Assist_close_USB.vi

Close the USB connection to the Interface Board.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
error out: contains error information.

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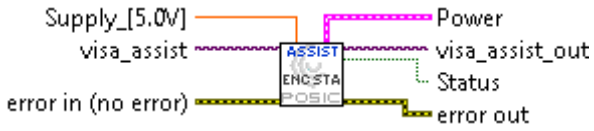
Assist_encoder_status.vi



Check if a POSIC encoder is present and if it is working correctly.
Returns the measured encoder supply voltage and current as
well as a code for the encoder type.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Status: TRUE if all works correctly.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8778)

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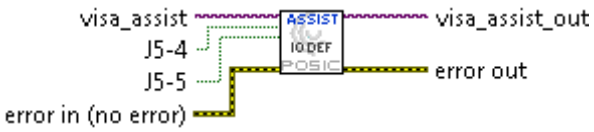
Assist_IO_Define.vi



Set pins 4 & 5 of J5 connector on the Interface Board
to input or output. Upon reset of the dsPIC on the
Interface Board, these pins are set to output zero.
This VI does not turn the encoder on or off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
TF J5-4: Set pin 4 on J5 connector to input (T) ou output (F).
TF J5-5: Set pin 5 on J5 connector to input (T) ou output (F).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
error out: contains error information.

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Assist_IO_Read.vi

Read pins 4 & 5 on J5 connector on the Interface Board.
This VI does not turn the encoder on or off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
TF J5-4: Status of pin 4 on J5 connector (T = high, F = low).
TF J5-5: Status of pin 5 on J5 connector (T = high, F = low).
I/O visa_assist_out: is a copy of resource for ASSIST.
error out: contains error information.

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Assist_IO_Write.vi

Set/Clear the outputs of pins 4 and/or 5 on the J5 connector
on the Interface Board.
This VI does not turn the encoder on or off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
TF J5-4: Set (T) or clear (F) pin 4 on J5 connector.
TF J5-5: Set (T) or clear (F) pin 5 on J5 connector.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
error out: contains error information.

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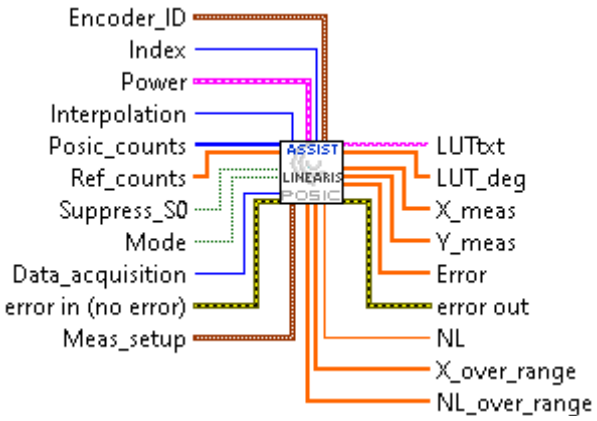
Assist_linearization.vi



Converts the measurement data (obtained using e.g. Assist_repeat_measure.vi) into a LUT and into arrays that can be used to visualize the measurement data. Prior to this VI, Assist_start_RAM_configuration.vi must have been carried out.
For a linear application, Scale_period and Lin_resol (part of Meas_setup) must be specified, whereas Codewheel and Rot_resol must remain undefined. For a rotary application, the exact opposite is valid.
During the execution of this VI, the POSIC encoder remains off.

INPUT:
I32 Posic_counts: array with A quad B counter values of the POSIC encoder.
DBL Ref_counts: array with A quad B counter values of the reference encoder.
TF Suppress_S0: Remove offset in the LUT calculation.
Must be 0 during linearization of an IT3401 (for correct index-pulse). For all other encoders, the recommendation is to set Suppress_S0 to 1.
TF Mode: TRUE: linearization mode: Posic_counts measured with LUT Zero, goal is to calculate LUT;
FALSE: lineartiy measurement mode: Posic_counts measured with LUT Default or LUT_txt or LUT_deg, goal is to measure linearity.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type, see table in library doc.
U8 Encoder_config: Code for the internal configuration of the encoder.
U16 Interpolation: POSIC encoder interpolation.
U16 Index: POSIC encoder index position (only valid for certain types of encoders). Incrementing this number by 1 shifts the Index one complete A quad B cycle.
U16 Data_acquisition: if 0, Default: no data acquisition;
if 1: continuous data acquisition of POSIC encoder;
if 2: continuous data acquisition of POSIC and reference encoders;
if 3: data acquisition of POSICand reference encoders

triggered by rising and falling edges of A/B signals
of the POSIC encoder.
<cluster> Encoder_ID:
U16 Encoder_ID1: Encoder identification number 1.
U16 Encoder_ID2: Encoder identification number 2.
U16 Encoder_ID3: Encoder identification number 3.
<cluster> Meas_setup:
DBL Scale_period[mm]:POSIC encoder period length for linear
scale in mm.
DBL Codewheel[period]: POSIC encoder number of periods on
the codewheel.
DBL Lin_resol[um]: reference encoder linear resolution in µm.
DBL Rot_resol[incr/rev.]: reference encoder rotary resolution
in number of increments per revolution.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
abc LUT_txt: LUT in electrical degrees in text format (see Assist Manual).
DBL LUT_deg: LUT array in electrical degrees.
DBL X_meas: POSIC encoder measurements array.
DBL Y_meas: reference encoder measurements array.
DBL Error: array containing the error between POSIC and reference encoder.
DBL NL: non linearity over the measured range.
DBL X_over_range: measurements array over the measured range.
DBL NL_over_range: non linearity array over the measured range.
error out: contains error information. (-8882, -8883, -8884)

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Assist_open_USB.vi

Open the USB connection to the Interface Board.
Returns the firmware version of the Interface Board (minimum 03-00-04) and the measured booster level (minimum 7.5V).
During the execution of this VI, the POSIC encoder remains off.

INPUT:
error in (no error): describes error conditions that occur before this node runs.
OUTPUT:
I/O visa_assist_out: specifies the resource opened for ASSIST.
abc Board_Firmware: specifies the firmware version of the Interface Board.
abc Serial_Num: specifie the serial number of the Interface Board.
DBL Booster_level: returns the booster level in Volts.
error out: contains error information. (-8770, -8771, -8772)

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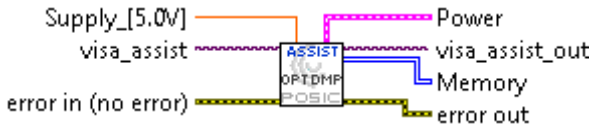
Assist_otp_memory_dump.vi



Start the encoder and read the complete OTP memory.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
U16 Memory: POSIC encoder memory address and data.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8778)

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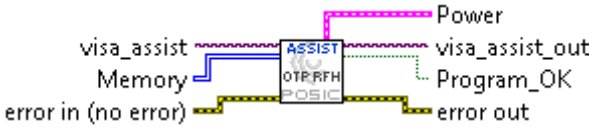
Assist_otp_memory_refresh.vi



Start encoder with supply voltage 6.5 V and program
the complete OTP memory.
WARNING: This VI overwrites the OTP memory. If
applied incorrectly, this VI may cause irreparaible
damage to the encoder.
After execution of this VI, the encoder is turned off.

INPUT:
U16 Memory: POSIC encoder memory address and data.
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Program_OK: if TRUE: all programmed values OK.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8774, -8775, -8778)

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Assist_read_firmware.vi

Returns the firmware version of the Interface Board (default 03-00-04) and the measured booster level (minimum 7.5V).
During the execution of this VI, the POSIC encoder remains off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
abc Minimum board FW: minimum firmware version of the Interface Board.
error in (no error): describes error conditions that occur before this node runs.
OUTPUT:
I/O visa_assist_out: specifies the resource opened for ASSIST.
abc Board_Firmware: specifies the firmware version of the Interface Board.
DBL Booster_level: returns the booster level in Volts.
error out: contains error information. (-8771, -8772)

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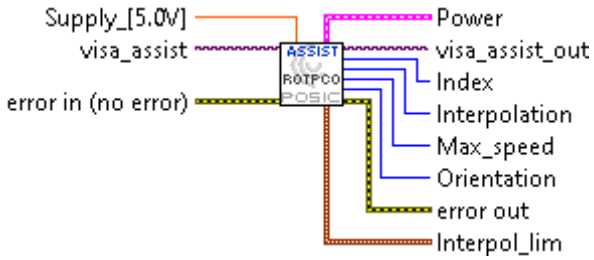
Assist_read_otp_configuration.vi



Start encoder and read encoder configuration from OTP memory.
Interpol_lim cluster can be connected to Interpolation property node (variable in example or customer's LabView program) to keep interpolation in allowed range.
Please note that a non-binary resolution leads to rounding errors in the interpolation carried out in the POSIC encoder.
After the execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
error in (no error): describes error conditions that occur before this node runs.

OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
U16 Index: POSIC encoder index position (only valid for certain types of encoders). Incrementing this number by 1 shifts the Index one complete A quad B cycle.
U16 Interpolation: POSIC encoder interpolation in PPP (Pulses Per Period), see datasheet table 3. PPP = CPR / number of periods on codewheel.
U8 Max_speed: POSIC encoder maximum speed, code according to datasheet table 2.
U8 Orientation: POSIC encoder orientation, code according to datasheet table 1.
U8 Application: Application number to linearization VI.
<cluster>Interpol_lim:
    DBL Increment: IF > 0: increment for the interpolation factor between the Min and Max limits.
    IF = 0: the interpolation factor must be binary between the Min and Max limits.
    DBL Max: Maximum interpolation factor.
    DBL Min: Minimum interpolation factor.
<cluster> Power:
    DBL VDD: POSIC encoder supply voltage.
    DBL IDD: POSIC encoder supply current.
    U32 Encoder_type: Code for encoder type, see table in library doc.
    U8 Encoder_config: Code for the internal configuration of the encoder.
error out: contains error information. (-8773, -8778)

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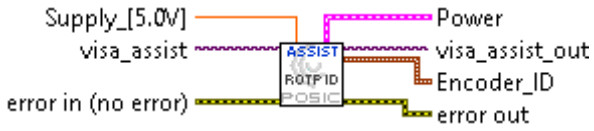
Assist_read_otp_encoder_ID.vi



Start encoder and read the encoder ID from
the OTP memory.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
<cluster> Encoder_ID:
U16 Encoder_ID1: Encoder identification number 1.
U16 Encoder_ID2: Encoder identification number 2.
U16 Encoder_ID3: Encoder identification number 3.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8778)

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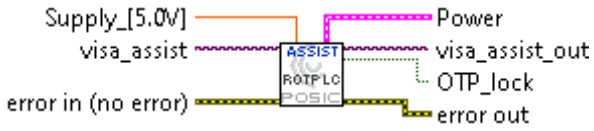
Assist_read_otp_Lock.vi



Start encoder and read the OTP-Lock from the OTP
memory. A locked memory cannot be programmed and cannot
be unlocked.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF OTP_lock: if TRUE: the OTP is locked.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8778)

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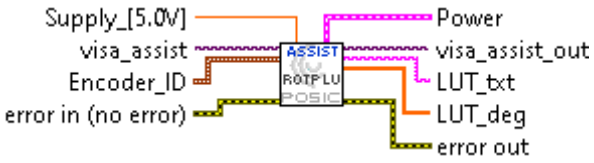
Assist_read_otp_LUT.vi



Start encoder and read the LUT from the OTP memory.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
<cluster> Encoder_ID:
U16 Encoder_ID1: Encoder identification number 1.
U16 Encoder_ID2: Encoder identification number 2.
U16 Encoder_ID3: Encoder identification number 3.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
abc LUT_txt: LUT in degrees in text format (see Assist Manual).
DBL LUT_deg: array LUT in degrees.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773,-8778)

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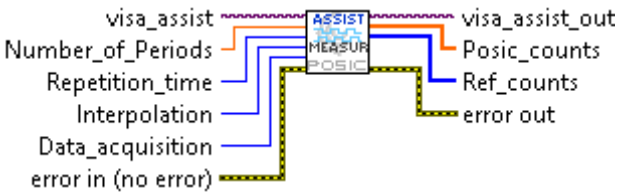
Assist_repeat_measure.vi



Read the positions of the POSIC and the reference encoders
with a specified repetition time until a defined number of
target-periods (of the POSIC-encoder-scale or -codewheel)
has been measured. If Data_acquisition = 3, read a defined
number of reference encoder positions triggered by rising and
falling edges of the POSIC encoder A/B pulses.
Prior to this VI, either Assist_start_OTP_configuration.vi or
Assist_start_RAM_configuration.vi must have been carried out.
After execution of this VI, the encoder remains on.

INPUT:
DBL Number_of_periods: number of target periods to be measured.
U32 Repetition_time: time between two consecutive measurements
during continuous data acquisition.
U16 Interpolation: POSIC encoder interpolation in PPP (Pulses Per Period),
see datasheet table 3. PPP = CPR / number of periods
on codewheel.
U16 Data_acquisition: if 0, Default: no data acquisition;
if 1: continuous data acquisition of POSIC encoder;
if 2: continuous data acquisition of POSIC and reference
encoders;
if 3: data acquisition of POSICand reference encoders
triggered by rising and falling edges of A/B signals
of the POSIC encoder.
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
DBL Posic_counts: array with A quad B counter values of the
POSIC encoder.
U32 Ref_counts: array with A quad B counter values of the
reference encoder.
I/O visa_assist_out: is a copy of resource for ASSIST.
error out: contains error information.

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Assist_single_measure.vi

Read the positions of the POSIC and/or reference encoders
once depending on Data_acquisition input. Only Data_acquisition
= 1 or 2 can be used.
Insert this VI in a loop to construct the measurement arrays.
Prior to this VI, either Assist_start_OTP_configuration.vi or
Assist_start_RAM_configuration.vi must have been carried out.
After the execution of this VI, the encoder remains on.
Use Assist_stop_encoder.vi to turn the encoder off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
U16 Data_acquisition: if 0, Default: no data acquisition;
if 1: continuous data acquisition of POSIC encoder;
if 2: continuous data acquisition of POSIC and reference encoders;
if 3: data acquisition of POSICand reference encoders triggered by rising and falling edges of A/B signals of the POSIC encoder.
error in (no error): describes error conditions that occur before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
U32 Posic_Counter: single A quad B counter value of the POSIC encoder.
U32 Ref_Counter: single A quad B counter value of the reference encoder.
error out: contains error information. (-8886)

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Assist_start_connections_test.vi

Start connections test: outputs toggle on/off at ~1Hz
(ID1101, 1301, 3401) or ~50kHz (ID4501, 1102, 1302).
After execution of this VI, the encoder remains on.
Use Assist_stop_encoder.vi to turn the encoder off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773)

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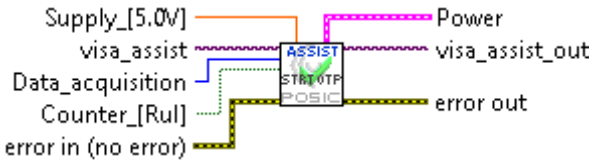
Assist_start_OTP_configuration.vi



Start encoder with the configuration stored in its OTP memory.
After execution of this VI, the encoder remains on.
Use Assist_stop_encoder.vi to turn the encoder off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
U16 Data_acquisition: if 0, Default: no data acquisition;
if 1: continuous data acquisition of POSIC encoder;
if 2: continuous data acquisition of POSIC and reference encoders;
if 3: data acquisition of POSICand reference encoders triggered by rising and falling edges of A/B signals of the POSIC encoder.
error in (no error): describes error conditions that occur before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type, see table in library doc.
U8 Encoder_config: Code for the internal configuration of the encoder.
error out: contains error information. (-8773)

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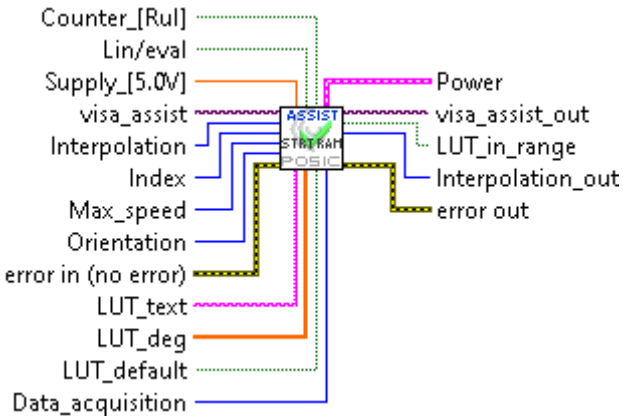
Assist_start_RAM_configuration.vi



Write the encoder configuration in RAM and start the encoder
with the configuration stored in its RAM memory.
Interpolation_out confirms the interpolation factor that is actually
used (might be adapted is input value of Interpolation is not allowed).
The LUT can be in text format, in DBL array or internal LUT default.
If both (text and array) are defined, the array will be selected.
If no LUT is provided, a LUT Zero is used.
For calculation of a LUT (using Assist_linearization.vi with
Mode = TRUE), LUT_txt and LUT_deg must be undefined and
LUT_Default must be FALSE.
After the POSIC encoder has been started, the A quad B
counter can be started by setting Start_Counter to 1.
After execution of this VI, the encoder remains on.
Use Assist_stop_encoder.vi to turn the encoder off.

LUT_txt	LUT_deg	LUT_default	LUT in encoder
No input	No input	FALSE	LUT Zero
No input	No input	TRUE	LUT Default
Text	No input	FALSE	LUT txt
Text	No input	TRUE	LUT Default
No input	Array	FALSE	LUT deg
No input	Array	TRUE	LUT Default
Text	Array	FALSE	LUT deg
Text	Array	TRUE	LUT Default

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
TF Lin/eval: TRUE: measurement over a defined number of periods,
must be used for linearization and linearity
measurements (see Assist_linearization.vi).
FALSE: continuous measurement for evaluation purposes.
DBL Supply_[5.0V]: VDD to apply to encoder (default 5.0V).
abc LUT_txt: LUT in degrees in text format (see Assist Manual).
DBL LUT_deg: array LUT in degrees.
TF LUT_default: if TRUE: use Default LUT;
if FALSE: use LUT_deg (priority) or LUT_txt.
U16 Interpolation: POSIC encoder interpolation in PPP (Pulses Per Period),

see datasheet table 3. PPP = CPR / number of periods on codewheel.
U16 Index: POSIC encoder index position (only valid for certain types of encoders). Incrementing this number by 1 shifts the Index one complete A quad B cycle.
U8 Max_speed: POSIC encoder maximum speed, code according to datasheet table 2.
U8 Orientation: POSIC encoder orientation, code according to datasheet table 1.
U16 Data_acquisition: if 0, Default: no data acquisition;
if 1: continuous data acquisition of POSIC encoder;
if 2: continuous data acquisition of POSIC and reference encoders;
if 3: data acquisition of POSICand reference encoders triggered by rising and falling edges of A/B signals of the POSIC encoder.
error in (no error): describes error conditions that occur before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
U16 Interpolation_out: Interpolation factor used in the encoder. Equals "Interpolation" or equals the highest allowed value below "Interpolation".
TF LUT_in_range: if TRUE: all LUT values are in range -45 to +44.978 degrees. Otherwise one or more values are clipped.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type, see table in library doc.
U8 Encoder_config: Code for the internal configuration of the encoder.
error out: contains error information. (-8773, -8778, -8779, -8780, -8885, warning -8781, -8880, -8881)
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— —

Assist_stop_encoder.vi

Stop encoder power supply.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
error out: contains error information.

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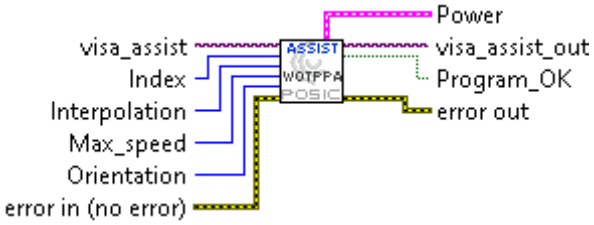
Assist_write_otp_configuration.vi



Start encoder with supply voltage 6.5 V and program
parameters into the OTP memory.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
U16 Index: POSIC encoder index position (only valid for certain types
of encoders). Incrementing this number by 1 shifts the
Index one complete A quad B cycle.
U16 Interpolation: POSIC encoder interpolation in PPP (Pulses Per Period),
see datasheet table 3. PPP = CPR / number of periods
on codewheel.
U8 Max_speed: POSIC encoder maximum speed, code according to
datasheet table 2.
U8 Orientation: POSIC encoder orientation, code according to
datasheet table 1.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Program_OK: if TRUE: all programmed values OK.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8774, -8775, -8778, -8779,
-8780, warning -8781)

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Assist_write_otp_encoder_ID.vi

Start encoder with supply voltage 6.5 V and program the
encoder ID into the OTP memory.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
<cluster> Encoder_ID:
U16 Encoder_ID1: Encoder identification number 1.
U16 Encoder_ID2: Encoder identification number 2.
U16 Encoder_ID3: Encoder identification number 3.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Program_OK: if TRUE: all programmed values OK.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8774, -8775, -8778)

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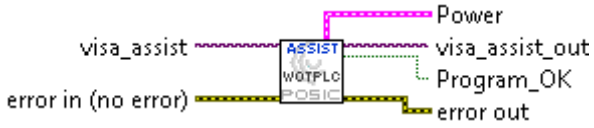
Assist_write_otp_Lock.vi



Start encoder with supply voltage 6.5 V and lock the OTP
memory. A locked memory cannot be programmed and cannot
be unlocked.
After execution of this VI, the encoder is turned off.

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Program_OK: if TRUE: all programmed values OK.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8774, -8775, -8778)

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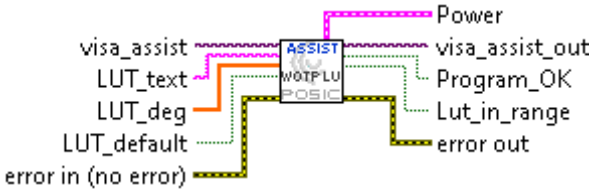
Assist_write_otp_LUT.vi



Start encoder with supply voltage 6.5 V and program the
LUT into the OTP memory.
If LUT_default is TRUE, the default LUT is programmed.
LUT_deg has priority over LUT_txt. If LUT_deg and
LUT_txt are empty and LUT_default is FALSE, nothing
is programmed.
After execution of this VI, the encoder is turned off.

LUT_txt	LUT_deg	LUT_default	LUT in OTP
No input	No input	FALSE	no programming
No input	No input	TRUE	LUT Default
Text	No input	FALSE	LUT txt
Text	No input	TRUE	LUT Default
No input	Array	FALSE	LUT deg
No input	Array	TRUE	LUT Default
Text	Array	FALSE	LUT deg
Text	Array	TRUE	LUT Default

INPUT:
I/O visa_assist: specifies the resource for ASSIST.
abc LUT_txt: LUT in degrees in text format (see Assist Manual).
DBL LUT_deg: LUT in degrees in array-format.
TF LUT_default: if TRUE: program Default LUT in OTP
(priority over LUT_deg and LUT_txt).
error in (no error): describes error conditions that occur
before this node runs.
OUTPUT:
I/O visa_assist_out: is a copy of resource for ASSIST.
TF Program_OK: if TRUE: all programmed values OK.
TF Lut_in_range: if TRUE: all LUT values in range -45 to
+44.978 degrees.
<cluster> Power:
DBL VDD: POSIC encoder supply voltage.
DBL IDD: POSIC encoder supply current.
U32 Encoder_type: Code for encoder type,
see table in library doc.
U8 Encoder_config: Code for the internal
configuration of the encoder.
error out: contains error information. (-8773, -8774, -8775, -8776, -8777, -8778)

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Posic error list

	Error Label
-8770	ASSIST interface board not found
-8771	Old version ASSIST firmware
-8772	Booster output too low
-8773	Encoder supply current too high (short-circuit)
-8774	OTP programming failed
-8775	OTP memory locked
-8776	No valid LUT data, no OTP programming
-8777	No OTP LUT programmed, stopped by user
-8778	No encoder connected or no connections
-8779	Invalid orientation
-8780	Orientation not available
-8781	Orientation not available, default orientation used !
-8880	LUT values out of range, clipped to -45 and to +44.978 degrees
-8881	No valid LUT data, all LUT values set to zero
-8882	No interpolation provided; cannot compute LUT
-8883	Not enough data to extract minimum 1 period of the POSIC target
-8884	Not used
-8885	Interpolation not possible with this encoder
-8886	No counter chosen, measure not possible

— —

LUT definitions

LUT_deg = array of 256 DBL values ranging between -45 to +44.978 degrees.
Output of Assist_linearization.vi and Assist_read_otp_LUT.vi.
Input to Assist_start_RAM.vi and Assist_write_otp_LUT.vi

LUT_txt = text of 256 values ranging between -45 to +44.978 degrees, starting with a header of 2 lines (see Assist Manual).
Output of Assist_linearization.vi and Assist_read_otp_LUT.vi.
Input to Assist_start_RAM.vi and Assist_write_otp_LUT.vi

LUT Default = LUT that compensates the "electronic" non-linearity of the encoder.
Generated automatically in Assist_start_RAM_configuration.vi and Assist_write_otp_LUT.vi.

LUT Zero = LUT with all values set to 0. This LUT does not compensate non-linearity due to the electronics or the target.
Generated automatically in Assist_start_RAM_configuration.vi.

— —

Encoder_type codes

Code	Encoder type
1FFFE08	ID1102
1FFFD08	ID1302 (until 2020)
1FFFD28	ID1302 (starting 2021)
1FFFC08	ID4501
1FFFC28	ID4502
1FFFA08	ID3101
1FFFB04	IT3402, index-sensor
1FFFB29	IT3402, AB-sensor
1FFFC48	ID4506
1FFFE28	ID1104
1FFFE48	ID1106
1FFFD48	ID1306
1FFF408	PO1010
1FFF428	PO1020
1FFF448	PO1030
1FFF804	IT5602, index-sensor
1FFF829	IT5602, AB-sensor
1FFFFXX	Undefined

— —

Linearization

Start the encoder with Assist_start_RAM_configuration.vi with the following settings:
Reset_upon_Index = True
Lin/Eval = True
Interpolation = 256 or lower (under this condition,
there is one index-pulse per period, which is required to generate the LUT)
Index = 0
Max_speed = recommendation: 25 x lower than speed during linearization

LUT_text = no input
LUT_deg = no input
LUT_default = False
The same settings must be used to generate the LUT using
Assist_Linearization.vi
— —