Katana 450

API Documentation

Standalone SOAP Interface

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1 Introduction

The classes described in this document wrap the Katana and KMotion class for SOAP

For API documentation of the original Katana and KMotion Python classes, see the Standalone Python Interface API Documentation (Document Number 233572).

Data types are converted recursively:

- vector to SOAPpy.arrayType (no matter if vectori, vectord, vectors, vectorvectors or trajectorysectionvector)
- list to SOAPpy.arrayType
- SOAPpy.arrayType representing vector or list to according vectord, trajectorysectionvector, pathpointlist, ...
- pathPoint or trajSection to SOAPpy.structType
- SOAPpy.structType to pathPoint or trajSection respectively

Arguments by reference to hold return values are not supported by SOAP and thus removed. The return value of the affected functions is a SOAPpy.structType with the element 'status' (the original status return value) and an element for each original 'by-reference argument' named after this.

The arguments and return values contain the following complex datatypes:

- SOAPpy.arrayType polynomials
  - Return value of calcP2P, calcLinear, calcArcus, calcPath, calcPathReverse, calcTrajectory
  - Normally, these functions are not used by end users. They are designed for internal use
  - A SOAPpy.arrayType polynomials consists of a number of SOAPpy.arrayType polynomial
  - A SOAPpy.arrayType polynomial consists of short int values representing a polynomial
- SOAPpy.arrayType points
  - Argument of calcPath, calcPathReverse, movePath, movePathReverse
  - A SOAPpy.arrayType points consists of a number of SOAPpy.structType pathPoint
  - A SOAPpy.structType pathPoint consists of:
    - A field '`time`' of type double representing the relative time of this point on the path in seconds
    - A field '`configuration`' of type SOAPpy.arrayType consisting of integer values representing the encoder values of the configuration of this point on the path
- SOAPpy.arrayType trajectory
  - Argument of calcTrajectory, moveTrajectory, moveTrajectoryReverse
  - A SOAPpy.arrayType trajectory consists of a number of SOAPpy.structType trajSection
  - A SOAPpy.structType trajSection consists of:
    - A field '`type`' of type integer representing the type of this trajectory section: arcus=0, linear=1
    - A field '`velocity`' of type double representing the maximum velocity of this trajectory section
    - A field '`startPoint`' of type SOAPpy.arrayType consisting of double values representing the pose of the start point of this trajectory section
    - A field '`endPoint`' of type SOAPpy.arrayType consisting of double values representing the pose of the end point of this trajectory section
    - A field '`interpolationPoint`' of type SOAPpy.arrayType consisting of double values representing the pose of the intermediate point of a arcus trajectory section; on a linear trajectory section, this field is ignored and can be an empty SOAPpy.araryType

2 Class Index

2.1 Class List

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

kmotion_soap::Katana_SOAP 3
kmotion_soap::KMotion_SOAP 14

3 Class Documentation

3.1 kmotion_soap::Katana_SOAP Class Reference

Public Member Functions

- def __init__
- def terminate
- def calibrate
- def init
- def moveMot
- def configurePTPMovement
- def waitForMot
- def waitForHold
- def moveMotAndWait
- def motorOff
- def allMotorsOff
- def motorFreeze
- def freezeAllMotors
- def moveToPosEnc
- def moveTo
- def setGripper
- def closeGripper
- def openGripper
- def sendSplineToMotor
- def startSplineMovement
- def ModBusTCP_connect
- def ModBusTCP_disconnect
- def ModBusTCP_writeWord
- def ModBusTCP_readWord
- def IO_setOutput
- def IO_readInput
- def IO_setLed
- def getState
- def getMoveBufferFullState
- def getVelocity
- def getDrive
- def getEncoder
- def getHeartbeatState
- def isOperational
- def getSensorData
- def getProcImageDataItem
- def getAxisFirmwareVersion
- def getAxisBootloaderVersion
- def getAxisHardwareVersion
- def getVersion

- def setState
- def setCollisionDetection
- def setPositionCollisionLimit
- def setVelocityCollisionLimit
- def setCollisionParameters
- def unblock
- def setControllerParameters
- def setMaxVelocity
- def setMaxAccel
- def setMaxDrive
- def setMaxForce
- def setOperational
- def nmtSetState
- def setTargetPosition
- def startPtpMovement
- def fakeCalibration
- def getCurrent
- def getForce
- def getVoltage
- def getNumberOfMotors
- def ping
- def setVerbose
- def shadowMe
- def unShadowMe
- def currentControllerActive

3.1.1 Detailed Description

```
Wrapper of Katana class for SOAP
```

Definition at line 39 of file kmotion_soap.py.

3.1.2 Member Function Documentation

3.1.2.1 def kmotion_soap::Katana_SOAP::__init__ (*self*)

```
__init__(self) -> Katana_SOAP
```

Definition at line 42 of file kmotion_soap.py.

3.1.2.2 def kmotion_soap::Katana_SOAP::terminate (*self*)

```
terminate(self) -> int
```

Definition at line 46 of file kmotion_soap.py.

3.1.2.3 def kmotion_soap::Katana_SOAP::calibrate (*self*, *axis* = `0`, *force* = `False`)

```
calibrate(self, int axis=0, bool force=False) -> int
calibrate(self, int axis=0) -> int
calibrate(self) -> int
```

Definition at line 50 of file kmotion_soap.py.

3.1.2.4 def kmotion_soap::Katana_SOAP::init (*self*)

```
init(self) -> int
```

Definition at line 58 of file kmotion_soap.py.

3.1.2.5 def kmotion_soap::Katana_SOAP::moveMot (*self*, *axis*, *enc*, *speed* = 0, *accel* = 0, *tolerance* = 0, *rangeCheck* = True)

```
moveMot(self, int axis, int enc, bool rangeCheck=True) -> int
moveMot(self, int axis, int enc) -> int
moveMot(self, int axis, int enc, int speed, int accel, int tolerance,
        bool rangeCheck=True) -> int
moveMot(self, int axis, int enc, int speed, int accel, int tolerance) -> int
```

Definition at line 62 of file kmotion_soap.py.

3.1.2.6 def kmotion_soap::Katana_SOAP::configurePTPMovement (*self*, *axis*, *enc*, *velocity*, *accel*, *tolerance*, *rangeCheck* = True, *paramSetting* = False)

```
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance,
        bool rangeCheck=True, bool paramSetting=False) -> int
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance,
        bool rangeCheck=True) -> int
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance) -> int
```

Definition at line 75 of file kmotion_soap.py.

3.1.2.7 def kmotion_soap::Katana_SOAP::waitForMot (*self*, *axis*, *targetpos* = 0, *tolerance* = 0, *mode* = 1)

```
waitForMot(self, int axis, int targetpos=0, int tolerance=0, int mode=1) -> int
waitForMot(self, int axis, int targetpos=0, int tolerance=0) -> int
waitForMot(self, int axis, int targetpos=0) -> int
waitForMot(self, int axis) -> int
```

Definition at line 85 of file kmotion_soap.py.

3.1.2.8 def kmotion_soap::Katana_SOAP::waitForHold (*self*, *axis*, *timeout*)

```
waitForHold(self, int axis, int timeout) -> int
```

Definition at line 94 of file kmotion_soap.py.

3.1.2.9 def kmotion_soap::Katana_SOAP::moveMotAndWait (*self*, *axis*, *targetpos*, *tolerance* = 0)

```
moveMotAndWait(self, int axis, int targetpos, int tolerance=0) -> int
moveMotAndWait(self, int axis, int targetpos) -> int
```

Definition at line 98 of file kmotion_soap.py.

3.1.2.10 def kmotion_soap::Katana_SOAP::motorOff (*self*, *axis*)

```
motorOff(self, int axis) -> int
```

Definition at line 105 of file kmotion_soap.py.

3.1.2.11 def kmotion_soap::Katana_SOAP::allMotorsOff (*self*)

```
allMotorsOff(self) -> int
```

Definition at line 109 of file kmotion_soap.py.

3.1.2.12 def kmotion_soap::Katana_SOAP::motorFreeze (*self*, *axis*)

```
motorFreeze(self, int axis) -> int
```

Definition at line 113 of file kmotion_soap.py.

3.1.2.13 def kmotion_soap::Katana_SOAP::freezeAllMotors (*self*)

```
freezeAllMotors(self) -> int
```

Definition at line 117 of file kmotion_soap.py.

3.1.2.14 def kmotion_soap::Katana_SOAP::moveToPosEnc (*self*, *enc1*, *enc2*, *enc3*, *enc4*, *enc5*, *enc6*, *velocity*, *acceleration*, *tolerance*)

```
moveToPosEnc(self, int enc1, int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, int tolerance) -> int
```

Definition at line 121 of file kmotion_soap.py.

3.1.2.15 def kmotion_soap::Katana_SOAP::moveTo (*self*, *arg1*, *arg2*, *arg3*, *arg4*, *arg5*, *arg6* = 0, *arg7* = 0, *arg8* = 0, *arg9* = 0, *arg10* = 0, *arg11* = 0, *arg12* = 0, *arg13* = 0, *arg14* = 0, *arg15* = 0)

```
moveTo(self, int startenc1, int startenc2, int startenc3, int startenc4,
        int startenc5, int startenc6, int enc1,
        int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, bool wait) -> int
moveTo(self, int enc1, int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, bool wait) -> int
moveTo(self, SOAPpy.arrayType start_enc, SOAPpy.arrayType target_enc, int velocity,
        int acceleration, bool wait) -> int
```

Definition at line 128 of file kmotion_soap.py.

3.1.2.16 def kmotion_soap::Katana_SOAP::setGripper (*self*, *hasGripper*)

```
setGripper(self, bool hasGripper) -> int
```

Definition at line 160 of file kmotion_soap.py.

3.1.2.17 def kmotion_soap::Katana_SOAP::closeGripper (*self*)

```
closeGripper(self) -> int
```

Definition at line 164 of file kmotion_soap.py.

3.1.2.18 def kmotion_soap::Katana_SOAP::openGripper (*self*)

```
openGripper(self) -> int
```

Definition at line 168 of file kmotion_soap.py.

3.1.2.19 def kmotion_soap::Katana_SOAP::sendSplineToMotor (*self*, *axis*, *targetpos*, *duration*, *p0*, *p1*, *p2*, *p3*)

```
sendSplineToMotor(self, int axis, int targetpos, int duration, int p0, int p1,
        int p2, int p3) -> int
```

Definition at line 172 of file kmotion_soap.py.

3.1.2.20 def kmotion_soap::Katana_SOAP::startSplineMovement (*self*, *contd*, *exactflag*, *forceMbCheck* = True)

```
startSplineMovement(self, int contd, int exactflag, bool forceMbCheck=True) -> int
startSplineMovement(self, int contd, int exactflag) -> int
```

Definition at line 179 of file kmotion_soap.py.

3.1.2.21 def kmotion_soap::Katana_SOAP::ModBusTCP_connect (*self*, *hostIP*, *timeout* = 1000, *port* = 502, *outputOffset* = 0)

```
ModBusTCP_connect(self, char hostIP, int timeout=1000, int port=502, int outputOffset=0) -> int
ModBusTCP_connect(self, char hostIP, int timeout=1000, int port=502) -> int
ModBusTCP_connect(self, char hostIP, int timeout=1000) -> int
ModBusTCP_connect(self, char hostIP) -> int
```

Definition at line 186 of file kmotion_soap.py.

3.1.2.22 def kmotion_soap::Katana_SOAP::ModBusTCP_disconnect (*self*)

```
ModBusTCP_disconnect(self) -> int
```

Definition at line 195 of file kmotion_soap.py.

3.1.2.23 def kmotion_soap::Katana_SOAP::ModBusTCP_writeWord (*self*, *address*, *value*)

```
ModBusTCP_writeWord(self, int address, int value) -> int
```

Definition at line 199 of file kmotion_soap.py.

3.1.2.24 def kmotion_soap::Katana_SOAP::ModBusTCP_readWord (*self*, *address*)

```
ModBusTCP_readWord(self, int address) -> int
```

Definition at line 203 of file kmotion_soap.py.

3.1.2.25 def kmotion_soap::Katana_SOAP::IO_setOutput (*self*, *outputNr*, *value*)

```
IO_setOutput(self, int outputNr, int value) -> int
```

Definition at line 207 of file kmotion_soap.py.

3.1.2.26 def kmotion_soap::Katana_SOAP::IO_readInput (*self*, *inputNr*)

```
IO_readInput(self, int inputNr) -> int
```

Definition at line 211 of file kmotion_soap.py.

3.1.2.27 def kmotion_soap::Katana_SOAP::IO_setLed (*self*, *state*)

```
IO_setLed(self, char state) -> int
```

Definition at line 215 of file kmotion_soap.py.

3.1.2.28 def kmotion_soap::Katana_SOAP::getState (*self*, *axis*)

```
getState(self, int axis) -> int
```

Definition at line 219 of file kmotion_soap.py.

3.1.2.29 def kmotion_soap::Katana_SOAP::getMoveBufferFullState (*self*, *axis*)

```
getMoveBufferFullState(self, int axis) -> int
```

Definition at line 223 of file kmotion_soap.py.

3.1.2.30 def kmotion_soap::Katana_SOAP::getVelocity (*self*, *axis*)

```
getVelocity(self, int axis) -> int
```

Definition at line 227 of file kmotion_soap.py.

3.1.2.31 def kmotion_soap::Katana_SOAP::getDrive (*self*, *axis*)

```
getDrive(self, int axis) -> int
```

Definition at line 231 of file kmotion_soap.py.

3.1.2.32 def kmotion_soap::Katana_SOAP::getEncoder (*self*, *axis*)

```
getEncoder(self, int axis) -> int
```

Definition at line 235 of file kmotion_soap.py.

3.1.2.33 def kmotion_soap::Katana_SOAP::getHeartbeatState (*self*, *axis*)

```
getHeartbeatState(self, int axis) -> int
```

Definition at line 239 of file kmotion_soap.py.

3.1.2.34 def kmotion_soap::Katana_SOAP::isOperational (*self*, *axis*)

```
isOperational(self, int axis) -> int
```

Definition at line 243 of file kmotion_soap.py.

3.1.2.35 def kmotion_soap::Katana_SOAP::getSensorData (*self*, *sensor*, *channel*)

```
getSensorData(self, int sensor, int channel) -> int
```

Definition at line 247 of file kmotion_soap.py.

3.1.2.36 def kmotion_soap::Katana_SOAP::getProcImageDataItem (*self*, *axis*, *index*)

```
getProcImageDataItem(self, int axis, int index) -> int
```

Definition at line 251 of file kmotion_soap.py.

3.1.2.37 def kmotion_soap::Katana_SOAP::getAxisFirmwareVersion (*self*, *axis*)

```
getAxisFirmwareVersion(self, int axis) -> char
```

Definition at line 255 of file kmotion_soap.py.

3.1.2.38 def kmotion_soap::Katana_SOAP::getAxisBootloaderVersion (*self*, *axis*)

```
getAxisBootloaderVersion(self, int axis) -> char
```

Definition at line 259 of file kmotion_soap.py.

3.1.2.39 def kmotion_soap::Katana_SOAP::getAxisHardwareVersion (*self*, *axis*)

```
getAxisHardwareVersion(self, int axis) -> char
```

Definition at line 263 of file kmotion_soap.py.

3.1.2.40 def kmotion_soap::Katana_SOAP::getVersion (*self*)

```
getVersion(self) -> char
```

Definition at line 267 of file kmotion_soap.py.

3.1.2.41 def kmotion_soap::Katana_SOAP::setState (*self*, *axis*, *state*)

```
setState(self, int axis, int state) -> int
```

Definition at line 271 of file kmotion_soap.py.

3.1.2.42 def kmotion_soap::Katana_SOAP::setCollisionDetection (*self*, *axis*, *state*)

```
setCollisionDetection(self, int axis, bool state) -> int
```

Definition at line 275 of file kmotion_soap.py.

3.1.2.43 def kmotion_soap::Katana_SOAP::setPositionCollisionLimit (*self*, *axis*, *limit*)

```
setPositionCollisionLimit(self, int axis, int limit) -> int
```

Definition at line 279 of file kmotion_soap.py.

3.1.2.44 def kmotion_soap::Katana_SOAP::setVelocityCollisionLimit (*self*, *axis*, *threshold*, *threshold_lin*)

```
setVelocityCollisionLimit(self, int axis, int threshold, int treshold_lin) -> int
```

Definition at line 283 of file kmotion_soap.py.

3.1.2.45 def kmotion_soap::Katana_SOAP::setCollisionParameters (*self*, *axis*, *position*, *velocity*)

```
setCollisionParameters(self, int axis, int position, int velocity) -> int
```

Definition at line 287 of file kmotion_soap.py.

3.1.2.46 def kmotion_soap::Katana_SOAP::unblock (*self*)

```
unblock(self)
```

Definition at line 291 of file kmotion_soap.py.

3.1.2.47 def kmotion_soap::Katana_SOAP::setControllerParameters (*self*, *axis*, *ki*, *kspeed*, *kpos*)

```
setControllerParameters(self, int axis, int ki, int kspeed, int kpos) -> int
```

Definition at line 295 of file kmotion_soap.py.

3.1.2.48 def kmotion_soap::Katana_SOAP::setMaxVelocity (*self*, *axis*, *vel*)

```
setMaxVelocity(self, int axis, int vel) -> int
```

Definition at line 299 of file kmotion_soap.py.

3.1.2.49 def kmotion_soap::Katana_SOAP::setMaxAccel (*self*, *axis*, *value*)

```
setMaxAccel(self, int axis, int value) -> int
```

Definition at line 303 of file kmotion_soap.py.

3.1.2.50 def kmotion_soap::Katana_SOAP::setMaxDrive (*self*, *axis*, *value*)

```
setMaxDrive(self, int axis, int value) -> int
```

Definition at line 307 of file kmotion_soap.py.

3.1.2.51 def kmotion_soap::Katana_SOAP::setMaxForce (*self*, *axis*, *percent*)

```
setMaxForce(self, int axis, int percent) -> int
```

Definition at line 311 of file kmotion_soap.py.

3.1.2.52 def kmotion_soap::Katana_SOAP::setOperational (*self*, *axis*)

```
setOperational(self, int axis) -> int
```

Definition at line 315 of file kmotion_soap.py.

3.1.2.53 def kmotion_soap::Katana_SOAP::nmtSetState (*self*, *axis*, *state*)

```
nmtSetState(self, unsigned char axis, unsigned char state) -> int
```

Definition at line 319 of file kmotion_soap.py.

3.1.2.54 def kmotion_soap::Katana_SOAP::setTargetPosition (*self*, *axis*, *encoder*)

```
setTargetPosition(self, int axis, int encoder) -> int
```

Definition at line 323 of file kmotion_soap.py.

3.1.2.55 def kmotion_soap::Katana_SOAP::startPtpMovement (*self*, *axis*)

```
startPtpMovement(self, int axis) -> int
```

Definition at line 327 of file kmotion_soap.py.

3.1.2.56 def kmotion_soap::Katana_SOAP::fakeCalibration (*self*, *axis*, *offset* = -1)

```
fakeCalibration(self, int axis, int offset=-1) -> int
fakeCalibration(self, int axis) -> int
```

Definition at line 331 of file kmotion_soap.py.

3.1.2.57 def kmotion_soap::Katana_SOAP::getCurrent (*self*, *axis*)

```
getCurrent(self, int axis) -> int
```

Definition at line 338 of file kmotion_soap.py.

3.1.2.58 def kmotion_soap::Katana_SOAP::getForce (*self*, *axis*)

```
getForce(self, int axis) -> int
```

Definition at line 342 of file kmotion_soap.py.

3.1.2.59 def kmotion_soap::Katana_SOAP::getVoltage (*self*, *axis*)

```
getVoltage(self, int axis) -> int
```

Definition at line 346 of file kmotion_soap.py.

3.1.2.60 def kmotion_soap::Katana_SOAP::getNumberOfMotors (*self*)

```
getNumberOfMotors(self) -> int
```

Definition at line 350 of file kmotion_soap.py.

3.1.2.61 def kmotion_soap::Katana_SOAP::ping (*self*, *axis*)

```
ping(self, int axis) -> int
```

Definition at line 354 of file kmotion_soap.py.

3.1.2.62 def kmotion_soap::Katana_SOAP::setVerbose (*self*, *verbose*)

```
setVerbose(self, bool verbose)
```

Definition at line 358 of file kmotion_soap.py.

3.1.2.63 def kmotion_soap::Katana_SOAP::shadowMe (*self*)

```
shadowMe(self) -> int
```

Definition at line 362 of file kmotion_soap.py.

3.1.2.64 def kmotion_soap::Katana_SOAP::unShadowMe (*self*, *taskDescriptor*)

```
unShadowMe(self, int taskDescriptor) -> int
```

Definition at line 366 of file kmotion_soap.py.

3.1.2.65 def kmotion_soap::Katana_SOAP::currentControllerActive (*self*, *axis*)

```
currentControllerActive(self, int axis) -> bool
```

Definition at line 370 of file kmotion_soap.py.

3.2 kmotion_soap::KMotion_SOAP Class Reference

Public Member Functions

- def __init__
- def terminate
- def calibrate
- def init
- def moveMot
- def configurePTPMovement
- def waitForMot
- def waitForHold
- def moveMotAndWait
- def motorOff
- def allMotorsOff
- def motorFreeze
- def freezeAllMotors
- def moveToPosEnc
- def moveTo
- def setGripper
- def closeGripper
- def openGripper
- def sendSplineToMotor
- def startSplineMovement
- def ModBusTCP_connect
- def ModBusTCP_disconnect
- def ModBusTCP_writeWord
- def ModBusTCP_readWord
- def IO_setOutput
- def IO_readInput
- def IO_setLed
- def getState
- def getMoveBufferFullState
- def getVelocity
- def getDrive
- def getEncoder
- def getHeartbeatState
- def isOperational
- def getSensorData
- def getProcImageDataItem
- def getAxisFirmwareVersion
- def getAxisBootloaderVersion
- def getAxisHardwareVersion
- def getVersion
- def setState
- def setCollisionDetection
- def setPositionCollisionLimit
- def setVelocityCollisionLimit
- def setCollisionParameters
- def unblock
- def setControllerParameters
- def setMaxVelocity

- def setMaxAccel
- def setMaxDrive
- def setMaxForce
- def setOperational
- def nmtSetState
- def setTargetPosition
- def startPtpMovement
- def fakeCalibration
- def getCurrent
- def getForce
- def getVoltage
- def getNumberOfMotors
- def ping
- def setVerbose
- def shadowMe
- def unShadowMe
- def currentControllerActive
- def setType
- def setMDH
- def setLinkLen
- def setImmob
- def setEPC
- def setEncOff
- def setRotDir
- def setAngOff
- def setAngRan
- def setTcpOff
- def getType
- def getMaxDOF
- def getDOF
- def getDOM
- def getMDH
- def getImmob
- def getEPC
- def getEncOff
- def getRotDir
- def getAngOff
- def getAngRan
- def getAngStop
- def getAngMin
- def getAngMax
- def getTcpOff
- def initKinematics
- def enc2rad
- def rad2enc
- def directKinematics
- def inverseKinematics
- def calcP2P
- def calcLinear
- def calcArcus
- def calcPath
- def calcPathReverse

- def calcToolDirection
- def calcTrajectory
- def getCurrentEncoders
- def getCurrentAngles
- def getCurrentPose
- def getLastEndangles
- def waitHoldAndGetAngles
- def moveP2PFrom
- def moveP2P
- def moveP2PDelta
- def moveLinearFrom
- def moveLinear
- def moveLinearDelta
- def moveArcusFrom
- def moveArcus
- def movePath
- def movePathReverse
- def moveP2PToolDirection
- def moveLinearToolDirection
- def moveTrajectory
- def moveTrajectoryReverse

3.2.1 Detailed Description

```
Wrapper of KMotion class for SOAP
```

Definition at line 376 of file kmotion_soap.py.

3.2.2 Member Function Documentation

3.2.2.1 def kmotion_soap::KMotion_SOAP::__init__ (*self*)

```
__init__(self) -> KMotion_SOAP
```

Definition at line 379 of file kmotion_soap.py.

3.2.2.2 def kmotion_soap::KMotion_SOAP::terminate (*self*)

```
terminate(self) -> int
```

Definition at line 450 of file kmotion_soap.py.

3.2.2.3 def kmotion_soap::KMotion_SOAP::calibrate (*self*, *axis* = `0`, *force* = `False`)

```
calibrate(self, int axis=0, bool force=False) -> int
calibrate(self, int axis=0) -> int
calibrate(self) -> int
```

Definition at line 454 of file kmotion_soap.py.

3.2.2.4 def kmotion_soap::KMotion_SOAP::init (*self*)

```
init(self) -> int
```

Definition at line 462 of file kmotion_soap.py.

3.2.2.5 def kmotion_soap::KMotion_SOAP::moveMot (*self*, *axis*, *enc*, *speed* = 0, *accel* = 0, *tolerance* = 0, *rangeCheck* = True)

```
moveMot(self, int axis, int enc, bool rangeCheck=True) -> int
moveMot(self, int axis, int enc) -> int
moveMot(self, int axis, int enc, int speed, int accel, int tolerance,
        bool rangeCheck=True) -> int
moveMot(self, int axis, int enc, int speed, int accel, int tolerance) -> int
```

Definition at line 466 of file kmotion_soap.py.

3.2.2.6 def kmotion_soap::KMotion_SOAP::configurePTPMovement (*self*, *axis*, *enc*, *velocity*, *accel*, *tolerance*, *rangeCheck* = True, *paramSetting* = False)

```
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance,
        bool rangeCheck=True, bool paramSetting=False) -> int
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance,
        bool rangeCheck=True) -> int
configurePTPMovement(self, int axis, int enc, int velocity, int accel, int tolerance) -> int
```

Definition at line 479 of file kmotion_soap.py.

3.2.2.7 def kmotion_soap::KMotion_SOAP::waitForMot (*self*, *axis*, *targetpos* = 0, *tolerance* = 0, *mode* = 1)

```
waitForMot(self, int axis, int targetpos=0, int tolerance=0, int mode=1) -> int
waitForMot(self, int axis, int targetpos=0, int tolerance=0) -> int
waitForMot(self, int axis, int targetpos=0) -> int
waitForMot(self, int axis) -> int
```

Definition at line 489 of file kmotion_soap.py.

3.2.2.8 def kmotion_soap::KMotion_SOAP::waitForHold (*self*, *axis*, *timeout*)

```
waitForHold(self, int axis, int timeout) -> int
```

Definition at line 498 of file kmotion_soap.py.

3.2.2.9 def kmotion_soap::KMotion_SOAP::moveMotAndWait (*self*, *axis*, *targetpos*, *tolerance* = 0)

```
moveMotAndWait(self, int axis, int targetpos, int tolerance=0) -> int
moveMotAndWait(self, int axis, int targetpos) -> int
```

Definition at line 502 of file kmotion_soap.py.

3.2.2.10 def kmotion_soap::KMotion_SOAP::motorOff (*self*, *axis*)

```
motorOff(self, int axis) -> int
```

Definition at line 509 of file kmotion_soap.py.

3.2.2.11 def kmotion_soap::KMotion_SOAP::allMotorsOff (*self*)

```
allMotorsOff(self) -> int
```

Definition at line 513 of file kmotion_soap.py.

3.2.2.12 def kmotion_soap::KMotion_SOAP::motorFreeze (*self*, *axis*)

```
motorFreeze(self, int axis) -> int
```

Definition at line 517 of file kmotion_soap.py.

3.2.2.13 def kmotion_soap::KMotion_SOAP::freezeAllMotors (*self*)

```
freezeAllMotors(self) -> int
```

Definition at line 521 of file kmotion_soap.py.

3.2.2.14 def kmotion_soap::KMotion_SOAP::moveToPosEnc (*self*, *enc1*, *enc2*, *enc3*, *enc4*, *enc5*, *enc6*, *velocity*, *acceleration*, *tolerance*)

```
moveToPosEnc(self, int enc1, int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, int tolerance) -> int
```

Definition at line 525 of file kmotion_soap.py.

3.2.2.15 def kmotion_soap::KMotion_SOAP::moveTo (*self*, *arg1*, *arg2*, *arg3*, *arg4*, *arg5*, *arg6* = 0, *arg7* = 0, *arg8* = 0, *arg9* = 0, *arg10* = 0, *arg11* = 0, *arg12* = 0, *arg13* = 0, *arg14* = 0, *arg15* = 0)

```
moveTo(self, int startenc1, int startenc2, int startenc3, int startenc4,
        int startenc5, int startenc6, int enc1,
        int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, bool wait) -> int
moveTo(self, int enc1, int enc2, int enc3, int enc4, int enc5, int enc6,
        int velocity, int acceleration, bool wait) -> int
moveTo(self, SOAPpy.arrayType start_enc, SOAPpy.arrayType target_enc, int velocity,
        int acceleration, bool wait) -> int
```

Definition at line 532 of file kmotion_soap.py.

3.2.2.16 def kmotion_soap::KMotion_SOAP::setGripper (*self*, *hasGripper*)

```
setGripper(self, bool hasGripper) -> int
```

Definition at line 564 of file kmotion_soap.py.

3.2.2.17 def kmotion_soap::KMotion_SOAP::closeGripper (*self*)

```
closeGripper(self) -> int
```

Definition at line 568 of file kmotion_soap.py.

3.2.2.18 def kmotion_soap::KMotion_SOAP::openGripper (*self*)

```
openGripper(self) -> int
```

Definition at line 572 of file kmotion_soap.py.

3.2.2.19 def kmotion_soap::KMotion_SOAP::sendSplineToMotor (*self*, *axis*, *targetpos*, *duration*, *p0*, *p1*, *p2*, *p3*)

```
sendSplineToMotor(self, int axis, int targetpos, int duration, int p0, int p1,
        int p2, int p3) -> int
```

Definition at line 576 of file kmotion_soap.py.

3.2.2.20 def kmotion_soap::KMotion_SOAP::startSplineMovement (*self*, *contd*, *exactflag*, *forceMbCheck* = True)

```
startSplineMovement(self, int contd, int exactflag, bool forceMbCheck=True) -> int
startSplineMovement(self, int contd, int exactflag) -> int
```

Definition at line 583 of file kmotion_soap.py.

3.2.2.21 def kmotion_soap::KMotion_SOAP::ModBusTCP_connect (*self*, *hostIP*, *timeout* = 1000, *port* = 502, *outputOffset* = 0)

```
ModBusTCP_connect(self, char hostIP, int timeout=1000, int port=502, int outputOffset=0) -> int
ModBusTCP_connect(self, char hostIP, int timeout=1000, int port=502) -> int
ModBusTCP_connect(self, char hostIP, int timeout=1000) -> int
ModBusTCP_connect(self, char hostIP) -> int
```

Definition at line 590 of file kmotion_soap.py.

3.2.2.22 def kmotion_soap::KMotion_SOAP::ModBusTCP_disconnect (*self*)

```
ModBusTCP_disconnect(self) -> int
```

Definition at line 599 of file kmotion_soap.py.

3.2.2.23 def kmotion_soap::KMotion_SOAP::ModBusTCP_writeWord (*self*, *address*, *value*)

```
ModBusTCP_writeWord(self, int address, int value) -> int
```

Definition at line 603 of file kmotion_soap.py.

3.2.2.24 def kmotion_soap::KMotion_SOAP::ModBusTCP_readWord (*self*, *address*)

```
ModBusTCP_readWord(self, int address) -> int
```

Definition at line 607 of file kmotion_soap.py.

3.2.2.25 def kmotion_soap::KMotion_SOAP::IO_setOutput (*self*, *outputNr*, *value*)

```
IO_setOutput(self, int outputNr, int value) -> int
```

Definition at line 611 of file kmotion_soap.py.

3.2.2.26 def kmotion_soap::KMotion_SOAP::IO_readInput (*self*, *inputNr*)

```
IO_readInput(self, int inputNr) -> int
```

Definition at line 615 of file kmotion_soap.py.

3.2.2.27 def kmotion_soap::KMotion_SOAP::IO_setLed (*self*, *state*)

```
IO_setLed(self, char state) -> int
```

Definition at line 619 of file kmotion_soap.py.

3.2.2.28 def kmotion_soap::KMotion_SOAP::getState (*self*, *axis*)

```
getState(self, int axis) -> int
```

Definition at line 623 of file kmotion_soap.py.

3.2.2.29 def kmotion_soap::KMotion_SOAP::getMoveBufferFullState (*self*, *axis*)

```
getMoveBufferFullState(self, int axis) -> int
```

Definition at line 627 of file kmotion_soap.py.

3.2.2.30 def kmotion_soap::KMotion_SOAP::getVelocity (*self*, *axis*)

```
getVelocity(self, int axis) -> int
```

Definition at line 631 of file kmotion_soap.py.

3.2.2.31 def kmotion_soap::KMotion_SOAP::getDrive (*self*, *axis*)

```
getDrive(self, int axis) -> int
```

Definition at line 635 of file kmotion_soap.py.

3.2.2.32 def kmotion_soap::KMotion_SOAP::getEncoder (*self*, *axis*)

```
getEncoder(self, int axis) -> int
```

Definition at line 639 of file kmotion_soap.py.

3.2.2.33 def kmotion_soap::KMotion_SOAP::getHeartbeatState (*self*, *axis*)

```
getHeartbeatState(self, int axis) -> int
```

Definition at line 643 of file kmotion_soap.py.

3.2.2.34 def kmotion_soap::KMotion_SOAP::isOperational (*self*, *axis*)

```
isOperational(self, int axis) -> int
```

Definition at line 647 of file kmotion_soap.py.

3.2.2.35 def kmotion_soap::KMotion_SOAP::getSensorData (*self*, *sensor*, *channel*)

```
getSensorData(self, int sensor, int channel) -> int
```

Definition at line 651 of file kmotion_soap.py.

3.2.2.36 def kmotion_soap::KMotion_SOAP::getProcImageDataItem (*self*, *axis*, *index*)

```
getProcImageDataItem(self, int axis, int index) -> int
```

Definition at line 655 of file kmotion_soap.py.

3.2.2.37 def kmotion_soap::KMotion_SOAP::getAxisFirmwareVersion (*self*, *axis*)

```
getAxisFirmwareVersion(self, int axis) -> char
```

Definition at line 659 of file kmotion_soap.py.

3.2.2.38 def kmotion_soap::KMotion_SOAP::getAxisBootloaderVersion (*self*, *axis*)

```
getAxisBootloaderVersion(self, int axis) -> char
```

Definition at line 663 of file kmotion_soap.py.

3.2.2.39 def kmotion_soap::KMotion_SOAP::getAxisHardwareVersion (*self*, *axis*)

```
getAxisHardwareVersion(self, int axis) -> char
```

Definition at line 667 of file kmotion_soap.py.

3.2.2.40 def kmotion_soap::KMotion_SOAP::getVersion (*self*)

```
getVersion(self) -> char
```

Definition at line 671 of file kmotion_soap.py.

3.2.2.41 def kmotion_soap::KMotion_SOAP::setState (*self*, *axis*, *state*)

```
setState(self, int axis, int state) -> int
```

Definition at line 675 of file kmotion_soap.py.

3.2.2.42 def kmotion_soap::KMotion_SOAP::setCollisionDetection (*self*, *axis*, *state*)

```
setCollisionDetection(self, int axis, bool state) -> int
```

Definition at line 679 of file kmotion_soap.py.

3.2.2.43 def kmotion_soap::KMotion_SOAP::setPositionCollisionLimit (*self*, *axis*, *limit*)

```
setPositionCollisionLimit(self, int axis, int limit) -> int
```

Definition at line 683 of file kmotion_soap.py.

3.2.2.44 def kmotion_soap::KMotion_SOAP::setVelocityCollisionLimit (*self*, *axis*, *threshold*, *threshold_lin*)

```
setVelocityCollisionLimit(self, int axis, int threshold, int treshold_lin) -> int
```

Definition at line 687 of file kmotion_soap.py.

3.2.2.45 def kmotion_soap::KMotion_SOAP::setCollisionParameters (*self*, *axis*, *position*, *velocity*)

```
setCollisionParameters(self, int axis, int position, int velocity) -> int
```

Definition at line 691 of file kmotion_soap.py.

3.2.2.46 def kmotion_soap::KMotion_SOAP::unblock (*self*)

```
unblock(self)
```

Definition at line 695 of file kmotion_soap.py.

3.2.2.47 def kmotion_soap::KMotion_SOAP::setControllerParameters (*self*, *axis*, *ki*, *kspeed*, *kpos*)

```
setControllerParameters(self, int axis, int ki, int kspeed, int kpos) -> int
```

Definition at line 699 of file kmotion_soap.py.

3.2.2.48 def kmotion_soap::KMotion_SOAP::setMaxVelocity (*self*, *axis*, *vel*)

```
setMaxVelocity(self, int axis, int vel) -> int
```

Definition at line 703 of file kmotion_soap.py.

3.2.2.49 def kmotion_soap::KMotion_SOAP::setMaxAccel (*self*, *axis*, *value*)

```
setMaxAccel(self, int axis, int value) -> int
```

Definition at line 707 of file kmotion_soap.py.

3.2.2.50 def kmotion_soap::KMotion_SOAP::setMaxDrive (*self*, *axis*, *value*)

```
setMaxDrive(self, int axis, int value) -> int
```

Definition at line 711 of file kmotion_soap.py.

3.2.2.51 def kmotion_soap::KMotion_SOAP::setMaxForce (*self*, *axis*, *percent*)

```
setMaxForce(self, int axis, int percent) -> int
```

Definition at line 715 of file kmotion_soap.py.

3.2.2.52 def kmotion_soap::KMotion_SOAP::setOperational (*self*, *axis*)

```
setOperational(self, int axis) -> int
```

Definition at line 719 of file kmotion_soap.py.

3.2.2.53 def kmotion_soap::KMotion_SOAP::nmtSetState (*self*, *axis*, *state*)

```
nmtSetState(self, unsigned char axis, unsigned char state) -> int
```

Definition at line 723 of file kmotion_soap.py.

3.2.2.54 def kmotion_soap::KMotion_SOAP::setTargetPosition (*self*, *axis*, *encoder*)

```
setTargetPosition(self, int axis, int encoder) -> int
```

Definition at line 727 of file kmotion_soap.py.

3.2.2.55 def kmotion_soap::KMotion_SOAP::startPtpMovement (*self*, *axis*)

```
startPtpMovement(self, int axis) -> int
```

Definition at line 731 of file kmotion_soap.py.

3.2.2.56 def kmotion_soap::KMotion_SOAP::fakeCalibration (*self*, *axis*, *offset* = -1)

```
fakeCalibration(self, int axis, int offset=-1) -> int
fakeCalibration(self, int axis) -> int
```

Definition at line 735 of file kmotion_soap.py.

3.2.2.57 def kmotion_soap::KMotion_SOAP::getCurrent (*self*, *axis*)

```
getCurrent(self, int axis) -> int
```

Definition at line 742 of file kmotion_soap.py.

3.2.2.58 def kmotion_soap::KMotion_SOAP::getForce (*self*, *axis*)

```
getForce(self, int axis) -> int
```

Definition at line 746 of file kmotion_soap.py.

3.2.2.59 def kmotion_soap::KMotion_SOAP::getVoltage (*self*, *axis*)

```
getVoltage(self, int axis) -> int
```

Definition at line 750 of file kmotion_soap.py.

3.2.2.60 def kmotion_soap::KMotion_SOAP::getNumberOfMotors (*self*)

```
getNumberOfMotors(self) -> int
```

Definition at line 754 of file kmotion_soap.py.

3.2.2.61 def kmotion_soap::KMotion_SOAP::ping (*self*, *axis*)

```
ping(self, int axis) -> int
```

Definition at line 758 of file kmotion_soap.py.

3.2.2.62 def kmotion_soap::KMotion_SOAP::setVerbose (*self*, *verbose*)

```
setVerbose(self, bool verbose)
```

Definition at line 762 of file kmotion_soap.py.

3.2.2.63 def kmotion_soap::KMotion_SOAP::shadowMe (*self*)

```
shadowMe(self) -> int
```

Definition at line 766 of file kmotion_soap.py.

3.2.2.64 def kmotion_soap::KMotion_SOAP::unShadowMe (*self*, *taskDescriptor*)

```
unShadowMe(self, int taskDescriptor) -> int
```

Definition at line 770 of file kmotion_soap.py.

3.2.2.65 def kmotion_soap::KMotion_SOAP::currentControllerActive (*self*, *axis*)

```
currentControllerActive(self, int axis) -> bool
```

Definition at line 774 of file kmotion_soap.py.

3.2.2.66 def kmotion_soap::KMotion_SOAP::setType (*self*, *type*)

```
setType(self, int type) -> int
```

Definition at line 778 of file kmotion_soap.py.

3.2.2.67 def kmotion_soap::KMotion_SOAP::setMDH (*self*, *theta*, *d*, *a*, *alpha*, *typeNr* = -1)

```
setMDH(self, SOAPpy.arrayType theta, SOAPpy.arrayType d, SOAPpy.arrayType a, SOAPpy.arrayType alpha,
        int typeNr=-1) -> int
setMDH(self, SOAPpy.arrayType theta, SOAPpy.arrayType d, SOAPpy.arrayType a, SOAPpy.arrayType alpha) -> int
```

Definition at line 782 of file kmotion_soap.py.

3.2.2.68 def kmotion_soap::KMotion_SOAP::setLinkLen (*self*, *links*)

```
setLinkLen(self, SOAPpy.arrayType links) -> int
```

Definition at line 797 of file kmotion_soap.py.

3.2.2.69 def kmotion_soap::KMotion_SOAP::setImmob (*self*, *immobile*)

```
setImmob(self, int immobile) -> int
```

Definition at line 805 of file kmotion_soap.py.

3.2.2.70 def kmotion_soap::KMotion_SOAP::setEPC (*self*, *epc*)

```
setEPC(self, SOAPpy.arrayType epc) -> int
```

Definition at line 809 of file kmotion_soap.py.

3.2.2.71 def kmotion_soap::KMotion_SOAP::setEncOff (*self*, *encOffset*)

```
setEncOff(self, SOAPpy.arrayType encOffset) -> int
```

Definition at line 817 of file kmotion_soap.py.

3.2.2.72 def kmotion_soap::KMotion_SOAP::setRotDir (*self*, *rotDir*)

```
setRotDir(self, SOAPpy.arrayType rotDir) -> int
```

Definition at line 825 of file kmotion_soap.py.

3.2.2.73 def kmotion_soap::KMotion_SOAP::setAngOff (*self*, *angleOffset*)

```
setAngOff(self, SOAPpy.arrayType angleOffset) -> int
```

Definition at line 833 of file kmotion_soap.py.

3.2.2.74 def kmotion_soap::KMotion_SOAP::setAngRan (*self*, *angleRange*)

```
setAngRan(self, SOAPpy.arrayType angleRange) -> int
```

Definition at line 841 of file kmotion_soap.py.

3.2.2.75 def kmotion_soap::KMotion_SOAP::setTcpOff (*self*, *tcpOffset*)

```
setTcpOff(self, SOAPpy.arrayType tcpOffset) -> int
```

Definition at line 849 of file kmotion_soap.py.

3.2.2.76 def kmotion_soap::KMotion_SOAP::getType (*self*)

```
getType(self) -> int
```

Definition at line 857 of file kmotion_soap.py.

3.2.2.77 def kmotion_soap::KMotion_SOAP::getMaxDOF (*self*)

```
getMaxDOF(self) -> int
```

Definition at line 861 of file kmotion_soap.py.

3.2.2.78 def kmotion_soap::KMotion_SOAP::getDOF (*self*)

```
getDOF(self) -> int
```

Definition at line 865 of file kmotion_soap.py.

3.2.2.79 def kmotion_soap::KMotion_SOAP::getDOM (*self*)

```
getDOM(self) -> int
```

Definition at line 869 of file kmotion_soap.py.

3.2.2.80 def kmotion_soap::KMotion_SOAP::getMDH (*self*)

```
getMDH(self) -> SOAPpy.structType { int status, SOAPpy.arrayType theta,
        SOAPpy.arrayType d, SOAPpy.arrayType a, SOAPpy.arrayType alpha }
```

Definition at line 873 of file kmotion_soap.py.

3.2.2.81 def kmotion_soap::KMotion_SOAP::getImmob (*self*)

```
getImmob(self) -> int
```

Definition at line 893 of file kmotion_soap.py.

3.2.2.82 def kmotion_soap::KMotion_SOAP::getEPC (*self*)

```
getEPC(self) -> SOAPpy.structType { int status, SOAPpy.arrayType epc }
```

Definition at line 897 of file kmotion_soap.py.

3.2.2.83 def kmotion_soap::KMotion_SOAP::getEncOff (*self*)

```
getEncOff(self) -> SOAPpy.structType { int status, SOAPpy.arrayType encOffset }
```

Definition at line 907 of file kmotion_soap.py.

3.2.2.84 def kmotion_soap::KMotion_SOAP::getRotDir (*self*)

```
getRotDir(self) -> SOAPpy.structType { int status, SOAPpy.arrayType rotDir }
```

Definition at line 917 of file kmotion_soap.py.

3.2.2.85 def kmotion_soap::KMotion_SOAP::getAngOff (*self*)

```
getAngOff(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angleOffset }
```

Definition at line 927 of file kmotion_soap.py.

3.2.2.86 def kmotion_soap::KMotion_SOAP::getAngRan (*self*)

```
getAngRan(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angleRange }
```

Definition at line 937 of file kmotion_soap.py.

3.2.2.87 def kmotion_soap::KMotion_SOAP::getAngStop (*self*)

```
getAngStop(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angleStop }
```

Definition at line 947 of file kmotion_soap.py.

3.2.2.88 def kmotion_soap::KMotion_SOAP::getAngMin (*self*)

```
getAngMin(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angleMin }
```

Definition at line 957 of file kmotion_soap.py.

3.2.2.89 def kmotion_soap::KMotion_SOAP::getAngMax (*self*)

```
getAngMax(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angleMax }
```

Definition at line 967 of file kmotion_soap.py.

3.2.2.90 def kmotion_soap::KMotion_SOAP::getTcpOff (*self*)

```
getTcpOff(self) -> SOAPpy.structType { int status, SOAPpy.arrayType tcpOffset }
```

Definition at line 977 of file kmotion_soap.py.

3.2.2.91 def kmotion_soap::KMotion_SOAP::initKinematics (*self*)

```
initKinematics(self) -> int
```

Definition at line 987 of file kmotion_soap.py.

3.2.2.92 def kmotion_soap::KMotion_SOAP::enc2rad (*self*, *encoders*)

```
enc2rad(self, SOAPpy.arrayType encoders) -> SOAPpy.structType { int status,
        SOAPpy.arrayType angles }
```

Definition at line 991 of file kmotion_soap.py.

3.2.2.93 def kmotion_soap::KMotion_SOAP::rad2enc (*self*, *angles*)

```
rad2enc(self, SOAPpy.arrayType angles) -> SOAPpy.structType { int status,
        SOAPpy.arrayType encoders }
```

Definition at line 1006 of file kmotion_soap.py.

3.2.2.94 def kmotion_soap::KMotion_SOAP::directKinematics (*self*, *angles*)

```
directKinematics(self, SOAPpy.arrayType angles) -> SOAPpy.structType { int status,
        SOAPpy.arrayType pose }
```

Definition at line 1021 of file kmotion_soap.py.

3.2.2.95 def kmotion_soap::KMotion_SOAP::inverseKinematics (*self*, *pose*, *prev*, *maxBisection* = 0)

```
inverseKinematics(self, SOAPpy.arrayType pose, SOAPpy.arrayType prev, int maxBisection=0) ->
        SOAPpy.structType { int status, SOAPpy.arrayType angles }
inverseKinematics(self, SOAPpy.arrayType pose, SOAPpy.arrayType prev) ->
        SOAPpy.structType { int status, SOAPpy.arrayType angles }
```

Definition at line 1036 of file kmotion_soap.py.

3.2.2.96 def kmotion_soap::KMotion_SOAP::calcP2P (*self*, *pstart*, *startangles*, *pend*, *vmax*)

```
calcP2P(self, SOAPpy.arrayType pstart, SOAPpy.arrayType startangles,
        SOAPpy.arrayType pend, double vmax) -> SOAPpy.structType { int status,
        SOAPpy.arrayType polynomials, SOAPpy.arrayType endangles }
```

Definition at line 1056 of file kmotion_soap.py.

3.2.2.97 def kmotion_soap::KMotion_SOAP::calcLinear (*self*, *pstart*, *startangles*, *pend*, *vmax*)

```
calcLinear(self, SOAPpy.arrayType pstart, SOAPpy.arrayType startangles,
        SOAPpy.arrayType pend, double vmax) -> SOAPpy.structType { int status,
        SOAPpy.arrayType polynomials, SOAPpy.arrayType endangles }
```

Definition at line 1079 of file kmotion_soap.py.

3.2.2.98 def kmotion_soap::KMotion_SOAP::calcArcus (*self*, *pstart*, *startangles*, *pend*, *pintermediate*, *vmax*)

```
calcArcus(self, SOAPpy.arrayType pstart, SOAPpy.arrayType startangles,
        SOAPpy.arrayType pend, SOAPpy.arrayType pintermediate, double vmax) ->
        SOAPpy.structType { int status, SOAPpy.arrayType polynomials,
        SOAPpy.arrayType endangles }
```

Definition at line 1102 of file kmotion_soap.py.

3.2.2.99 def kmotion_soap::KMotion_SOAP::calcPath (*self*, *points*, *speedpercent*)

```
calcPath(self, SOAPpy.arrayType points, double speedpercent) -> SOAPpy.structType {
        int status, SOAPpy.arrayType polynomials, SOAPpy.arrayType endangles }
```

Definition at line 1127 of file kmotion_soap.py.

3.2.2.100 def kmotion_soap::KMotion_SOAP::calcPathReverse (*self*, *points*, *speedpercent*)

```
calcPathReverse(self, SOAPpy.arrayType points, double speedpercent) -> SOAPpy.structType {
        int status, SOAPpy.arrayType polynomials, SOAPpy.arrayType endangles }
```

Definition at line 1147 of file kmotion_soap.py.

3.2.2.101 def kmotion_soap::KMotion_SOAP::calcToolDirection (*self*, *pstart*, *deltaX*, *deltaY*, *deltaZ*)

```
calcToolDirection(self, SOAPpy.arrayType pstart, double deltaX, double deltaY,
        double deltaZ) -> SOAPpy.structType { int status, SOAPpy.arrayType pend }
```

Definition at line 1167 of file kmotion_soap.py.

3.2.2.102 def kmotion_soap::KMotion_SOAP::calcTrajectory (*self*, *trajectory*, *startangles*, *velocity*, *direction*)

```
calcTrajectory(self, SOAPpy.arrayType trajectory, SOAPpy.arrayType startangles,
        double velocity, int direction) -> SOAPpy.structType { int status,
        SOAPpy.arrayType polynomials, SOAPpy.arrayType endangles }
```

Definition at line 1184 of file kmotion_soap.py.

3.2.2.103 def kmotion_soap::KMotion_SOAP::getCurrentEncoders (*self*)

```
getCurrentEncoders(self) -> SOAPpy.structType { int status, SOAPpy.arrayType encoders }
```

Definition at line 1206 of file kmotion_soap.py.

3.2.2.104 def kmotion_soap::KMotion_SOAP::getCurrentAngles (*self*)

```
getCurrentAngles(self) -> SOAPpy.structType { int status, SOAPpy.arrayType angles }
```

Definition at line 1216 of file kmotion_soap.py.

3.2.2.105 def kmotion_soap::KMotion_SOAP::getCurrentPose (*self*)

```
getCurrentPose(self) -> SOAPpy.structType { int status, SOAPpy.arrayType pose }
```

Definition at line 1226 of file kmotion_soap.py.

3.2.2.106 def kmotion_soap::KMotion_SOAP::getLastEndangles (*self*)

```
getLastEndangles(self) -> SOAPpy.structType { int status, SOAPpy.arrayType lastendangles }
```

Definition at line 1236 of file kmotion_soap.py.

3.2.2.107 def kmotion_soap::KMotion_SOAP::waitHoldAndGetAngles (*self*, *timeout* = 10.0)

```
waitHoldAndGetAngles(self, double timeout=10.0) -> SOAPpy.structType {
        int status, SOAPpy.arrayType currentAngles }
waitHoldAndGetAngles(self) -> SOAPpy.structType { int status,
        SOAPpy.arrayType currentAngles }
```

Definition at line 1246 of file kmotion_soap.py.

3.2.2.108 def kmotion_soap::KMotion_SOAP::moveP2PFrom (*self*, *startpose*, *anglesinitialvalue*, *endpose*, *vmax*)

```
moveP2PFrom(self, SOAPpy.arrayType startpose, SOAPpy.arrayType anglesinitialvalue,
        SOAPpy.arrayType endpose, double vmax) -> SOAPpy.structType { int status,
        SOAPpy.arrayType endangles }
```

Definition at line 1261 of file kmotion_soap.py.

3.2.2.109 def kmotion_soap::KMotion_SOAP::moveP2P (*self*, *endpose*, *vmax*)

```
moveP2P(self, SOAPpy.arrayType endpose, double vmax) -> int
```

Definition at line 1281 of file kmotion_soap.py.

3.2.2.110 def kmotion_soap::KMotion_SOAP::moveP2PDelta (*self*, *endpose*, *deltaX*, *deltaY*, *deltaZ*, *vmax*)

```
moveP2PDelta(self, SOAPpy.arrayType endpose, double deltaX, double deltaY, double deltaZ,
        double vmax) -> int
```

Definition at line 1291 of file kmotion_soap.py.

3.2.2.111 def kmotion_soap::KMotion_SOAP::moveLinearFrom (*self*, *startpose*, *anglesinitialvalue*, *endpose*, *vmax*)

```
moveLinearFrom(self, SOAPpy.arrayType startpose, SOAPpy.arrayType anglesinitialvalue,
        SOAPpy.arrayType endpose, double vmax) -> SOAPpy.structType { int status,
        SOAPpy.arrayType endangles }
```

Definition at line 1302 of file kmotion_soap.py.

3.2.2.112 def kmotion_soap::KMotion_SOAP::moveLinear (*self*, *endpose*, *vmax*)

```
moveLinear(self, SOAPpy.arrayType endpose, double vmax) -> int
```

Definition at line 1322 of file kmotion_soap.py.

3.2.2.113 def kmotion_soap::KMotion_SOAP::moveLinearDelta (*self*, *endpose*, *deltaX*, *deltaY*, *deltaZ*, *vmax*)

```
moveLinearDelta(self, SOAPpy.arrayType endpose, double deltaX, double deltaY, double deltaZ,
        double vmax) -> int
```

Definition at line 1332 of file kmotion_soap.py.

3.2.2.114 def kmotion_soap::KMotion_SOAP::moveArcusFrom (*self*, *startpose*, *anglesinitialvalue*, *endpose*, *vmax*)

```
moveArcusFrom(self, SOAPpy.arrayType startpose, SOAPpy.arrayType anglesinitialvalue,
        SOAPpy.arrayType endpose, SOAPpy.arrayType intermediatepose, double vmax) ->
        SOAPpy.structType { int status, SOAPpy.arrayType endangles }
```

Definition at line 1343 of file kmotion_soap.py.

3.2.2.115 def kmotion_soap::KMotion_SOAP::moveArcus (*self*, *endpose*, *intermediatepose*, *vmax*)

```
moveArcus(self, SOAPpy.arrayType endpose, SOAPpy.arrayType intermediatepose, double vmax) -> int
```

Definition at line 1364 of file kmotion_soap.py.

3.2.2.116 def kmotion_soap::KMotion_SOAP::movePath (*self*, *points*, *speedpercent*, *reverse* = `False`)

```
movePath(self, SOAPpy.arrayType points, double speedpercent,
        bool reverse=False) -> SOAPpy.structType {int status,
        SOAPpy.arrayType endangles }
movePath(self, SOAPpy.arrayType points, double speedpercent) ->
        SOAPpy.structType {int status, SOAPpy.arrayType endangles }
```

Definition at line 1375 of file kmotion_soap.py.

3.2.2.117 def kmotion_soap::KMotion_SOAP::movePathReverse (*self*, *points*, *speedpercent*)

```
movePathReverse(self, SOAPpy.arrayType points, double speedpercent) ->
        SOAPpy.structType {int status, SOAPpy.arrayType endangles }
```

Definition at line 1395 of file kmotion_soap.py.

3.2.2.118 def kmotion_soap::KMotion_SOAP::moveP2PToolDirection (*self*, *deltaX*, *deltaY*, *deltaZ*, *vmax*)

```
moveP2PToolDirection(self, double deltaX, double deltaY, double deltaZ, double vmax) -> int
```

Definition at line 1412 of file kmotion_soap.py.

3.2.2.119 def kmotion_soap::KMotion_SOAP::moveLinearToolDirection (*self*, *deltaX*, *deltaY*, *deltaZ*, *vmax*)

```
moveLinearToolDirection(self, double deltaX, double deltaY, double deltaZ, double vmax) -> int
```

Definition at line 1416 of file kmotion_soap.py.

3.2.2.120 def kmotion_soap::KMotion_SOAP::moveTrajectory (*self*, *trajectory*, *speedpercent*, *reverse* = `False`)

```
moveTrajectory(self, SOAPpy.arrayType trajectory, double speedpercent,
        bool reverse=False) -> SOAPpy.structType {int status, SOAPpy.arrayType endangles }
moveTrajectory(self, SOAPpy.arrayType trajectory, double speedpercent) ->
        SOAPpy.structType {int status, SOAPpy.arrayType endangles }
```

Definition at line 1420 of file kmotion_soap.py.

3.2.2.121 def kmotion_soap::KMotion_SOAP::moveTrajectoryReverse (*self*, *trajectory*, *speedpercent*)

```
moveTrajectoryReverse(self, SOAPpy.arrayType trajectory, double speedpercent) ->
        SOAPpy.structType {int status, SOAPpy.arrayType endangles }
```

Definition at line 1439 of file kmotion_soap.py.

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