
PyOpenLCB Documentation

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Timothy C. Hatch, Dustin C. Hatch

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CONTENTS

1	API Reference	3
1.1	OpenLCB over CAN	3
1.2	Node Communication	6
2	Indices and tables	7
	Python Module Index	9

Contents:

API REFERENCE

1.1 OpenLCB over CAN

1.1.1 CAN Messages

OpenLCB over CAN

Classes for creating, manipulating, and parsing CAN frames as OpenLCB messages.

author Dustin C. Hatch

author Timothy C. Hatch

class `openlcb.can.messages.AddressedMessage` (***keywords*)

Represents a message sent to a single node

Parameters

- **src_alias** (*int*) – The alias of the node from which messages originate
- **dst_alias** (*int*) – The alias of the node to which the message is sent

src_alias

The node alias of the node sending the message

dst_alias

The alias of the node for which the message is intended

header

classmethod `parse_frame` (*frame*)

class `openlcb.can.messages.CANMessage` (*header='', body=''*)

Base class for Controller Area Network messages

Calling `str()` on `CANMessage` instances returns a string containing the CAN frame.

header

The value of the header that would be sent in the frame

body

The value of the body that would be sent with the frame

classmethod `from_sequence` (*seq*)

Convert a sequence (list, etc.) of strings to Message objects

Parameters **seq** (*sequence*) – A sequence of OpenLCB frame strings

Yields Instances of the `CANMessage` subclass

classmethod `from_string (frame)`

Create a `CANMessage` instance from a frame string

Parameters `frame (str)` – The complete CAN frame, including control characters

Returns A new instance of the `CANMessage` subclass

Subclasses of `CANMessage` should *not* override this method, but rather `parse_frame()` instead.

classmethod `parse_frame (frame)`

Parse a string containing a CAN frame into its parts

Returns dict A dictionary containing the valuable message parts

Subclasses of `CANMessage` should override this method and provide their own unique logic for parsing the header and body into usable properties.

class `openlcb.can.messages.ConsumerIdentified (**keywords)`

MTI = 103019

class `openlcb.can.messages.DatagramReceived (**keywords)`

MTI = 30

class `openlcb.can.messages.EventMessage (**keywords)`

Represents a message containing an event ID

event_id

The ID of the event identified in the message

classmethod `parse_frame (frame)`

class `openlcb.can.messages.GeneralDatagram (**keywords)`

MTI = 29

class `openlcb.can.messages.GlobalMessage (**keywords)`

Represents a message sent to the entire bus

class `openlcb.can.messages.IdentifyConsumers (**keywords)`

MTI = 98895

class `openlcb.can.messages.IdentifyEventsAddressed (**keywords)`

CAN_DATA = 43

MTI = 30

class `openlcb.can.messages.IdentifyEventsGlobal (**keywords)`

MTI = 98999

class `openlcb.can.messages.IdentifyProducers (**keywords)`

MTI = 98959

exception `openlcb.can.messages.IncorrectMTI (mti, cls)`

Raised when creating a message from a string with the wrong MTI

exception `openlcb.can.messages.InvalidMessage (frame)`
 Raised when attempting to parse an improperly-formatted frame

class `openlcb.can.messages.MessageWithBody (**keywords)`
 Represents a message that contains a body

node_id
 The full of the ID of the node sending the message

classmethod `parse_frame (frame)`

class `openlcb.can.messages.NodeAlias (alias)`
 Utility class for handling node alias

- Calling `int` on an instance of `:py:class:NodeAlias` will return the integer value.
- Calling `str` on an instance of `:py:class:NodeAlias` will return a hexadecimal number.

class `openlcb.can.messages.OpenLCBMessage (**keywords)`
 Base class for all OpenLCB CAN messages

Parameters `src_alias (int)` – The alias of the node from which messages originate

src_alias
 The node alias of the node sending the message

MTI
 The message type indicator, as an integer. This value should be set by subclasses of `CANMessage`. See <http://www.openlcb.org/trunk/specs/MtiAllocations.pdf> for a list of MTI allocations.

classmethod `from_string (frame)`

header

classmethod `parse_frame (frame)`

class `openlcb.can.messages.RegisteredMessage`
 Metaclass for OpenLCB message classes

Classes using `RegisteredMessage` as their metaclass will automatically have their MTIs registered, which creates a reverse mapping from MTI to class. This registration is required for `parse_frame()` to discover a message class based on the MTI and return an instance of it.

class `openlcb.can.messages.StartDatagramFrame (**keywords)`

MTI = 28

class `openlcb.can.messages.VerifiedNodeIDNumber (**keywords)`

MTI = 98487

class `openlcb.can.messages.VerifyNodeIDNumberSimple (**keywords)`

MTI = 98471

`openlcb.can.messages.parse_frame (frame)`
 Parse an OpenLCB Message from a CAN frame

Parameters `frame (str)` – CAN frame as a string, including control characters

Returns An instance of the class registered for the MTI specified in the frame

1.2 Node Communication

exception `openlcb.communication.CommunicationException`

Raised if an error occurs while communicating with a node

class `openlcb.communication.EthernetConnection` (*hostname*, *port*)

Class for communicating with nodes via Eth2CAN

Parameters

- **hostname** (*str*) – Host name or IP address of the Eth2CAN device
- **port** (*int*) – TCP port of the Eth2CAN device

BUFFER_SIZE = 4096

Maximum amount of data to read from a response message (in bytes)

SOCKET_TIMEOUT = 1.0

Amount of time to wait for a response (in seconds)

close ()

Close the TCP/IP communication socket

connect ()

Connect to the Eth2CAN device over TCP/IP

receive ()

Retrieve a response from the node

Returns str A string containing the CAN message, suitable for creating a new instance of a `CANMessage` subclass

Deprecated since version 0.1: Use `receive_one()` instead

receive_multi ()

Retrieve multiple responses from the node

Returns list A list of strings containing CAN messages, suitable for creating new instances of a `CANMessage` subclass

receive_one ()

Retrieve a single response message from the node

Returns str A string containing the first message received, suitable for creating a new instance of a `CANMessage` subclass

send (*message*)

Send a CAN message

Parameters message (*CANMessage*) – An instance of a `CANMessage` containing the message to send

INDICES AND TABLES

- *genindex*
- *modindex*
- *search*

PYTHON MODULE INDEX

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`openlcb.can.messages`, 3
`openlcb.communication`, 6