

<b>Title:</b> Reading Sigma-5 and Sigma-7 Drive Monitors in MotionWorks IEC	
<b>Product(s):</b> MP3□□□iec, MP2□□□iec, Sigma-5, Sigma-7, Sigma-7Siec	<b>Doc. No.</b> TN.MWIEC.04

## Overview

SERVOPACKs have built-in monitor functions (Un□□□) that are typically read using SigmaWin+ or a digital operator. These monitors can also be read in an MPiec controller. This document describes the method to read drive monitors using MotionWorks IEC. This is a two-part process: (1) Choosing which monitor to read, and (2) reading the monitor value.

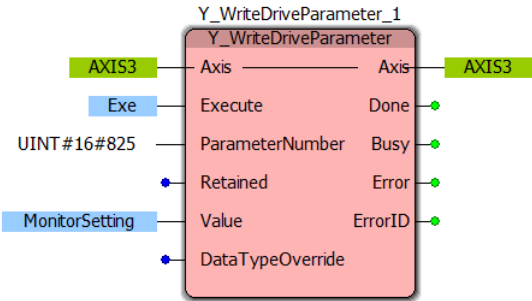
## Choosing which value to monitor

The value to be monitored is determined by the setting of Pn825. This determines the value that will be written to the shared output parameter 1312. Pn825 value is written using the Y\_WriteDriveParameter function block found in the PLCOpenPlus\_v\_2\_2a firmware library.

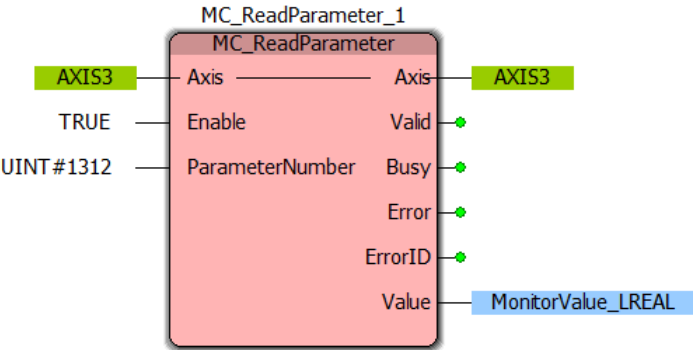
The "Value" input to this block is a DINT and determines which monitor is written to Prm1312. The table in the Appendix shows the allowable settings for this value.

Note on DataTypeOverride

- 0 for Multi-axis Controller
- 1 for MP2600iec and Sigma-7Siec



## Viewing the monitor value



After setting the value of Pn825, parameter Prm1312 will contain the selected monitor. Use function block MC\_ReadParameter to read this value.

NOTE: MC\_ReadParameter Value output is an LREAL value, but the data in Prm1312 is actually a DINT value stored as an LREAL.

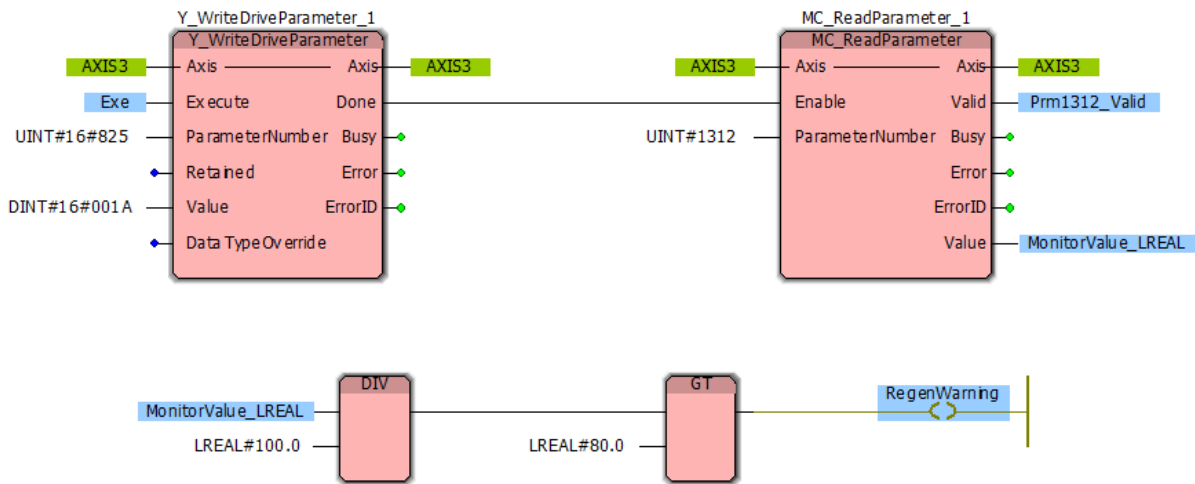
# TECHNICAL NOTE | YASKAWA

## Example

The example code below will set BOOL variable "RegenWarning" to true if the Regenerative Load Ratio climbs to 80% or higher.

(\*Writes value of 16#001A (Un00A: Regenerative Load Ratio [%]) to Pn825. The monitor data is written to Prm1312.\*)

(\*Reads Prm1312. The Value output is an LREAL but the data in Prm1312 is DINT, so data conversion may be required. If the Regenerative Load is at 63.45%, the MC\_ReadParameter FB returns 6345.000.\*)



(\*Divide the Prm1312 value by 100 to get the correct percentage value, then compare it to 80.0. If the Prm1312 value is greater than 80.0, turn out the output.\*)

## Appendix

Pn825 Value	Prm1312	Units	Monitor Number	Notes
16#0010	Motor Speed	[rpm]	Un000	MC_ReadActualVelocity is a better option.
16#0011	Speed Reference	[rpm]	Un001	
16#0012	Torque Reference	[%]	Un002	MC_ReadActualTorque is a better option.
16#0013	Encoder Pulses from Origin	[pulse]	Un003	Pulses from origin within one revolution
16#0014	Rotational Angle	[deg]	Un004	Angle from origin within one revolution
16#0015	Input Sigma Monitor	-	Un005	
16#0016	Output Signal Monitor	-	Un006	
16#0017	Input Reference Speed	[rpm]	Un007	
16#0018	Position Error	[ref units]	Un008	
16#0019	Accumulated Load Ratio	[%]	Un009	
16#001A	Regenerative Load Ratio	[%]	Un00A	
16#001B	Dynamic Brake Resistor Power Consumption	[%]	Un00B	
16#001C	Input Ref. Pulse Counter	[ref units]	Un00C	
16#001D	Feedback Pulse Counter	[pulse]	Un00D	
16#001E	Full-Closed Loop Feedback Pulse Counter	[pulse]	Un00E	
16#0023	Initial Multiturn Data	[revs]	-	
16#0024	Initial Incremental Data	[pulse]	-	
16#0040	SERVOPACK Installation Environment Monitor	[%]	Un025	% of allowable ambient temperature.
16#0041	Servomotor Installation Environment Monitor	[%]	Un026	% of allowable ambient temperature <sup>1</sup> .
16#0042	Built-In Fan Remaining Life Ratio	[%]	Un027	Percentage life remaining (9876=98.76%)

Pn825 Value	Prm1312	Units	Monitor Number	Notes
16#0043	Capacitor Remaining Life Ratio	[%]	Un028	Percentage life remaining (9876=98.76%)
16#0044	Surge Prevention Circuit Remaining Life Ratio	[%]	Un029	Percentage life remaining (9876=98.76%)
16#0045	Dynamic Brake Circuit Remaining Life Ratio	[%]	Un02A	Percentage life remaining (9876=98.76%)
16#0046	Instantaneous Power	[W]	Un032	
16#0047	Power Consumption	[.001 Wh]	Un033	12345 = 12.345 Wh
16#0048	Cumulative Power Consumption	[Wh]	Un034	

<sup>1</sup> SGM7J, SGM7A, SGM7P, SGM7G, and SGMCV motors only. The display will show 0 for all other models.