

8.1.2.2 DCS_100() [2/2]

```
AdvancedIllumination::DCS_100::DCS_100 (
            const char * device )
```

Creates an instance and connects to the given device.

Parameters

device	The device.

8.1.2.3 ~DCS_100()

```
AdvancedIllumination::DCS_100::~DCS_100 ( )
```

Destructor.

8.1.3 Member Function Documentation

8.1.3.1 Channel()

```
DCS_100::DCS_Channel & AdvancedIllumination::DCS_100::Channel (
            size_t i )
```

Gets a channel by its number.

This is the one-based (1-3) complement of the array index operator, which is zero-based.

Exceptions

invalid_argument	Thrown when i == 0 or i > 3 (if built with bounds checking) (Third-party reference)

Parameters

i	One-based index of the channel.

Returns

A reference to a DCS_100::DCS_Channel: the channel.

8.1.3.2 ChannelCount()

```
size_t AdvancedIllumination::DCS_100::ChannelCount ( ) const
```

Gets the channel count of the device.

Returns

The number of active channels in the device.

8.1.3.3 connect()

```
void AdvancedIllumination::DCS_100::connect (
            const std::string & ip )
```

Connects to a DCS at the given IP address.

Parameters

ip	The IP address of the device to connect to

8.1.3.4 disconnect()

```
void AdvancedIllumination::DCS_100::disconnect ( )
```

Disconnects this object from the physical DCS.

Allows the DCS to communicate with other SDK or software instances.

8.1.3.5 firmwareVersion()

```
const string & AdvancedIllumination::DCS_100::firmwareVersion ( ) const
```

Gets the firmware version.

Returns

A reference to a const string.

8.1.3.6 ipAddress() [1/2]

```
const string & AdvancedIllumination::DCS_100::ipAddress ( ) const
```

Get the IP address.

Returns

The device IP address

8.1.3.7 ipAddress() [2/2]

```
void AdvancedIllumination::DCS_100::ipAddress (
            const std::string & ip )
```

Sets the device (static) IP address.

Exceptions

invalid_argument	Thrown when the IP address string is invalid. (Third-party reference)
DeviceWarning	Thrown when the device response contains a warning.

Parameters

ip	The IP address to set (as a string).

8.1.3.8 name() [1/2]

```
const string & AdvancedIllumination::DCS_100::name ( ) const
```

Gets the name.

Returns

The device name.

8.1.3.9 name() [2/2]

```
void AdvancedIllumination::DCS_100::name (
            const std::string & name )
```

Sets the name of the device.

Exceptions

invalid_argument	Thrown when the name string is invalid. (Third-party reference)
DeviceWarning	Thrown when the device issues a warning.

Parameters

name	The name to set. Cannot contain commas.

8.1.3.10 operator[]()

```
DCS_100::DCS_Channel & AdvancedIllumination::DCS_100::operator[] (
            size_t i )
```

Array indexer operator.

Provides access to the channels of the DCS.

Exceptions

invalid_argument	Thrown when index $>$ 2 (if built with bounds checking). (Third-party reference)

Parameters

i	Zero-based index of the channel to access.

Returns

The indexed channel.

8.1.3.11 profileName() [1/2]

```
const string & AdvancedIllumination::DCS_100::profileName ( ) const
```

Gets the active profile name.

Returns

A reference to a const string.

8.1.3.12 profileName() [2/2]

```
void AdvancedIllumination::DCS_100::profileName (
            const std::string & name )
```

Sets the name of the active profile.

Exceptions

DeviceWarning	Thrown when a device warning error condition occurs.
DeviceError	Raised when a device error condition occurs.

Parameters

name	The name.

8.1.3.13 profileNames()

```
const std::vector< std::string > & AdvancedIllumination::DCS_100::profileNames ( ) const
```

Gets the names of the saved profiles.

Returns

A reference to a const std::vector of strings containing the profile names.

8.1.3.14 profileNumber() [1/2]

```
int AdvancedIllumination::DCS_100::profileNumber ( ) const  [noexcept]
```

Gets the active profile number.

Returns

A const int.

8.1.3.15 profileNumber() [2/2]

```
void AdvancedIllumination::DCS_100::profileNumber (
            int num )
```

Sets the active profile number.

Parameters

num	The profile number (0-24) to set.

8.1.3.16 refreshConfig()

```
void AdvancedIllumination::DCS_100::refreshConfig ( )
```

Refresh configuration from device.

8.1.3.17 refreshProfiles()

```
void AdvancedIllumination::DCS_100::refreshProfiles ( )
```

Refresh profile names from device.

8.1.3.18 saveProfile()

```
void AdvancedIllumination::DCS_100::saveProfile ( )
```

Saves the profile.

8.1.3.19 webConfigEnabled() [1/2]

```
bool AdvancedIllumination::DCS_100::webConfigEnabled ( ) const
```

Determine if the Web configuration interface is enabled.

Returns

A const bool, `true` for enabled and `false` for disabled.

Remarks

If the web configuration interface is enabled, a web browser may be directed to the IP address of the device.

8.1.3.20 webConfigEnabled() [2/2]

```
void AdvancedIllumination::DCS_100::webConfigEnabled (
            const bool b )
```

Enable or disable the Web configuration interface.

Parameters

b	`true` for enabled, `false` for disabled.

8.1.4 Friends And Related Function Documentation

8.1.4.1 DCS_Channel

```
friend class DCS_Channel  [friend]
```

The documentation for this class was generated from the following files:

- sdk/DCS100.h
- sdk/DCS100.cpp

8.2 AdvancedIllumination::DCS_100::DCS_Channel Class Reference

Encaspsulates the data related to a single DCS channel.

```
#include <DCS100.h>
```

Public Member Functions

- double current () const
  Gets the current.
- void current (const double)
  Sets the current.
- double pulseWidth () const
  Gets the pulse width.
- void pulseWidth (const double)
  Sets the pulse width.
- double pulseDelay () const
  Gets the pulse delay.
- void pulseDelay (const double)
  Sets the pulse delay.
- double maxContinuous () const
  Gets the maximum continuous current (per string of LEDs).
- const double maxStrobe () const
  Gets the maximum strobe current (per string of LEDs).
- Mode mode () const
  Gets the mode the channel is in.
- void mode (const Mode)
  Sets the channels' Mode.
- Trigger triggerMode () const
  Gets the trigger mode (rising or falling edge).
- void triggerMode (const Trigger)

Sets the trigger mode.

- Channel triggerInput () const

  Gets the configured trigger input channel.

- void triggerInput (const Channel)

  Sets the trigger input (e.g.

- double maxFrequency () const

  The maximum frequency (in Hertz) at which this channel can be triggered.

- void trigger () const

  Triggers this channel (acts as if a single hardware trigger occured).

Friends

- class DCS_100

8.2.1 Detailed Description

Encaspsulates the data related to a single DCS channel.

Allows getting and setting the device current, pulse width, etc.

8.2.2 Member Function Documentation

8.2.2.1 current() [1/2]

```
double AdvancedIllumination::DCS_100::DCS_Channel::current ( ) const
```

Gets the current.

Returns

The current (in Amps).

8.2.2.2 current() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::current (
            const double cur )
```

Sets the current.

Exceptions

DeviceWarning	Thrown when a device warning error condition occurs.
DeviceError	Raised when a Device error condition occurs.
runtime_error	Raised when a runtime error condition occurs. (Third-party reference)

Parameters

cur	The current (in Amps).

8.2.2.3 maxContinuous()

```
double AdvancedIllumination::DCS_100::DCS_Channel::maxContinuous ( ) const
```

Gets the maximum continuous current (per string of LEDs).

Returns

The maximum continuous current (per string), in Amps.

8.2.2.4 maxFrequency()

```
double AdvancedIllumination::DCS_100::DCS_Channel::maxFrequency ( ) const
```

The maximum frequency (in Hertz) at which this channel can be triggered.

Returns

A const double; the maximum trigger frequency for this channel.

8.2.2.5 maxStrobe()

```
const double AdvancedIllumination::DCS_100::DCS_Channel::maxStrobe ( ) const
```

Gets the maximum strobe current (per string of LEDs).

Returns

The maximum strobe current (per string), in Amps.

8.2.2.6 mode() [1/2]

```
Mode AdvancedIllumination::DCS_100::DCS_Channel::mode ( ) const
```

Gets the mode the channel is in.

Returns

The channel's Mode.

8.2.2.7 mode() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::mode (
            const Mode )
```

Sets the channels' Mode.

Parameters

m	The Mode to set.

8.2.2.8 pulseDelay() [1/2]

```
double AdvancedIllumination::DCS_100::DCS_Channel::pulseDelay ( ) const
```

Gets the pulse delay.

Returns

The pulse delay (in seconds).

8.2.2.9 pulseDelay() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::pulseDelay (
            const double pd )
```

Sets the pulse delay.

Exceptions

std::invalid_argument	Thrown when pulse delay exceeds 10 milliseconds. (Third-party reference)

Parameters

pd	The pulse delay (in seconds).

8.2.2.10 pulseWidth() [1/2]

```
double AdvancedIllumination::DCS_100::DCS_Channel::pulseWidth ( ) const
```

Gets the pulse width.

Returns

The pulse width (in seconds).

8.2.2.11 pulseWidth() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::pulseWidth (
            const double pw )
```

Sets the pulse width.

Must be less than or equal to 65535 microseconds (0.065535 seconds)

Exceptions

invalid_argument	Thrown when pulse width exceeds 65535 microseconds. (Third-party reference)
runtime_error	Raised when a runtime error condition occurs. (Third-party reference)

Parameters

pw	The pulse width (in seconds).

8.2.2.12 trigger()

```
void AdvancedIllumination::DCS_100::DCS_Channel::trigger ( ) const
```

Triggers this channel (acts as if a single hardware trigger occured).

8.2.2.13 triggerInput() [1/2]

```
Channel AdvancedIllumination::DCS_100::DCS_Channel::triggerInput ( ) const
```

Gets the configured trigger input channel.

Returns

A const Channel.

8.2.2.14 triggerInput() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::triggerInput (
            const Channel )
```

Sets the trigger input (e.g.

which hardware trigger input this channel is bound to).

Remarks

This function sets which hardware trigger input this channel responds to on trigger events. Any combination of channels can be set to any trigger input, however each channel can only be assigned to one hardware input. That is, all three channels on a DCS-100E can share trigger input 1, but channel one can't be triggered on inputs 1 and 2, only input 1 or 2 (not both).

Parameters

chan	The channel to which this channel's trigger will be assigned.

8.2.2.15 triggerMode() [1/2]

```
Trigger AdvancedIllumination::DCS_100::DCS_Channel::triggerMode ( ) const
```

Gets the trigger mode (rising or falling edge).

Returns

The channel's current trigger mode.

8.2.2.16 triggerMode() [2/2]

```
void AdvancedIllumination::DCS_100::DCS_Channel::triggerMode (
            const Trigger t )
```

Sets the trigger mode.

Exceptions

DeviceWarning	Thrown when a device warning error condition occurs.
DeviceError	Raised when a device error condition occurs.

Parameters

t	The trigger mode to set.

8.2.3 Friends And Related Function Documentation

8.2.3.1 DCS_100

```
friend class DCS_100  [friend]
```

The documentation for this class was generated from the following files:

- sdk/DCS100.h
- sdk/DCS100.cpp

8.3 AdvancedIllumination::DCS_Info Class Reference

Class containing information about a DCS-100 device.

```
#include <DCS_Info.h>
```

Public Member Functions

- DCS_Info ()

  Default constructor.
- ~DCS_Info ()

  Destructor.
- const std::string & name () const

  Gets the name of the device.
- const std::string & lighthead () const

  Gets the part number of the connected lighthead.
- const std::string & firmware () const

  Gets the firmware version.
- const std::string & host () const

  Gets the host name (IP address) of the device.
- DCS_Type type () const

  Gets the type of DCS.

Static Public Member Functions

- static DCS_Info parse (const std::string &idn, std::string host)

  Parses the given IDN string.
- static std::vector< DCS_Info > findAllInNetwork (bool global=false)

  Searches for all online DCS devices in the network.

8.3.1 Detailed Description

Class containing information about a DCS-100 device.

8.3.2 Constructor & Destructor Documentation

8.3.2.1 DCS_Info()

```
AdvancedIllumination::DCS_Info::DCS_Info ( )
```

Default constructor.

8.3.2.2 ~DCS_Info()

```
AdvancedIllumination::DCS_Info::~DCS_Info ( )
```

Destructor.

8.3.3 Member Function Documentation

8.3.3.1 findAllInNetwork()

```
vector< DCS_Info > AdvancedIllumination::DCS_Info::findAllInNetwork (
            bool global = false )  [static]
```

Searches for all online DCS devices in the network.

Parameters

global	Whether to use a global broadcast (255.255.255.255) or subnet (X.X.X.255)

Returns

The found all in network.

8.3.3.2 firmware()

```
const std::string & AdvancedIllumination::DCS_Info::firmware ( ) const
```

Gets the firmware version.

Returns

The device firmware version.

8.3.3.3 host()

```
const std::string & AdvancedIllumination::DCS_Info::host ( ) const
```

Gets the host name (IP address) of the device.

Returns

A reference to a const std::string, the device IP address.

8.3.3.4 lighthead()

```
const std::string & AdvancedIllumination::DCS_Info::lighthead ( ) const
```

Gets the part number of the connected lighthead.

Returns

A reference to a const std::string. Empty if there is no light connected.

8.3.3.5 name()

```
const std::string & AdvancedIllumination::DCS_Info::name ( ) const
```

Gets the name of the device.

Returns

The device name.

8.3.3.6 parse()

```
DCS_Info AdvancedIllumination::DCS_Info::parse (
            const std::string & idn,
            std::string host )  [static]
```

Parses the given IDN string.

Exceptions

invalid_argument	Thrown when an invalid string is passed. (Third-party reference)

Parameters

idn	The IDN response string.
host	The host (IP address).

Returns

A DCS_Info.

8.3.3.7 type()

```
DCS_Type AdvancedIllumination::DCS_Info::type ( ) const
```

Gets the type of DCS.

Returns

A const DCS_Type.

The documentation for this class was generated from the following files:

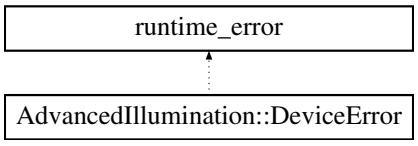
- sdk/DCS_Info.h
- sdk/DCS_Info.cpp

8.4 AdvancedIllumination::DeviceError Class Reference

An exception representing an error message from the device.

```
#include <DCS100.h>
```

Inheritance diagram for AdvancedIllumination::DeviceError:



Public Member Functions

- virtual const char * what () const noexcept

  Gets the exception message.
- DeviceError (const std::string msg)

  Constructor.
- virtual ~DeviceError () noexcept

  Destructor.

8.4.1 Detailed Description

An exception representing an error message from the device.

8.4.2 Constructor & Destructor Documentation

8.4.2.1 DeviceError()

```
AdvancedIllumination::DeviceError::DeviceError (
            const std::string msg )
```

Constructor.

Creates an instance of the exception with the given message.

Parameters

msg	The message.

8.4.2.2 ~DeviceError()

```
AdvancedIllumination::DeviceError::~DeviceError ( )  [virtual], [noexcept]
```

Destructor.

8.4.3 Member Function Documentation

8.4.3.1 what()

```
const char * AdvancedIllumination::DeviceError::what ( ) const  [virtual], [noexcept]
```

Gets the exception message.

Returns

Null if it fails, else a pointer to a const char (C-string).

The documentation for this class was generated from the following files:

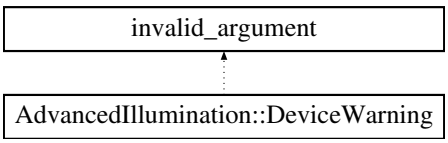
- sdk/DCS100.h
- sdk/DCS100.cpp

8.5 AdvancedIllumination::DeviceWarning Class Reference

An exception representing a warning message from the device.

```
#include <DCS100.h>
```

Inheritance diagram for AdvancedIllumination::DeviceWarning:



Public Member Functions

- virtual const char * what () const noexcept

  Gets the exception message.
- DeviceWarning (const std::string msg)

  Constructor.
- virtual ~DeviceWarning () noexcept

  Destructor.

8.5.1 Detailed Description

An exception representing a warning message from the device.

8.5.2 Constructor & Destructor Documentation

8.5.2.1 DeviceWarning()

```
AdvancedIllumination::DeviceWarning::DeviceWarning (
            const std::string msg )
```

Constructor.

Creates an exception with the given message.

Parameters

msg	The message.

8.5.2.2 ~DeviceWarning()

```
AdvancedIllumination::DeviceWarning::~DeviceWarning ( )  [virtual], [noexcept]
```

Destructor.

8.5.3 Member Function Documentation

8.5.3.1 what()

```
const char * AdvancedIllumination::DeviceWarning::what ( ) const  [virtual], [noexcept]
```

Gets the exception message.

Returns

Null if it fails, else a pointer to a const char (C-string).

The documentation for this class was generated from the following files:

- sdk/DCS100.h
- sdk/DCS100.cpp

Chapter 9

File Documentation

9.1 sdk/build/readme.md File Reference

9.2 sdk/changelog.md File Reference

9.3 sdk/DCS100.cpp File Reference

```
#include "DCS100.h"
#include "DCS_Info.h"
#include <cstdio>
#include "json.hpp"
#include "tinyxml2.h"
#include <regex>
#include <sstream>
#include <thread>
#include <chrono>
#include <unistd.h>
#include <sys/socket.h>
#include <sys/select.h>
#include <netinet/in.h>
#include <netinet/udp.h>
#include <arpa/inet.h>
```

Namespaces

- AdvancedIllumination

  Namespace containing AI-created functions and classes.

Macros

- #define sprintf_s sprintf
- #define SOCKET_ERROR (-1)
- #define INVALID_SOCKET (-1)
- #define MIN(a, b) ((a) < (b) ? (a) : (b))

Typedefs

- typedef int Socket_t
- using json = nlohmann::json

9.3.1 Macro Definition Documentation

9.3.1.1 INVALID_SOCKET

```
#define INVALID_SOCKET (-1)
```

9.3.1.2 MIN

```
#define MIN(
              a,
              b ) ((a) < (b) ?  (a) :  (b))
```

9.3.1.3 SOCKET_ERROR

```
#define SOCKET_ERROR (-1)
```

9.3.1.4 sprintf_s

```
#define sprintf_s sprintf
```

9.3.2 Typedef Documentation

9.3.2.1 json

```
using json = nlohmann::json
```

9.3.2.2 Socket_t

```
typedef int Socket_t
```

9.4 sdk/DCS100.h File Reference

```
#include <string>
#include <cinttypes>
#include <vector>
#include <iostream>
#include <exception>
```

Classes

- class AdvancedIllumination::DeviceWarning

  An exception representing a warning message from the device.
- class AdvancedIllumination::DeviceError

  An exception representing an error message from the device.
- class AdvancedIllumination::DCS_100

  Contains information and methods for working with DCS devices.
- class AdvancedIllumination::DCS_100::DCS_Channel

  Encaspsulates the data related to a single DCS channel.

Namespaces

- AdvancedIllumination

  Namespace containing AI-created functions and classes.

Macros

- #define DCS_EXPORT

Enumerations

- enum AdvancedIllumination::Mode { AdvancedIllumination::Mode::Off = 0, AdvancedIllumination::Mode::Continuous = 1, AdvancedIllumination::Mode::Pulsed = 2, AdvancedIllumination::Mode::Gated = 3 }

  Values that represent modes.
- enum AdvancedIllumination::Trigger { AdvancedIllumination::Trigger::Falling = 0, AdvancedIllumination::Trigger::Rising = 1 }

  Values that represent trigger edges (e.g.
- enum AdvancedIllumination::Channel { AdvancedIllumination::Channel::One = 1, AdvancedIllumination::Channel::Two = 2, AdvancedIllumination::Channel::Three = 3 }

  Values that represent channels.

9.4.1 Macro Definition Documentation

9.4.1.1 DCS_EXPORT

```
#define DCS_EXPORT
```

9.5 sdk/DCS_Info.cpp File Reference

```
#include "DCS_Info.h"
#include <string>
#include <regex>
#include "findpulsars.h"
#include <sstream>
```

Namespaces

- AdvancedIllumination

  Namespace containing AI-created functions and classes.

Functions

- std::string getIPString (uint32_t ip)

9.5.1 Function Documentation

9.5.1.1 getIPString()

```
std::string getIPString (
            uint32_t ip )
```

9.6 sdk/DCS_Info.h File Reference

```
#include <vector>
#include <string>
#include "DCS100.h"
```

Classes

- class AdvancedIllumination::DCS_Info

  Class containing information about a DCS-100 device.

Namespaces

- AdvancedIllumination

  Namespace containing AI-created functions and classes.

Macros

- #define DCS_EXPORT

Enumerations

- enum AdvancedIllumination::DCS_Type { AdvancedIllumination::DCS_Type::DCS_100E, AdvancedIllumination::DCS_Type::DCS_1
  }

  Values that represents the type of DCS connected.

9.6.1 Macro Definition Documentation

9.6.1.1 DCS_EXPORT

```
#define DCS_EXPORT
```

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