

Arduino Serial Communication Library

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1 Todo List

Member `SerialPacket::parseSerialData ()`

: error handling: illegal payloads is now handled by char position (G2 -> 02, 2G -> 20, GG -> 00), requires hexdec reimplementation

: error handling: illegal payloads is now handled by char position (G2 -> 02, 2G -> 20, GG -> 00), requires hexdec reimplementation

Member `SerialPacket::readSerialData ()`

: used detect new packets (for command reply), needs to be merged with the (currenty non-existing packet validation code)

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2 Class Index

2.1 Class List

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

SerialPacket::packet	2
SerialPacket	3

3 File Index

3.1 File List

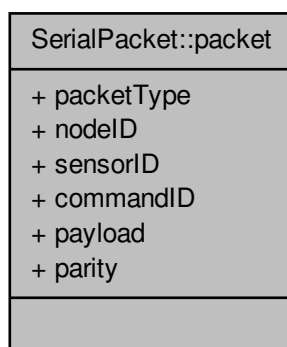
Here is a list of all files with brief descriptions:

defines.h	17
SerialPacket.cpp	19
SerialPacket.h	20
SerialPacket_before_check.cpp	21

4 Class Documentation

4.1 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](#)

4.1.1 Detailed Description

Definition at line 65 of file SerialPacket.h.

4.1.2 Member Data Documentation

4.1.2.1 `uint8_t SerialPacket::packet::commandID`

Definition at line 70 of file SerialPacket.h.

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

4.1.2.2 `uint8_t SerialPacket::packet::nodeID`

Definition at line 68 of file SerialPacket.h.

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

4.1.2.3 `uint8_t SerialPacket::packet::packetType`

Definition at line 67 of file SerialPacket.h.

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

4.1.2.4 `uint8_t SerialPacket::packet::parity`

Definition at line 72 of file SerialPacket.h.

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

4.1.2.5 `uint8_t SerialPacket::packet::payload`

Definition at line 71 of file SerialPacket.h.

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

4.1.2.6 `uint8_t SerialPacket::packet::sensorID`

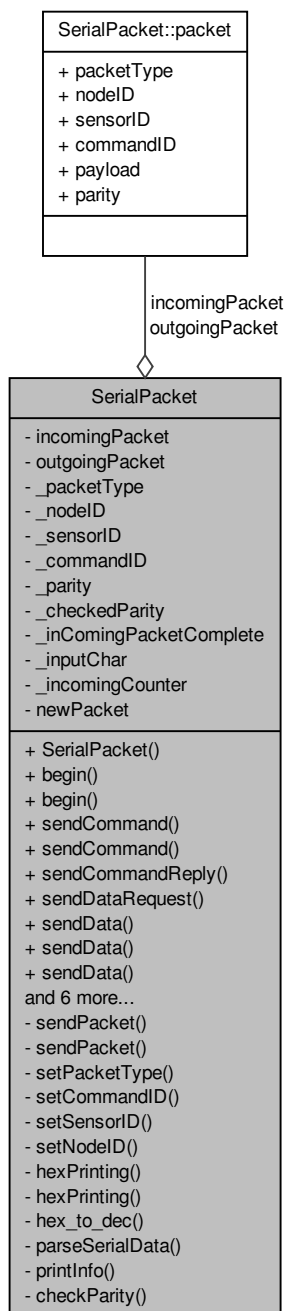
Definition at line 69 of file SerialPacket.h.

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

4.2 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
- boolean [readSerialData](#) ()
Set readSerialData
- uint8_t [getCommandID](#) ()
Get commandID
- uint8_t [getPayload](#) ()
Get getPayload

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)
- boolean [parseSerialData](#) ()
Set parseSerialData
- void [printlnInfo](#) ()
printlnInfo:
- boolean [checkParity](#) ()
Convert HEX to Decimal

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](#)
- boolean [newPacket](#)

4.2.1 Detailed Description

Definition at line 38 of file SerialPacket.h.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 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 31 of file SerialPacket.cpp.

4.2.3 Member Function Documentation

4.2.3.1 void SerialPacket::begin ()

Begin using default settings:

- speed: 115200 baud
- nodeID: 0

Definition at line 49 of file SerialPacket.cpp.

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

Begin using custom settings

Definition at line 57 of file SerialPacket.cpp.

Here is the call graph for this function:



4.2.3.3 boolean SerialPacket::checkParity () [private]

Convert HEX to Decimal

Convert HEX to DecimalT12N00I00P1CQ0E

Definition at line 399 of file SerialPacket.cpp.

4.2.3.4 uint8_t SerialPacket::getCommandID ()

Get commandID

Definition at line 412 of file SerialPacket.cpp.

4.2.3.5 uint8_t SerialPacket::getPayload ()

Get getPayload

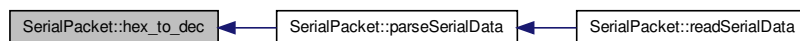
Definition at line 420 of file SerialPacket.cpp.

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

Definition at line 365 of file SerialPacket.cpp.

Referenced by parseSerialData().

Here is the caller graph for this function:



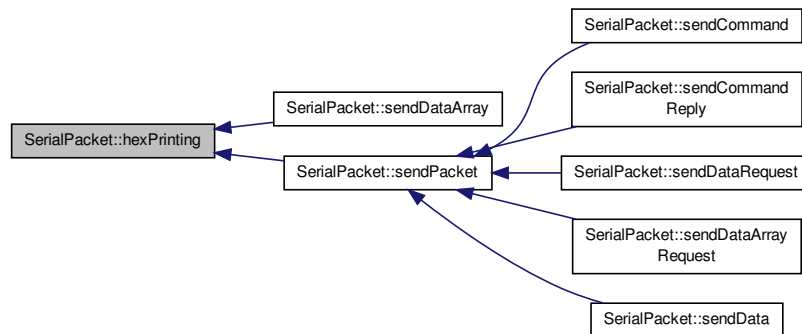
4.2.3.7 void SerialPacket::hexPrinting (uint8_t & *data*) [private]

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

Definition at line 245 of file SerialPacket.cpp.

Referenced by sendDataArray(), and sendPacket().

Here is the caller graph for this function:



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

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

Definition at line 256 of file SerialPacket.cpp.

4.2.3.9 boolean SerialPacket::parseSerialData () [private]

Set parseSerialData

Todo : error handling: illegal payloads is now handled by char position (G2 -> 02, 2G -> 20, GG -> 00), requires hextodec reimplemententation

Todo : error handling: illegal payloads is now handled by char position (G2 -> 02, 2G -> 20, GG -> 00), requires hextodec reimplemententation

Definition at line 315 of file SerialPacket.cpp.

Referenced by readSerialData().

Here is the call graph for this function:



Here is the caller graph for this function:



4.2.3.10 void SerialPacket::printInfo () [private]

printInfo:

Definition at line 376 of file SerialPacket.cpp.

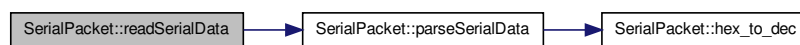
4.2.3.11 boolean SerialPacket::readSerialData ()

Set readSerialData

Todo : used detect new packets (for command reply), needs to be merged with the (currently non-existing packet validation code)

Definition at line 289 of file SerialPacket.cpp.

Here is the call graph for this function:

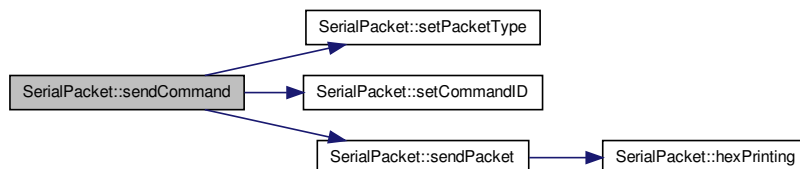


4.2.3.12 void SerialPacket::sendCommand (uint8_t commandID, uint8_t payload)

Send a single command

Definition at line 68 of file SerialPacket.cpp.

Here is the call graph for this function:

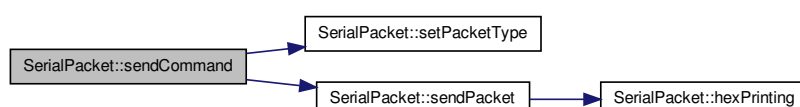


4.2.3.13 void SerialPacket::sendCommand (uint8_t payload)

Send a single command, reuses commandID from previous packets

Definition at line 78 of file SerialPacket.cpp.

Here is the call graph for this function:

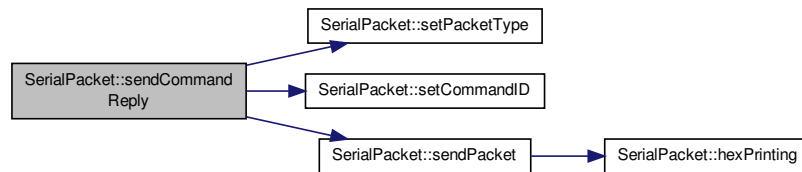


4.2.3.14 void SerialPacket::sendCommandReply (uint8_t *commandID*, uint8_t *payload*)

Send a reply to a command

Definition at line 87 of file SerialPacket.cpp.

Here is the call graph for this function:



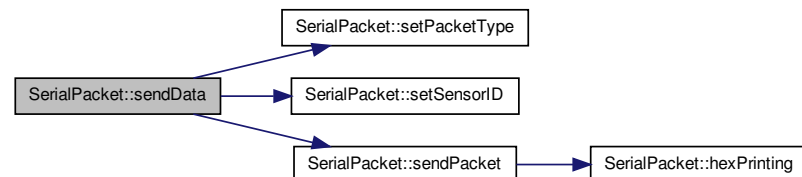
4.2.3.15 void SerialPacket::sendData (uint8_t *sensorID*, uint8_t *payload*)

Send a single data value

T12N00I00P00Q12

Definition at line 117 of file SerialPacket.cpp.

Here is the call graph for this function:

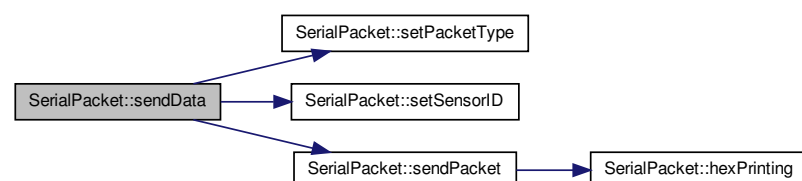


4.2.3.16 void SerialPacket::sendData (uint8_t *sensorID*, int16_t *payload*)

Send a single data value

Definition at line 127 of file SerialPacket.cpp.

Here is the call graph for this function:

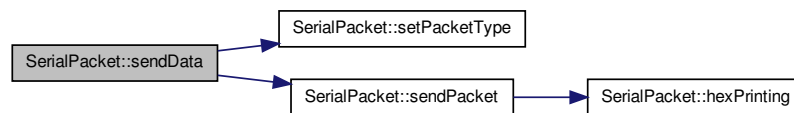


4.2.3.17 void SerialPacket::sendData (uint8_t *payload*)

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

Definition at line 137 of file SerialPacket.cpp.

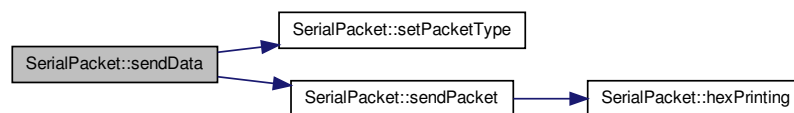
Here is the call graph for this function:

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

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

Definition at line 146 of file SerialPacket.cpp.

Here is the call graph for this function:

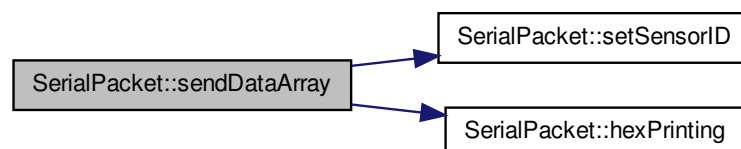
**4.2.3.19 void SerialPacket::sendDataArray (uint8_t * *dataArray*, uint8_t *length*)**

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

T12N00I00P1CQ0E

Definition at line 205 of file SerialPacket.cpp.

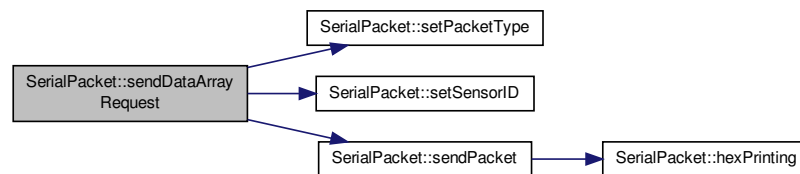
Here is the call graph for this function:

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

Request an array of data values

Definition at line 107 of file SerialPacket.cpp.

Here is the call graph for this function:

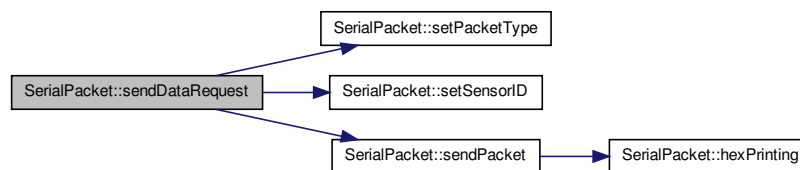


4.2.3.21 void SerialPacket::sendDataRequest (uint8_t sensorID, uint8_t payload)

Request a single data value

Definition at line 97 of file SerialPacket.cpp.

Here is the call graph for this function:



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

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

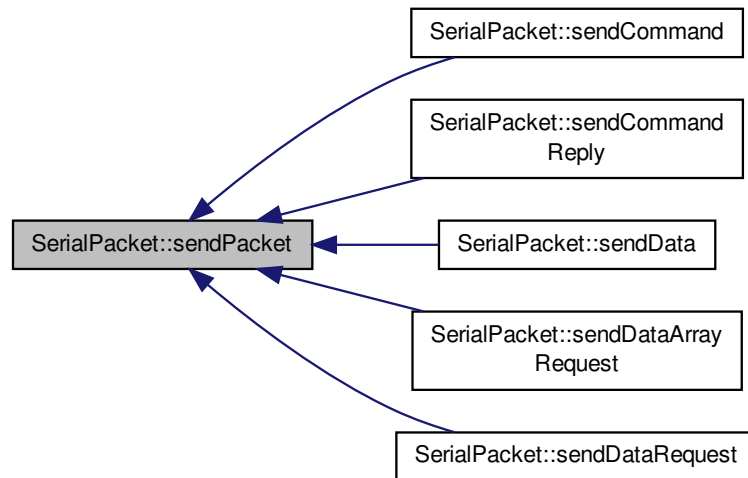
Definition at line 155 of file SerialPacket.cpp.

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

Here is the call graph for this function:



Here is the caller graph for this function:



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

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

Definition at line 180 of file `SerialPacket.cpp`.

Here is the call graph for this function:



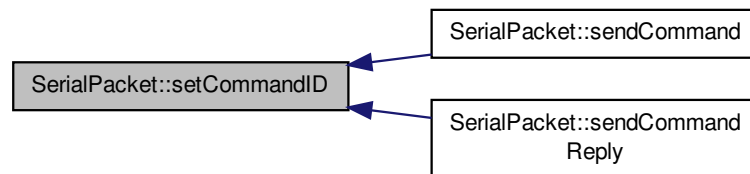
4.2.3.24 void SerialPacket::setCommandID (uint8_t & commandID) [private]

Set commandID

Definition at line 229 of file `SerialPacket.cpp`.

Referenced by `sendCommand()`, and `sendCommandReply()`.

Here is the caller graph for this function:



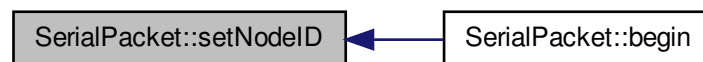
4.2.3.25 void SerialPacket::setNodeID (uint8_t & nodeID) [private]

Set nodeID

Definition at line 273 of file SerialPacket.cpp.

Referenced by `begin()`.

Here is the caller graph for this function:



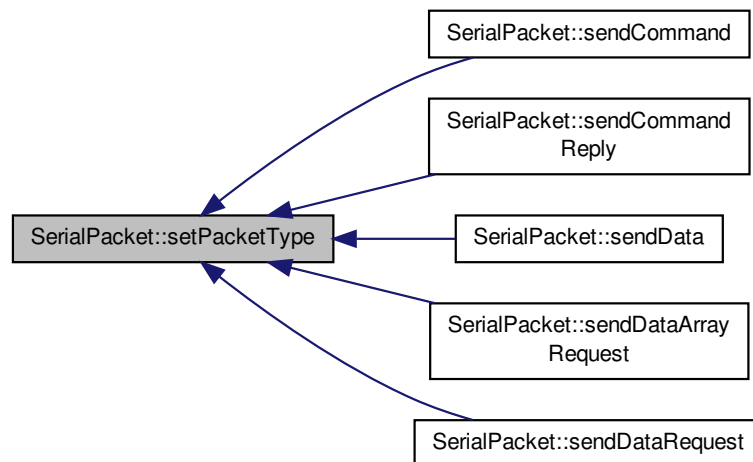
4.2.3.26 void SerialPacket::setPacketType (uint8_t type) [private]

Set packet type

Definition at line 237 of file SerialPacket.cpp.

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

Here is the caller graph for this function:



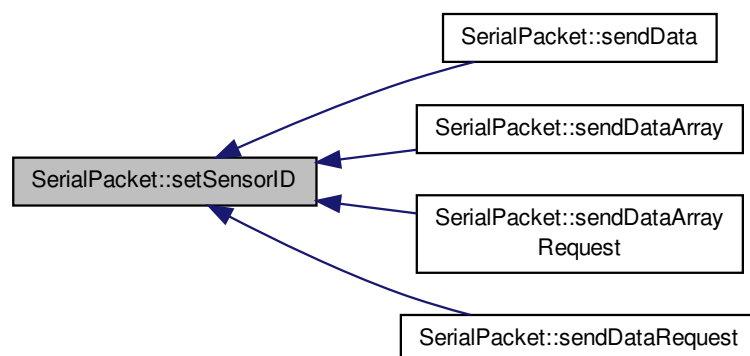
4.2.3.27 void SerialPacket::setSensorID (uint8_t & sensorID) [private]

Set sensorID

Definition at line 281 of file `SerialPacket.cpp`.

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

Here is the caller graph for this function:



4.2.4 Member Data Documentation

4.2.4.1 uint8_t SerialPacket::checkedParity [private]

Definition at line 80 of file `SerialPacket.h`.

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

4.2.4.2 `uint8_t SerialPacket::_commandID` [private]

Definition at line 78 of file `SerialPacket.h`.

Referenced by `sendPacket()`, and `setCommandID()`.

4.2.4.3 `uint8_t SerialPacket::_incomingCounter` [private]

Definition at line 84 of file `SerialPacket.h`.

Referenced by `readSerialData()`, and `SerialPacket()`.

4.2.4.4 `boolean SerialPacket::_inComingPacketComplete` [private]

Definition at line 82 of file `SerialPacket.h`.

Referenced by `SerialPacket()`.

4.2.4.5 `char SerialPacket::_inputChar[20]` [private]

Definition at line 83 of file `SerialPacket.h`.

Referenced by `parseSerialData()`, and `readSerialData()`.

4.2.4.6 `uint8_t SerialPacket::_nodeID` [private]

Definition at line 76 of file `SerialPacket.h`.

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

4.2.4.7 `uint8_t SerialPacket::_packetType` [private]

Definition at line 75 of file `SerialPacket.h`.

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

4.2.4.8 `uint8_t SerialPacket::_parity` [private]

Definition at line 79 of file `SerialPacket.h`.

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

4.2.4.9 `uint8_t SerialPacket::_sensorID` [private]

Definition at line 77 of file `SerialPacket.h`.

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

4.2.4.10 `struct SerialPacket::packet SerialPacket::incomingPacket` [private]

Referenced by `checkParity()`, `getCommandID()`, `getPayload()`, `parseSerialData()`, `printInfo()`, and `SerialPacket()`.

4.2.4.11 `boolean SerialPacket::newPacket` [private]

Definition at line 98 of file `SerialPacket.h`.

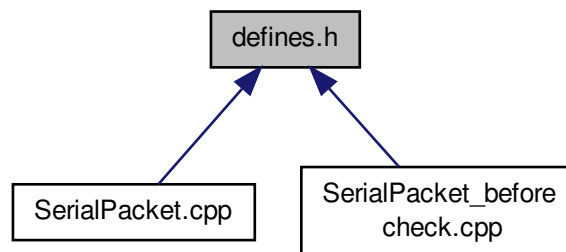
Referenced by `parseSerialData()`, `readSerialData()`, and `SerialPacket()`.

4.2.4.12 `struct SerialPacket::packet SerialPacket::outgoingPacket` [private]

5 File Documentation

5.1 defines.h File Reference

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



Macros

- #define [SERIAL_ASCII](#)
- #define [DEFAULT_BAUDRATE](#) 115200
- #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
- #define [MOTORSTATUS](#) 0x50
- #define [STOP_MOTOR_A](#) 0x10

Command IDs.

- #define [START_MOTOR_A](#) 0x11
- #define [SET_SPEED_MOTOR_A](#) 0x12
- #define [BRAKE_MOTOR_A](#) 0x13
- #define [STOP_MOTOR_B](#) 0x15
- #define [START_MOTOR_B](#) 0x16
- #define [SET_SPEED_MOTOR_B](#) 0x17
- #define [BRAKE_MOTOR_B](#) 0x18

5.1.1 Macro Definition Documentation

5.1.1.1 #define BRAKE_MOTOR_A 0x13

Definition at line 34 of file defines.h.

5.1.1.2 #define BRAKE_MOTOR_B 0x18

Definition at line 39 of file defines.h.

5.1.1.3 #define COMMAND 0x01

Definition at line 11 of file defines.h.

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

5.1.1.4 #define COMMAND_REPLY 0x02

Definition at line 12 of file defines.h.

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

5.1.1.5 #define DATA_ARRAY 0x22

Definition at line 19 of file defines.h.

5.1.1.6 #define DATA_ARRAY_REQUEST 0x21

Definition at line 18 of file defines.h.

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

5.1.1.7 #define DATA_BYTE 0x12

Definition at line 15 of file defines.h.

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

5.1.1.8 #define DATA_INT 0x13

Definition at line 16 of file defines.h.

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

5.1.1.9 #define DATA_REQUEST 0x11

Definition at line 14 of file defines.h.

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

5.1.1.10 #define DEFAULT_BAUDRATE 115200

Definition at line 9 of file defines.h.

Referenced by SerialPacket::begin().

5.1.1.11 #define DISTANCE 0x30

Definition at line 26 of file defines.h.

5.1.1.12 #define HUMIDITY 0x11

Definition at line 24 of file defines.h.

5.1.1.13 #define MOTORSTATUS 0x50

Definition at line 27 of file defines.h.

5.1.1.14 #define SERIAL_ASCII

Definition at line 3 of file defines.h.

5.1.1.15 #define SET_SPEED_MOTOR_A 0x12

Definition at line 33 of file defines.h.

5.1.1.16 #define SET_SPEED_MOTOR_B 0x17

Definition at line 38 of file defines.h.

5.1.1.17 #define START_MOTOR_A 0x11

Definition at line 32 of file defines.h.

5.1.1.18 #define START_MOTOR_B 0x16

Definition at line 37 of file defines.h.

5.1.1.19 #define STOP_MOTOR_A 0x10

Command IDs.

Definition at line 31 of file defines.h.

5.1.1.20 #define STOP_MOTOR_B 0x15

Definition at line 36 of file defines.h.

5.1.1.21 #define TEMPERATURE 0x10

Sensor Types:

Definition at line 23 of file defines.h.

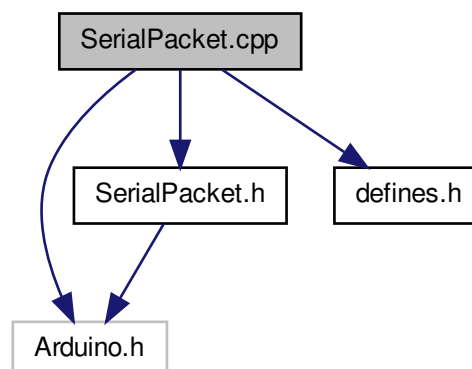
5.2 SerialPacket.cpp File Reference

```
#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
- `#define HEX_DEC_ERROR 42`
Convert HEX to Decimal

5.2.1 Macro Definition Documentation

5.2.1.1 `#define HEX_DEC_ERROR 42`

Convert HEX to Decimal

Definition at line 364 of file SerialPacket.cpp.

Referenced by SerialPacket::hex_to_dec().

5.2.1.2 `#define HEX_DEC_ERROR 42`

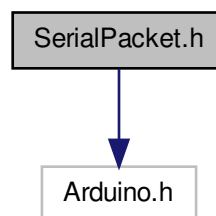
Convert HEX to Decimal

Definition at line 364 of file SerialPacket.cpp.

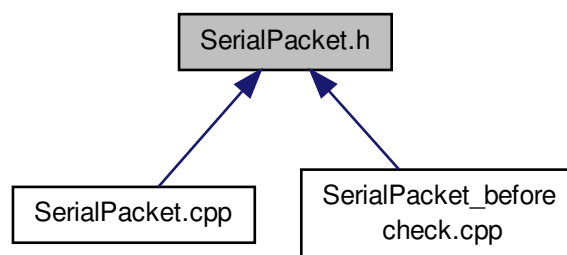
5.3 SerialPacket.h File Reference

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

Include dependency graph for SerialPacket.h:



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



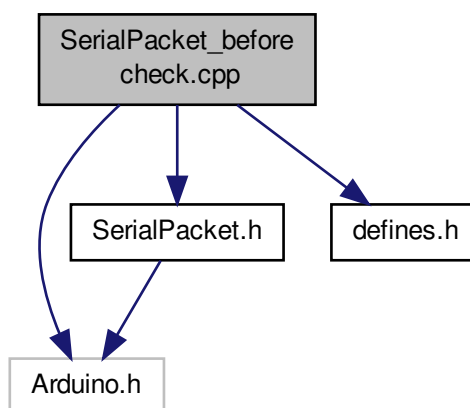
Classes

- class [SerialPacket](#)
- struct [SerialPacket::packet](#)

5.4 SerialPacket_before check.cpp File Reference

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

Include dependency graph for SerialPacket_before check.cpp:



Macros

- #define [HEX_DEC_ERROR](#) 0
Convert HEX to Decimal

5.4.1 Macro Definition Documentation

5.4.1.1 `#define HEX_DEC_ERROR 0`

Convert HEX to Decimal

Definition at line 347 of file SerialPacket_before check.cpp.

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