Sommario

QCL Libraries

Rules of using a function

FUNCTIONS FOR OPERATIONS ON DIGITAL INPUTS

IR10EdgeInp	Rising edge and descent detection of an input or a flag
IR10Edge	Rising edge detection of a digital signal with verification time
IR10EdgTmInp	Rising edge and descent detection of an input o a flag with time reset capture flags fronts
VC10ChronVar	Measurement timing of activation of an input or variable

FUNCTIONS FOR OPERATIONS ON DIGITAL OUTPUTS

OA10BlinkOut	Blink management of an output or a flag
OA10SetTmOut	Activation management of an output for a settable time
OT11PidReg	Digital output modulation to check a temperature control process through P.I.D. system
OT21PidReg	Modulation of two digital outputs for a generic process control through PID + FF adjustment
OT30PidReg	Generic PID + FF controller

FUNCTIONS FOR OPERATIONS ON VARIABLES

VC10CollVal	Comparison of a value towards to other two
VC10Copy	Copy a value from A to B or from B to A
VC10HistVar	A variable hysteresis towards other two values
VC10ChronVar	Measuring switching time of a variable or input
VC10Calendar	Calculating the day of the week (monday-etc) starting from a date
VC12FndXPnt	Calculating the x-coordinate of a point on a line
VC12FndYPnt	Calculation of the ordinate of a point on a line
VT10OnChVar	Report of the variation of a variable
VT10OnChTVar	Report of the variation of a variable with reset flag time of exchange value
VC10DivRound	Smoothing a variable to a number of decimal places can be set
VC10LPFilter	First-order low-pass digital filter (RC filter) for dimension data WORD
VC21LPFilter	First-order low-pass digital filter (RC filter) for maximum size data +/- 999999 with preload option
VC10MkTime	Gives the number of elapsed seconds from 00:00 of 1 January 1970 until the introduced date.
VC20MkTime	Gives the number of elapsed seconds from 00:00 of 1 January 1970 until the introduced date.
VC11Hdr	Viewing the location of a device with Hdr system **OBSOLETE**
VC12Hdr	Viewing the location of a device with Hdr system
VC11HdrJoint	Viewing the location of Joint a device with Hdr system
VC10Granularity	Displaying a value with granularity and threshold filter
VR10WrdtoLng	Conversion: Converts two Word variables in a Long variables
VR10LngtoWrd	Conversion: Turns a Long variable in two Word variables
VR10UbyToBin	Conversion: Unsigned Byte → Binary
VR10SByToBin	Conversion: Signed Byte → Binary
VR10UwrToBin	Conversion: Unsigned Word → Binary
VR10SwrToBin	Conversion: Signed Word → Binary
VR10SLnToBin	Conversion: Signed Long → Binary
VR10BinToUBy	Conversion: Binary → Unsigned Byte
VR10BinToSBy	Conversion: Binary → Signed Byte
VR10BinToUWr	Conversion: Binary → Unsigned Word
VR10BinToSWr	Conversion: Binary → Signed Word
VR10BinToSLn	Conversion: Binary → Signed Long
VR10UbyToAsc	Conversion: Unsigned Byte → Ascii
VR10SbyToAsc	Conversion: Signed Byte → Ascii
VR10UwrToAsc	Conversion: Unsigned word → Ascii
VR10SwrToAsc	Conversion: Signed Word → Ascii
VR10SlnToAsc	Conversion: Signed Long → Ascii
VR10AscToUBy	Conversion: Ascii → Unsigned Byte
VR10AscToSBy	Conversion: Ascii → Signed Byte
VR10AscToUWr	Conversion: Ascii → Unsigned Word
VR10AscToSWr	Conversion: Ascii → Signed Word
VR10AscToSLn	Conversion: Ascii → Signed Long
VR10ToSingle	Copy a long integer encoded IEEE754 value in a single variable.

ENCODER CONTROL FUNCTIONS

DT11BreakEnc	Encoder breakage control ANALOG axes

DT21BreakEnc	Encoder breakage control ON/OFF axes

GENERAL FUNCTIONS FOR POSITIONERS

DA11Ramp	Generic ramp generator
DA10AnOopos	Analog output management for ON/OFF axis with ramps

CIRCULAR BUFFER MANAGEMENT FUNCTIONS

BC10InitBuf	Init of a circular buffer (with internal buffer management variables to the array)
BC10PushBuf	Inserting of a value (push) in a circular buffer (with internal buffer management variables to the array)
BC10PopBuf	Extracting of a value (pop) from a circular buffer (with internal buffer management variables to the array)
BC21InitBuf	Init of a buffer FIFO type (circular)
BC21PushBuf	Inserting of a value (push) in a buffer FIFO type
BC21PopBuf	Extracting of a value (pop) from a buffer FIFO type
BC21Inspect	Acquisition of a value into the buffer
BC21Elements	Acquisition of the number of elements in the buffer
BC22Inspect	Acquisition of a value into the buffer 

FUNCTIONS WITH GENERAL OPERATIONS ON ARRAYS

AC10AvergArr	Calculating the arithmetic mean of the elements of an array
AC10CtrlArr	Analysis of the elements in an array
AC10SortUpAr	Sorting in ascending on the elements of an array
AC10SortDwAr	Sorting in descending order of the elements of an array
AC10FdMaxArr	Extracting the maximum value in an array
AC10FdMinArr	Extracting the minimum value in an array
AC11ResetArr	Full reset of an array
BC10ArrFifo	Managing a FIFO buffer (first input-first output)

FUNCTIONS FOR MODBUS PROTOCOL

DW13Modbus	Modbus SLAVE protocol: managing data exchange with MODBUS devices
DW11SerModMa	Modbus MASTER simulated protocol through SERCOM device
DW14SerModSl	Modbus SLAVE simulated protocol through SERCOM device
DU10MbRetry	Implementation of the SEND command of MODBUS devices with check and manage any programmed attempts

FUNCTIONS FOR VECTOR IMAGE (QPAINT)

VI10InitBuffer	Buffer Initialize
VI10BeginDrawBuffer	Prepares the Buffer to add the drawing operations and returns the previous error code
VI10DrawBuffer	Draws the contents of the Buffer
VI10WaitBufferReadyUsingEND	Waits for the buffer is ready for new operations coming out of the special task with END
VI10WaitBufferReadyUsingWAIT VI11WaitBufferReadyUsingWAIT	Waits for the buffer is ready for new operations coming out of the special task with WAIT
VI10GetErrorCode	Returns the current error code
VI10ClrErrorCode	Clears the current error code
VI10GetUnusedBufferSize	Retrieves the Buffer size used
VI10AddNop	Adds to the NOP command at the Buffer (no operation)
VI10AddCls	Adds to the CLS command at the Buffer (clear the Vector Image area)
VI10SetLayer	Adds to the SET_LAYER command at the Buffer (sets the active layer)
VI10AddPen	Adds to the PEN command at the Buffer (sets the color drawing)
VI10AddSet	Adds to the SET command at the Buffer (sets the current coordinates)
VI10AddPoint	Adds to the POINT command at the Buffer (draws a point)
VI10AddLine	Adds to the LINE command at the Buffer (draws a line)
VI10AddRect	Adds to the RECT command at the Buffer (draw a rectangle)
VI10AddCircle	Adds to the CIRCLE command at the Buffer (draw a circle)
VI10AddArc1	Adds to the ARC1 command at the Buffer (draws an arc of type 1)
VI10AddArc2	Adds to the ARC2 command at the Buffer (draws an arc of type 2)
VI10AddArc3	Adds to the ARC3 command at the Buffer (draws an arc of type 3)
VI10AddArcBetweenAngles	Added at the buffer the command for the draw of an arc from one corner A to corner B
VI10SetBackground	Adds to the background command at the Buffer (sets the background color)
VI10AddMoveArea	Adds to the MOVEAREA command at the Buffer (move the contents of the Vector Image)
VI10UnsetLayer	Adds to the UNSET_LAYER command at the Buffer (disable the layer indicated)
VI10LoadImage	Adds to the LOAD_IMAGE command at the Buffer (load the image attached to an *Image* object)

VI10GetDimension	Adds to the GET_DIMENSION command at the Buffer (reads the VectorImage object size)
VI10ExtractDimension	Extracts the dimensions of the VectorImage from the Buffer after the execution of the command VI10GetDimension

FUNCTIONS FOR MANAGING THERMOCOUPLES

IR10CJRead	Cold-junction reading
IR10HJRead	Warm-junction reading
VC10TCoupleB	Temperature calculation for thermocouple type B
VC10TCoupleJ	Temperature calculation for thermocouple type J
VC10TCoupleK	Temperature calculation for thermocouple type K
VC10TCoupleN	Temperature calculation for thermocouple type N
VC10TCoupleT	Temperature calculation for thermocouple type T
IR11PTCRead	Reading the PT100 resistance from the 3 points board
IR20PTCRead	Reading the PT100 resistance from the 3 points board with the differential reading mode
VC10PTC100	Calculation of temperature for PT100

FUNCTIONS FOR MANAGING PROGRAMMABLE OUTPUTS

OP10Init	Programmable outputs, initializing
OP10isOutOn	Programmable outputs, tests whether active output status
OP10isParOk	Programmable outputs, check correct value
OP10Manage	Programmable outputs, data processing
OP10ResOut	Programmable outputs, reset output status
OP10ResRet	Programmable outputs, Reset output restraint
OP10SetOut	Programmable outputs, set output status

FUNCTIONS FOR CALCULATING CHECKSUM

VC10Cr32Init	Calculation CRC, initialization
VC10Cr32Beg	Calculation CRC, Beginning of the calculation
VC10Cr32Calc	Calculation CRC, Conclusion of the calculation
VC10Cr32Udt	Calculation CRC, Update calculation

FUNCTIONS FOR SYNCROMOVE

GENERAL FUNCTIONS FOR WORKING WITH CAMMING

DW22WrCam	Writing to sectors cam (40 sectors) (CAMMING2,CAMMING3,CAMMING4)
DW31WrCam	Writing to sectors cam (128 sectors) (CAMMING3,CAMMING4)
DC11SpaceCam	Calculations for research space master set with minimum slave space
DC10VelCam	Calculations for construction of the sectors of acceleration, constant speed and deceleration of a electronic cam, setting the Master and Slave and their speed

GEARING FUNCTIONS

DC10ElGear	Calculations for managing the Master/Slave gearing
DC10ChGear	Exchange sync ratio calculations “on the fly” in a Master/Slave gearing (without ramps)
DC10ChVelRat	Calculation to set and/or change the Slave/Master speed ratio of a gearing dynamically with flights of softening when changing speed

FUNCTIONS FOR FLY CUT

DC21FlyCut	Calculations for linear fly cut with machine productivity optimization
DC30FlyCut	Calculations for linear fly cut with fixed Slave space
DW22WrCam	Writing to sectors cam (40 sectors) (CAMMING2,CAMMING3,CAMMING4)
DW31WrCam	Writing to sectors cam (128 sectors) (CAMMING3,CAMMING4)
DW10ChLenght	Writing to sectors cam to change the linear length fly cut (CAM01)
DW22ChLenght	Writing to sectors cam to change the linear length fly cut (CAMMING, CAMMING2, CAMMING3)
DC10DoubFlyC	Calculation for taking a sample piece during the fly cut execution
DC10DinHFlyC	Calculation for length change on the fly of the workpiece during the linear fly cut execution (typically cut defect on material)

FUNCTIONS FOR WIRE-GUIDES

DC10Winding	Calculation for the cam building for the wire-guides management

FUNCTIONS FOR CIRCULAR FLY CUT

DC12RotCut	Managing of a circular fly cut with single or multi-blade cutting cylinder (from 1 to 6 blades)
DC22RotCut	Managing of a circular fly cut with single or multi-blade cutting cylinder (from 1 to 6 blades) stopping to Home of the Slave and manual cutting no-synchronized command

SYSTEM FUNCTIONS

SY10InitializeCriticalSection	Managing critical section initialization
SY10EnterCriticalSection	Entering critical section management
SY10LeaveCriticalSection	Exit critical section management

STRING FUNCTIONS

ST10StrStr	String search in substring
ST10StrCpy	String copy
ST10StrLen	String length
ST10StrNCpy	Copy characters from string
ST10atoi	Convert string to integer
ST10StrCat	Concatenate strings