

Upload and Download of Motion Cams On Bosch Rexroth Indramat ECO6.3 drives using Devicenet field bus with A-B CompactLogix (w/1769-SDN/A Devicenet scanner module) reference RSLogix program **exmsg_dvnet**

The sample program assumes 1 to 3 axis (drives) accessible as nodes on devicenet. It uses a 3 dimension array (Cams) to store the cam values. In the example program, there is allowance for up to 10 different recipes or product configurations and up to 3 axis of motion. The cam array is declared as Cams[r,a,v] where:

r = recipe with valid index 0 – 9
a = axis with valid index 0-2
v = cam table value with valid indexes 0-1023

The size of the array may be changed within available memory to permit more or less recipes to be stored. The v index must remain declared as 1024. If the other dimensions are changed, corresponding bound checking in the scope of the program must be modified to match. The sample array requires approximately 123k memory.

The sample program has 4 example launch rungs (in Main). Launch rungs must be 1-shot since they setup the read or writes which then run to completion in the scheduled task. The launch rungs initialize the specifics for each operation. Rungs in the sample read the cam table from a single drive controller (axis) or from all the axis. Similar examples write cams to one or all the drives. Each read or write always processed the entire cam table (1024 values). With the prototype system, it took slightly less than 10 seconds to read and about 12 seconds to write a complete cam to a single drive.

Prior to every read or write, the recipe number and cam number (cam 1 or 2 within the ECO-Drive) must be specified. If a single drive is to read or written then the axis number must be specified. Recipe numbers are specified 1 to 10, Cam numbers must be 1 or 2. Axis numbers are 1 to 3. Note that these numbers are not the same as and must not be confused with the indexes for the cam array.

The example program hard codes these parameters in each launch rung but they may be set by any appropriate means within the program. The parameters must remain unchanged until the corresponding setup subroutine has executed (`_21_WriteCam` or `_20_ReadCam`). The **camread** and **camwrite** boolean tags turn on when the process has been initialized and remain on until it is complete. Do not start another read or write if either process is running.

There are some constants that need to be set before the program is run. These are included in rungs at the first of the **Main** routine. **Recipes_Avail** is set at 10 and should not be changed unless the dimensions of **Cams** array is changed. Tag **SDM_slot** must be set to the slot number assigned to the SDM scanner module (refer to the I/O configuration).

The elements in the single dimension array **Axis_Node_Nbrs[]** must be set with the devicenet **Node** numbers for the corresponding drives. For instance, in the example program, the Ram is designated as **axis 1** and is addressed as **node 2** on the fieldbus network. **Axis_Node_Nbrs[1]** is thus set at **2**. Note that all unused axis must have a setting of **0**. If more than 3 drives are used the array will need to be resized and some of the limit checking changed to correspond. This array is used to lookup the node number for each axis.