Arduino Serial Communication Library

Generated by Doxygen 1.8.1.2

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Contents

1 Class Index

1.1 Class List

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

2 File Index

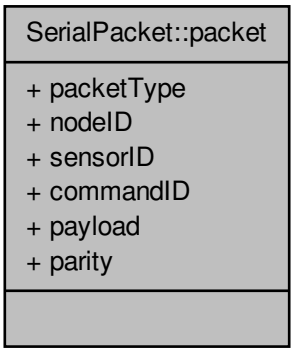
2.1 File List

Here is a list of all files with brief descriptions:

3 Class Documentation

3.1 SerialPacket::packet Struct Reference

Collaboration diagram for SerialPacket::packet:



Public Attributes

- uint8_t packetType
- uint8_t nodeID
- uint8_t sensorID
- uint8_t commandID
- uint8_t payload
- uint8_t parity

3.1.1 Detailed Description

Definition at line 65 of file SerialPacket.h.

3.1.2 Member Data Documentation

3.1.2.1 uint8_t SerialPacket::packet::commandID

Definition at line 70 of file SerialPacket.h.

Referenced by SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.1.2.2 uint8_t SerialPacket::packet::nodeID

Definition at line 68 of file SerialPacket.h.

Referenced by SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.1.2.3 uint8_t SerialPacket::packet::packetType

Definition at line 67 of file SerialPacket.h.

Referenced by SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.1.2.4 uint8_t SerialPacket::packet::parity

Definition at line 72 of file SerialPacket.h.

Referenced by SerialPacket::checkParity(), SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.1.2.5 uint8_t SerialPacket::packet::payload

Definition at line 71 of file SerialPacket.h.

Referenced by SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.1.2.6 uint8_t SerialPacket::packet::sensorID

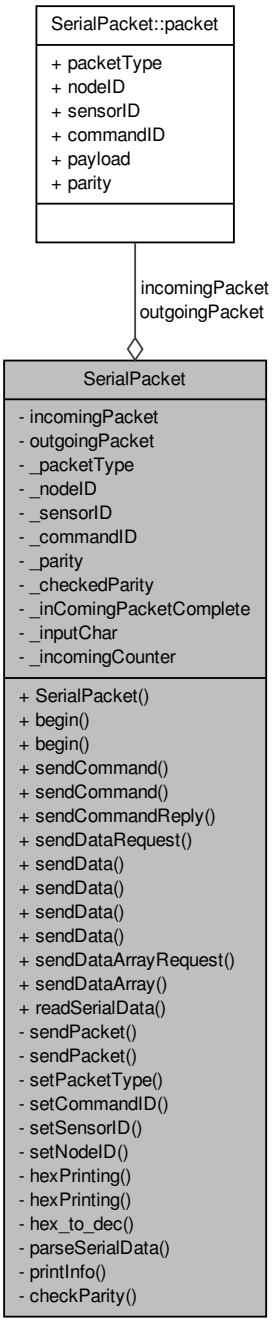
Definition at line 69 of file SerialPacket.h.

Referenced by SerialPacket::parseSerialData(), and SerialPacket::printInfo().

3.2 SerialPacket Class Reference

```
#include <SerialPacket.h>
```

Collaboration diagram for SerialPacket:



Classes

- struct packet

Public Member Functions

- SerialPacket ()

SerialPacket.cpp - Library for sending sensor data packets over UART. For more information: variable declaration, changelog,... see SerialPacket.h

- void begin ()

  Begin using default settings:
- void begin (long speed, uint8_t nodeID)

  Begin using custom settings
- void sendCommand (uint8_t commandID, uint8_t payload)

  Send a single command
- void sendCommand (uint8_t payload)

  Send a single command, reuses commandID from previous packets
- void sendCommandReply (uint8_t commandID, uint8_t payload)

  Send a reply to a command
- void sendDataRequest (uint8_t sensorID, uint8_t payload)

  Request a single data value
- void sendData (uint8_t sensorID, uint8_t payload)

  Send a single data value
- void sendData (uint8_t sensorID, int16_t payload)

  Send a single data value
- void sendData (uint8_t payload)

  Send a single 8-bit data value (Arduino 'byte' type), reuses sensorID from previous packets
- void sendData (int16_t payload)

  Send a single 16-bit data value (Arduino 'int' type), reuses sensorID from previous packets
- void sendDataArrayRequest (uint8_t arrayID, uint8_t length)

  Request an array of data values
- void sendDataArray (uint8_t *dataArray, uint8_t length)

  Send multiple data samples in one packet by passing an array and its length
- void readSerialData ()

  Set readSerialData

Private Member Functions

- void sendPacket (uint8_t &payload)

  Send out the actual 8-bit data packet (called from other 'send' functions)
- void sendPacket (int16_t &payload)

  Send out the actual 16-bit data packet (called from other 'send' functions)
- void setPacketType (uint8_t type)

  Set packet type
- void setCommandID (uint8_t &commandID)

  Set commandID
- void setSensorID (uint8_t &sensorID)

  Set sensorID
- void setNodeID (uint8_t &nodeID)

  Set nodeID
- void hexPrinting (uint8_t &data)

  HexPrinting: helper function to print data with a constant field width (2 hex values)
- void hexPrinting (int16_t &data)

  HexPrinting: helper function to print data with a constant field width (2 hex values)
- uint8_t hex_to_dec (uint8_t in)
- void parseSerialData ()

  Set parseSerialData
- void printInfo ()

  printInfo:
- boolean checkParity ()

  Convert HEX to DecimalT12N00I00P1CQ0E

Private Attributes

- struct SerialPacket::packet incomingPacket
- struct SerialPacket::packet outgoingPacket
- uint8_t _packetType
- uint8_t _nodeID
- uint8_t _sensorID
- uint8_t _commandID
- uint8_t _parity
- uint8_t _checkedParity
- boolean _inComingPacketComplete
- char _inputChar [20]
- uint8_t _incomingCounter

3.2.1 Detailed Description

Definition at line 40 of file SerialPacket.h.

3.2.2 Constructor & Destructor Documentation

3.2.2.1 SerialPacket::SerialPacket ( )

SerialPacket.cpp - Library for sending sensor data packets over UART. For more information: variable declaration, changelog,... see SerialPacket.h

Constructor

Definition at line 42 of file SerialPacket.cpp.

3.2.3 Member Function Documentation

3.2.3.1 void SerialPacket::begin ( )

Begin using default settings:

- speed: 115200 baud
- nodeID: 0

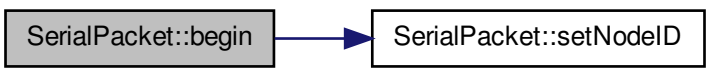
Definition at line 55 of file SerialPacket.cpp.

3.2.3.2 void SerialPacket::begin (long *speed*, uint8_t *nodeID*)

Begin using custom settings

Definition at line 63 of file SerialPacket.cpp.

Here is the call graph for this function:



3.2.3.3 boolean SerialPacket::checkParity ( ) [private]

Convert HEX to DecimalT12N00I00P1CQ0E

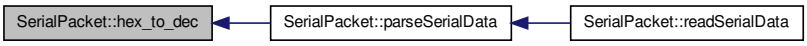
Definition at line 384 of file SerialPacket.cpp.

3.2.3.4 uint8_t SerialPacket::hex_to_dec (uint8_t *in*) [private]

Definition at line 344 of file SerialPacket.cpp.

Referenced by parseSerialData().

Here is the caller graph for this function:



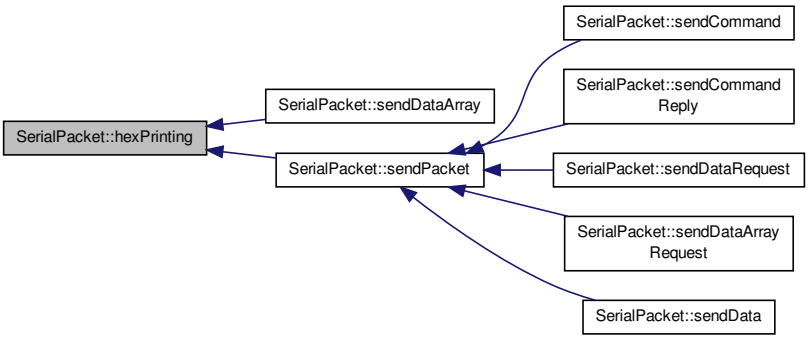
3.2.3.5 void SerialPacket::hexPrinting (uint8_t & *data*) [private]

HexPrinting: helper function to print data with a constant field width (2 hex values)

Definition at line 254 of file SerialPacket.cpp.

Referenced by sendDataArray(), and sendPacket().

Here is the caller graph for this function:



3.2.3.6 void SerialPacket::hexPrinting (int16_t & *data*) [private]

HexPrinting: helper function to print data with a constant field width (2 hex values)

Definition at line 266 of file SerialPacket.cpp.

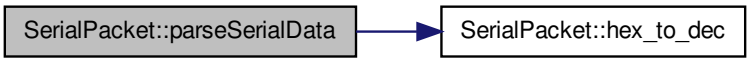
3.2.3.7 void SerialPacket::parseSerialData ( ) [private]

Set parseSerialData

Definition at line 322 of file SerialPacket.cpp.

Referenced by readSerialData().

Here is the call graph for this function:



Here is the caller graph for this function:

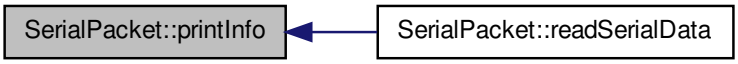
3.2.3.8 void SerialPacket::printInfo ( ) [private]

printInfo:

Definition at line 356 of file SerialPacket.cpp.

Referenced by readSerialData().

Here is the caller graph for this function:

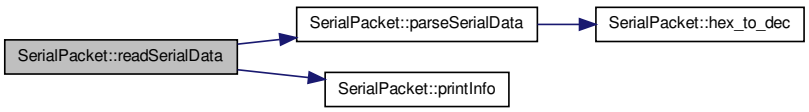


3.2.3.9 void SerialPacket::readSerialData ( )

Set readSerialData

Definition at line 302 of file SerialPacket.cpp.

Here is the call graph for this function:

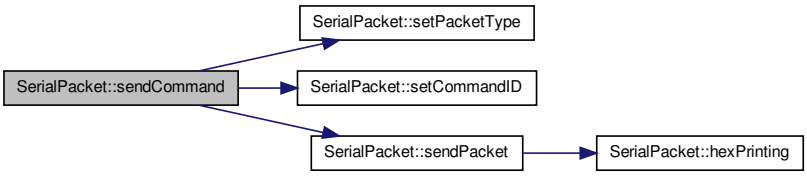


3.2.3.10 void SerialPacket::sendCommand (uint8_t *commandID,* uint8_t *payload*)

Send a single command

Definition at line 74 of file SerialPacket.cpp.

Here is the call graph for this function:

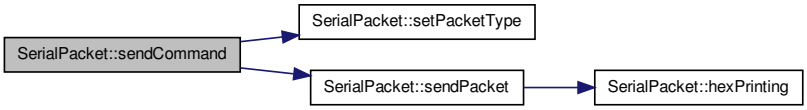


3.2.3.11 void SerialPacket::sendCommand (uint8_t *payload*)

Send a single command, reuses commandID from previous packets

Definition at line 84 of file SerialPacket.cpp.

Here is the call graph for this function:

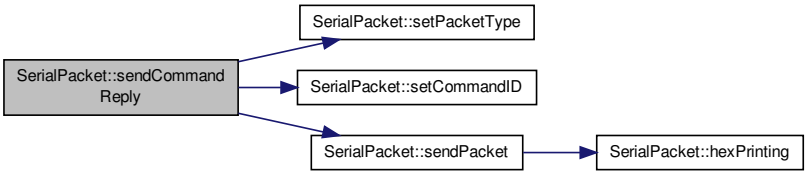


3.2.3.12 void SerialPacket::sendCommandReply (uint8_t *commandID,* uint8_t *payload*)

Send a reply to a command

Definition at line 93 of file SerialPacket.cpp.

Here is the call graph for this function:



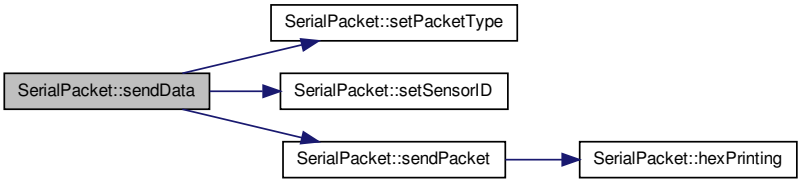
3.2.3.13 void SerialPacket::sendData (uint8_t *sensorID,* uint8_t *payload*)

Send a single data value

T12N00I00P00Q12

Definition at line 123 of file SerialPacket.cpp.

Here is the call graph for this function:

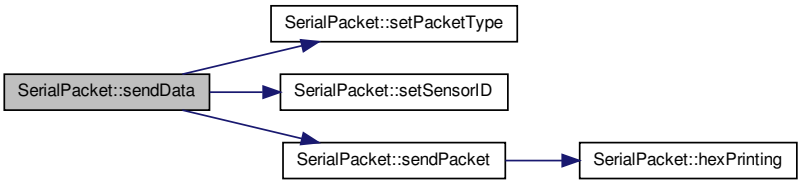


3.2.3.14 void SerialPacket::sendData (uint8_t *sensorID,* int16_t *payload*)

Send a single data value

Definition at line 133 of file SerialPacket.cpp.

Here is the call graph for this function:

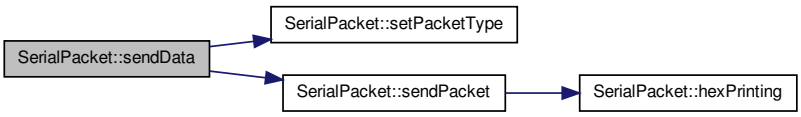


3.2.3.15 void SerialPacket::sendData (uint8_t *payload*)

Send a single 8-bit data value (Arduino 'byte' type), reuses sensorID from previous packets

Definition at line 143 of file SerialPacket.cpp.

Here is the call graph for this function:

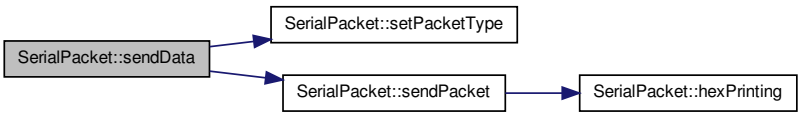


3.2.3.16 void SerialPacket::sendData (int16_t *payload*)

Send a single 16-bit data value (Arduino 'int' type), reuses sensorID from previous packets

Definition at line 152 of file SerialPacket.cpp.

Here is the call graph for this function:



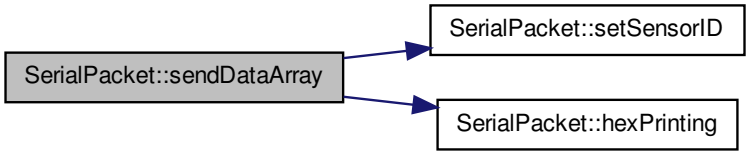
3.2.3.17 void SerialPacket::sendDataArray (uint8_t * *dataArray*, uint8_t *length*)

Send multiple data samples in one packet by passing an array and its length

T12N00I00P1CQ0E

Definition at line 213 of file SerialPacket.cpp.

Here is the call graph for this function:

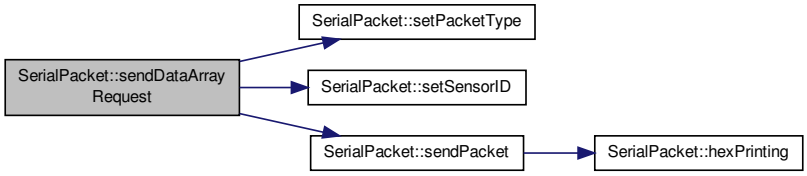


3.2.3.18 void SerialPacket::sendDataArrayRequest (uint8_t *arrayID*, uint8_t *payload*)

Request an array of data values

Definition at line 113 of file SerialPacket.cpp.

Here is the call graph for this function:

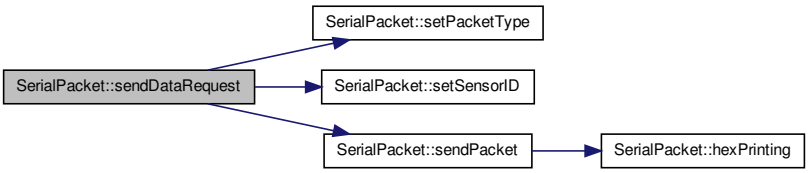


3.2.3.19 void SerialPacket::sendDataRequest (uint8_t *sensorID*, uint8_t *payload*)

Request a single data value

Definition at line 103 of file SerialPacket.cpp.

Here is the call graph for this function:



3.2.3.20 void SerialPacket::sendPacket (uint8_t & *payload*) [private]

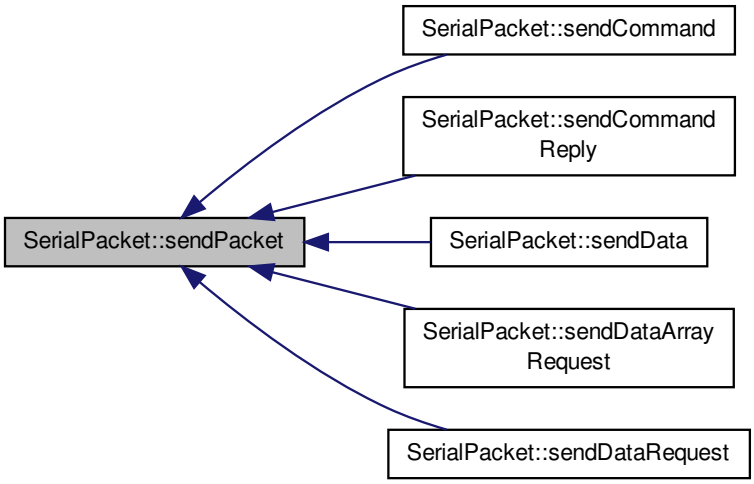
Send out the actual 8-bit data packet (called from other 'send' functions)

Definition at line 161 of file SerialPacket.cpp.

Referenced by sendCommand(), sendCommandReply(), sendData(), sendDataArrayRequest(), and sendDataRequest().

Here is the call graph for this function:

Here is the caller graph for this function:



3.2.3.21 void SerialPacket::sendPacket (int16_t & *payload*) [private]

Send out the actual 16-bit data packet (called from other 'send' functions)

Definition at line 187 of file SerialPacket.cpp.

Here is the call graph for this function:

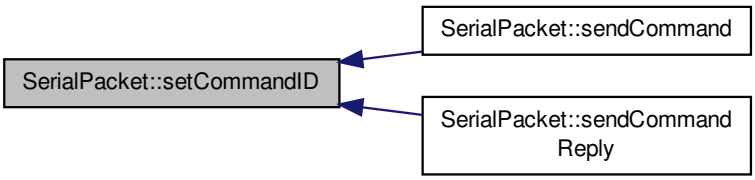
3.2.3.22 void SerialPacket::setCommandID (uint8_t & *commandID*) [private]

Set commandID

Definition at line 238 of file SerialPacket.cpp.

Referenced by sendCommand(), and sendCommandReply().

Here is the caller graph for this function:



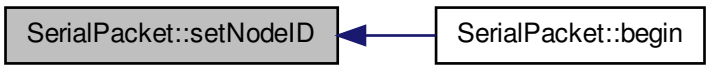
3.2.3.23 void SerialPacket::setNodeID (uint8_t & *nodeID*) [private]

Set nodeID

Definition at line 286 of file SerialPacket.cpp.

Referenced by begin().

Here is the caller graph for this function:



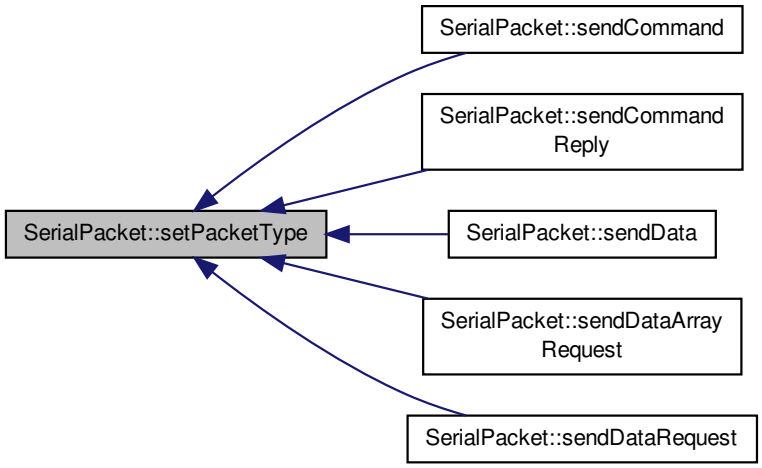
3.2.3.24 void SerialPacket::setPacketType (uint8_t *type*) [private]

Set packet type

Definition at line 246 of file SerialPacket.cpp.

Referenced by sendCommand(), sendCommandReply(), sendData(), sendDataArrayRequest(), and sendDataRequest().

Here is the caller graph for this function:



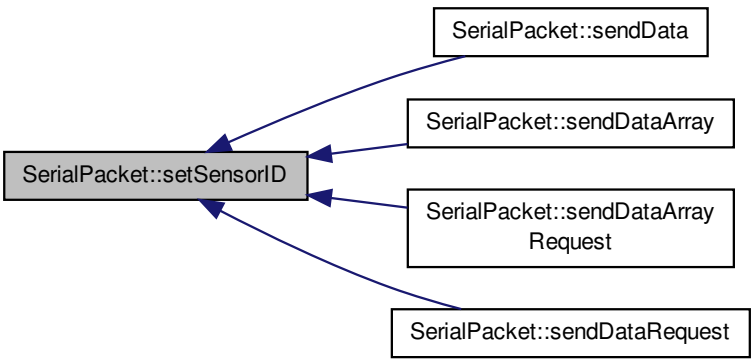
3.2.3.25 void SerialPacket::setSensorID (uint8_t & *sensorID*) [private]

Set sensorID

Definition at line 294 of file SerialPacket.cpp.

Referenced by sendData(), sendDataArray(), sendDataArrayRequest(), and sendDataRequest().

Here is the caller graph for this function:



3.2.4 Member Data Documentation

3.2.4.1 uint8_t SerialPacket::_checkedParity [private]

Definition at line 80 of file SerialPacket.h.

Referenced by checkParity(), parseSerialData(), and printInfo().

3.2.4.2 uint8_t SerialPacket::_commandID [private]

Definition at line 78 of file SerialPacket.h.

Referenced by sendPacket(), and setCommandID().

3.2.4.3 uint8_t SerialPacket::_incomingCounter [private]

Definition at line 84 of file SerialPacket.h.

Referenced by readSerialData(), and SerialPacket().

3.2.4.4 boolean SerialPacket::_inComingPacketComplete [private]

Definition at line 82 of file SerialPacket.h.

Referenced by SerialPacket().

3.2.4.5 char SerialPacket::_inputChar[20] [private]

Definition at line 83 of file SerialPacket.h.

Referenced by parseSerialData(), and readSerialData().

3.2.4.6 uint8_t SerialPacket::_nodeID [private]

Definition at line 76 of file SerialPacket.h.

Referenced by sendDataArray(), sendPacket(), and setNodeID().

3.2.4.7 uint8_t SerialPacket::_packetType [private]

Definition at line 75 of file SerialPacket.h.

Referenced by sendDataArray(), sendPacket(), and setPacketType().

3.2.4.8 uint8_t SerialPacket::_parity [private]

Definition at line 79 of file SerialPacket.h.

Referenced by sendDataArray(), and sendPacket().

3.2.4.9 uint8_t SerialPacket::_sensorID [private]

Definition at line 77 of file SerialPacket.h.

Referenced by sendDataArray(), sendPacket(), and setSensorID().

3.2.4.10 struct SerialPacket::packet SerialPacket::incomingPacket [private]

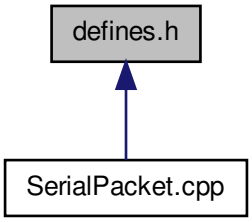
Referenced by checkParity(), parseSerialData(), and printInfo().

3.2.4.11 struct SerialPacket::packet SerialPacket::outgoingPacket [private]

4 File Documentation

4.1 defines.h File Reference

This graph shows which files directly or indirectly include this file:



Macros

- #define SERIAL_ASCII
- #define COMMAND 0x01
- #define COMMAND_REPLY 0x02
- #define DATA_REQUEST 0x11
- #define DATA_BYTE 0x12
- #define DATA_INT 0x13
- #define DATA_ARRAY_REQUEST 0x21
- #define DATA_ARRAY 0x22
- #define TEMPERATURE 0x10

  Sensor Types:
- #define HUMIDITY 0x11
- #define DISTANCE 0x30

4.1.1 Macro Definition Documentation

4.1.1.1 #define COMMAND 0x01

Definition at line 6 of file defines.h.

Referenced by SerialPacket::parseSerialData(), SerialPacket::sendCommand(), and SerialPacket::sendPacket().

4.1.1.2 #define COMMAND_REPLY 0x02

Definition at line 7 of file defines.h.

Referenced by SerialPacket::parseSerialData(), SerialPacket::sendCommandReply(), and SerialPacket::sendPacket().

4.1.1.3 #define DATA_ARRAY 0x22

Definition at line 14 of file defines.h.

4.1.1.4 #define DATA_ARRAY_REQUEST 0x21

Definition at line 13 of file defines.h.

Referenced by SerialPacket::sendDataArrayRequest(), and SerialPacket::sendPacket().

4.1.1.5 #define DATA_BYTE 0x12

Definition at line 10 of file defines.h.

Referenced by SerialPacket::parseSerialData(), SerialPacket::sendData(), and SerialPacket::sendPacket().

4.1.1.6 #define DATA_INT 0x13

Definition at line 11 of file defines.h.

Referenced by SerialPacket::parseSerialData(), SerialPacket::sendData(), and SerialPacket::sendPacket().

4.1.1.7 #define DATA_REQUEST 0x11

Definition at line 9 of file defines.h.

Referenced by SerialPacket::parseSerialData(), SerialPacket::sendDataRequest(), and SerialPacket::sendPacket().

4.1.1.8 #define DISTANCE 0x30

Definition at line 21 of file defines.h.

4.1.1.9 #define HUMIDITY 0x11

Definition at line 19 of file defines.h.

4.1.1.10 #define SERIAL_ASCII

Definition at line 3 of file defines.h.

4.1.1.11 #define TEMPERATURE 0x10

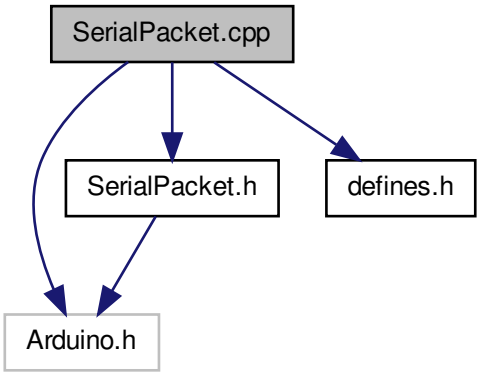
Sensor Types:

Definition at line 18 of file defines.h.

4.2 SerialPacket.cpp File Reference

```
#include <Arduino.h>
#include "SerialPacket.h"
#include "defines.h"
```

Include dependency graph for SerialPacket.cpp:



Macros

- #define HEX_DEC_ERROR 42
  Convert HEX to Decimal

4.2.1 Macro Definition Documentation

4.2.1.1 #define HEX_DEC_ERROR 42

Convert HEX to Decimal

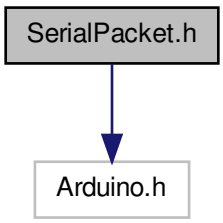
Definition at line 343 of file SerialPacket.cpp.

Referenced by SerialPacket::hex_to_dec().

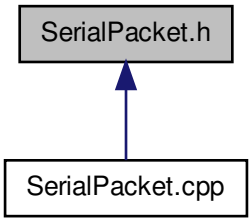
4.3 SerialPacket.h File Reference

```
#include <Arduino.h>
```

Include dependency graph for SerialPacket.h:



This graph shows which files directly or indirectly include this file:



Classes

- class SerialPacket
- struct SerialPacket::packet

Index