DVC Family

Intella™ Programming Variable Guide

Introduction

Program variables are storage locations in memory with unique identifiers which contain values that are paired with specific application functions. Program variables may represent the configuration or state of an input or output, a defined variable created by the programmer, an EEMEM location or storage space for J1939 data etc. Most application variables are open to control by the programmer, while certain variables while available for testing (mainly used for module configuration) should not be manipulated by the application program.

For More information, please consult the DVC710 Family System and Programming Guide available on our website, http://hctcontrols.com/.

Program Variables by Function

Miscellaneous Variables		
Name	**Description**	**Range**
Supply(1)	The Power Supply voltage. The value returned is in units of supply volts (sv)	
DVC_Temperature(1)	Internal DVC710 controller temperature. The value returned is in units of °C + 40. Therefore, – 40°C is returned as 0.	
FreeRunningTimer	16 bit counter that continually increments every 100 micro seconds. Counts from 0 to 65535 (6.5 seconds) then begins again. Could be used to track timing between two events.	
MACID	This variable returns the MACID of the DVC controller.	
HC_Coil_Gain_OG1(1) HC_Coil_Gain_OG2 (1) HC_Coil_Gain_OG3 (1)	Coil gain constant used by the BIOS to determine actual coil current from A/D values derived by the controller's current feedback circuits. Max_cur = (current_in_ma * 100) / HC_Coil_Gain_OG1	0 to 1023
LC_Coil_Gain_OG1(1, 3) LC_Coil_Gain_OG2 (1, 3) LC_Coil_Gain_OG3 (1, 3)	Same as above for Low Current application, (90mA or less Max Current)	0 to 1023
BlinkCode	Commands the Status LED.	0 to 65535 – DVC707 0 to 999 – DVC710

Universal and Analog Inputs		
Name	**Description**	**Range**
Name	Name of input	0% to 100% (0 – 1023)
Name.Dir	Inputs direction bit	False (Lower Side), True (Upper Side)
Name.RawVolts	Volts or Milliamps	0 to 1023 * Scale (2)
Name.RampVolts	Ramped Volts = RampVolts * Scale Factor	0 to 1023 * Scale (2)
Name.MinVolts	Name = 0% (i.e. Center not enabled)	0 to 1023 * Scale (2)
Name.MaxVolts	Name = 100%	0 to 1023 * Scale (2)
Name.MinLimit	Threshold for Name.MinF	0 to 1023 * Scale (2)
Name.MaxLimit	Threshold for Name.MaxF	0 to 1023 * Scale (2)
Name.RefMinLimit	Threshold for Name.MinRF	0 to 1023 * Scale (2)
Name.RefMaxLimit	Threshold for Name.MaxRF	0 to 1023 * Scale (2)
Name.CenterVolts	Set Point for Center Volts	0 to 1023 * Scale (2)
Name.Deadbandv	Plus and minus volts about CenterVolts	0 to 1023 * Scale (2)
Name.MinF	Set when Input Voltage is less than Min Limit	False (ok), True (Outside Limit)
Name.MaxF	Set when Input Voltage is greater than Max Limit	Range: False (ok), True (Outside Limit)
Name.LOS	Set after time out. For Universal Pulse inputs Only	False (Pulses ok), True (No Pulse Input)
Name.RealRPM	The Unsigned Integer Value of the RPM. For Universal Pulse inputs Only	0 to 9999
Name.Counter	Value of the Counter. Universal Pulse inputs Only	0 to 65535
Name.PulsesPerRev	Pulses Per Revolution RPM inputs only.	0 to 9999

Digital Inputs		
Name	**Description**	**Range**
Name	Name of the switch	False or Off, True or On
Name.RealRPM (3)	The Unsigned Integer Value of the RPM.	0 to 9999
Name.PulseTimeout (3)	Get/Set Pulse Timeout for Loss of Signal	0 to 65535
Name.PulsesPerRev(3)	Get/Set Pulses Per Revolution	0 to 9999
Name.Counter (3)	Get/Set Unsigned Integer Value of the Counter. Pulse inputs Only	0 to 65535
Name.LOS (3)	Loss of Signal flag set after time out. For Pulse inputs Only	False (Pulses ok), True (No Pulse Input)

I / O Function Variables		
Name	**Description**	**Range**
Name.In	The Input of the Transfer Function	0% to 100% (0 – 1023)
Name.Out	The Output of the Transfer Function	0% to 100% (0 – 1023)
Name.X0	The X0 of the input/output function	0% to 100% (0 – 1023)
Name.X1	The X1 of the input/output function	0% to 100% (0 – 1023)
Name.X2	The X2 of the input/output function	0% to 100% (0 – 1023)
Name.X3	The X3 of the input/output function	0% to 100% (0 – 1023)
Name.X4	The X4 of the input/output function	0% to 100% (0 – 1023)
Name.X5	The X5 of the input/output function	0% to 100% (0 – 1023)
Name.X6	The X6 of the input/output function	0% to 100% (0 – 1023)
Name.X7	The X7 of the input/output function	0% to 100% (0 – 1023)
Name.Y0	The Y0 of the input/output function	0% to 100% (0 – 1023)
Name.Y1	The Y1 of the input/output function	0% to 100% (0 – 1023)
Name.Y2	The Y2 of the input/output function	0% to 100% (0 – 1023)
Name.Y3	The Y3 of the input/output function	0% to 100% (0 – 1023)
Name.Y4	The Y4 of the input/output function	0% to 100% (0 – 1023)
Name.Y5	The Y5 of the input/output function	0% to 100% (0 – 1023)
Name.Y6	The Y6 of the input/output function	0% to 100% (0 – 1023)
Name.Y7	The Y7 of the input/output function	0% to 100% (0 – 1023)

Outputs Dual Coil High Side		
Name	**Description**	**Range**
Name	Name for the PWM Output	0% to 100% (0 – 1023)
Name.Dir	PWM Outputs direction bit	False (Lower Side), True (Upper Side)
Name.Enable	PWM Outputs enable bit	True [PWM Enabled], False [PWM = 0]
Name.Short	PWM Output Short Status Flag	Off [Coil Ok], On [Coil Short]
Name.Open	PWM Output Open Status Flag	Off [Coil Ok], On [Coil Open]
HSEven#Name.Rampup	Set the ramp up rate (time to travel from 0% to 100%)	0.0 to 65.00 s
HSEven#Name.Rampdown	Set the ramp down rate (time to travel from 100% to 0%)	0.0 to 65.00 s
HSEven#Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
HSEven#Name.Open	Get the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
HSOdd#Name.Rampdown	Set the ramp down rate (time to travel from 100% to 0%)	0.0 to 65.00 s
HSOdd#Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
HSOdd#Name.Open	Get the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
Name.Cur	Current actual * CurGain = amps	0 – 3.5 amps
Name.RampCur	Ramped Current*CurGain= amps	0 – 3.5 amps
Name.CurErr	Current Error = RampCur – Cur	16 bit signed integer
Name.CurSumErr	Current Error accumulated over time	0 – 65535
Name.CurP	Current Proportional Term Constant “P”	0 – 255 (4)
Name.CurI	Current Proportional Term Constant “I”	0 – 255 (4)
Name.MinCurA	Minimum Current Coil A *.001 = amps	0 – 3.5 amps
Name.MaxCurA	Maximum Current Coil A *.001 = amps	0 – 3.5 amps
Name.MinCurB	Minimum Current Coil B *.001 = amps	0 – 3.5 amps

Single Coil High Side / Single Coil Low Side		
Name	**Description**	**Range**
(Low-Side/PWM) Name	Set or test the state Current Target or Process in percentage of min to max current 0 = 0 Current, .1% = Min Current, and 100% = Max Current	0% to 100% (0 – 1023)
Name.Enable	Set the PWM to 0 or enable the PWM	True [PWM Enabled], False [PWM = 0]
Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
Name.Open	Get the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
Name.Rampup	Set the ramp up rate (time to travel from 0% to 100%)	0.0 to 65.00 s
Name.Rampdown	Set the ramp down rate (time to travel from 100% to 0%)	0.0 to 65.00 s
Name.Frequency	Set PWM frequency	0 to 1000 for 0 to 100hz
Name.Dutycycle	Set PWM duty cycle	0 to 1023 for 0 to 100%
Name.Freqerror	Returns error 0 = No Error 1 = Frequency error, 2 means duty cycle error	
HSEvenName (5)	Set the Bang-bang Coil to On or Off	Off, On
HSEven#Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
HSEven#Name.Open	Get the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
HSOddName (6)	Set the Bang-bang Coil to On or Off	Off, On
HSOdd#Name.OpenDisable	Set the Disable Coil Open Detection	0 [Enabled], 1 [Disabled]
HSOdd#Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
HSOdd#Name.Open	Get/Set the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
Name.Cur	Current actual * CurGain = amps	0 – 3.5 amps
Name.RampCur	Current ramped Current*CurGain= amps	0 – 3.5 amps
Name.CurErr	Current Error = RampCur – Cur	16 Signed Integer
Name.CurSumErr	Current Error accumulated over time	0 – 65535
Name.CurP	Current Proportional Term Constant “P”	0 – 255 (4)
Name.CurI	Current Proportional Term Constant “I”	0 – 255 (4)
Name.MinCurA	Minimum Current Coil A *.001 = amps	0 – 3.5 amps
Name.MaxCurA	Maximum Current Coil A *.001 = amps	0 – 3.5 amps

High Side Only		
Name	**Description**	**Range**
HSEvenName	Set/Get the state of the Output	Off, On
HSEven#Name.OpenDisable	Set the Disable the Outputs Open Detection Feature	0 [Enabled], 1 [Disabled]
HSEven#Name.Short	Get the Coil Flag for Short Status	Off [Coil Ok], On [Coil Short]
HSEven#Name.Open	Get the Coil Flag for Open Status	Off [Coil Ok], On [Coil Open]
HSOddName	Set/Get the state of the Output	Off, On
HSOdd#Name.OpenDisable	Set the Disable the Outputs Open Detection Feature	0 [Enabled], 1 [Disabled]

Process PI Variables		
Name	**Description**	**Range**
Name.Setpoint	The desired % set point position for the output	0 to 100% (0 – 1023)
Name.Feedback	The % feedback position for the output	0 to 100% (0 – 1023)
Name.ProErr	Error = Set point – Feedback	16 bit signed integer
Name.ProSumErr	Error accumulated over time	0 – 65535
Name.ProP	Process Proportional Term Constant "P"	0 – 255 (4)
Name.ProI	Process Proportional Term Constant "I"	0 – 255 (4)
Name.ProItime	Update / Integration Time	0.0 to 650.00 s
Name.Cur	Current actual * CurGain = amps	0 – 3.5 amps
Name.RampCur	Current ramped Current*CurGain= amps	0 – 3.5 amps
Name.CurErr	Current Error = RampCur – Cur	16 bit signed integer
Name.CurSumErr	Current Error accumulated over time	0 – 65535
Name.CurP	Current Proportional Term Constant "P"	0 – 255 (4)
Name.CurI	Current Proportional Term Constant "I"	0 – 255 (4)
Name.MinCurA	Minimum Current Coil A *.001 = amps	0 – 3.5 amps
Name.MaxCurA	Maximum Current Coil A *.001 = amps	0 – 3.5 amps

NOTES:

1 Read Only; Do not try to set these variables.
2 Scale depends on Input Range (0 to 5 =.00489, 0 to 10 = .00977, 0 to 25ma = 0.02158)
3 DVC707 Only.
4 Recommend range; 0 – 64. (do not exceed 64)
5 Available in; Single Coil High Side Mode, Single Coil Low Side Mode and High Side Only Mode. Otherwise, Read Only.
6 Available in; Single Coil Low Side Mode and High Side Only Mode. Otherwise, Read Only.