Quick Start Motion Application Software – QS_C69_1

Quick Start Motion Application Software allows commissioning of 1 to 32 axes motion applications in a matter of hours. Basic motion control is transformed from a programming effort to an application exercise.

The foundation of the Quick Start package is the basic motion control application specific function block (ASFB). Two ASFB's address basic motion control, these are:

- QS_AIS_1 – Basic servo motion control ASFB
- QS_DIG_1 – Master axis feedback interface ASFB

One ASFB provides fault control and fault history, this is:

- QS_FLT_1 – Fault control and fault history ASFB

One ASFB provides integration with a Cimrex Operator Interface, this is:

- QS_C69_1 – Integration with Cimrex C69 HMI operating in portrait mode

These functions may be used with PiC, MMC or MMC for PC controls.

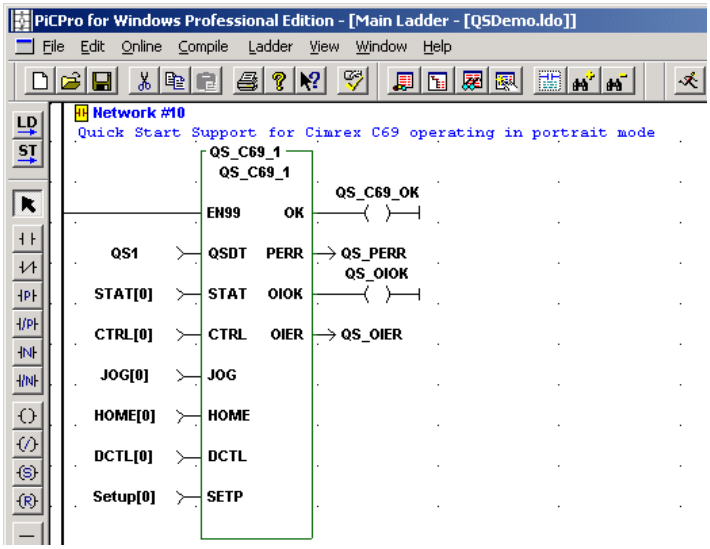
This document covers the functionality provided by QS_C69_1.

QS_C69_1 Overview

QS_C69_1 provides the communication interface and support logic to provide manual machine operation, home cycle and status presentation using a Cimrex C69 operator interface terminal. Functions provide by QS_C69_1 include:

Function	Capability
Setup	Activate jog modes
	Specify velocity jog rates
	Specify incremental jog rates
	Specify handwheel jog rates
	Define home cycle
View	View system status
	View fault history
	View axis status - Faults, Motion, I/O, Tuning, Limits
Manual	Jog at velocity
	Jog incremental distance
	Follow handwheel
Home	Home all axes
	Home individual axis

The powerpoint show, Introducing Quick Start.pps, provides an in-depth review of the Cimrex C69 operator interface screens and how to configure and apply the Quick Start motion application software.



QS_C69_1 uses the Axis Control and Status data structures to control servo motion and present servo status information. The Setup data structure contains the manual operation rates and home cycle definitions that QS_C69_1 saves in the Setup.dat file in the Setup folder on the control RAMDISK.

QS_C69_1 Inputs

Name	Type	**Description**
EN	BOOL	Enable, must always be ON
QSDT	STRUCT	Quick Start OI Control and Configuration Data
STAT	STRUCT	QS_AIS_1 Axis Status Structure
CTRL	STRUCT	QS_AIS_1 Axis Control Structure
JOG	STRUCT	QS_AIS_1 Axis Jog Structure
HOME	STRUCT	QS_AIS_1 Axis Home Structure
DCTL	STRUCT	QS_DIG_1 Digitized Axis Interface Structure
SETP	STRUCT	Axis jog rate and home cycle setup data

QS_C69_1 Outputs

Name	Type	**Description**
OK	BOOL	ON unless structure size error detected
PERR	UINT	Programming error, set to: 0 – All data structure sizes correct 1001 – QSDT structure size incorrect 1002 – STAT structure size incorrect 1003 – CTRL structure size incorrect 1004 – JOG structure size incorrect 1005 – HOME structure size incorrect 1006 – DCTL structure size incorrect 1007 – SETP structure size incorrect
OIOK	BOOL	ON when the link to the Cimrex C69 is functioning
OIER	INT	Operator Interface error, set to: 0 – no error 1,2,3 or 4 – OID file mismatch 9999 – no connection

Application Specific QSDT Initial Values

The initial value of QS1.Servo_Axis_Max controls the display of axis names when Select Axis is chosen in Manual, Setup or View mode. Enter a value between 1 and 32.

The initial value of QS1.Digitized_Axis_Max controls the display of digitized axis names when Select Axis is chosen in View - Digitized Axis mode. Enter a value between 1 and 32.

The initial value of QS1.Handwheel_Axis_Number specifies the digitized axis number, between 49 and 80, used for Jog Handwheel Mode operations.

When interfacing to the Cimrex C69 using Ethernet instead of RS232 set the initial value of QS1.OI_via_Ethernet to 1 and set the initial value of QS1.Ethernet_slot to the Ethernet interface module's slot number.

Troubleshooting QS_C69_1

In case of difficulties use PiCPro's animation and view capability to observe the operation of QS_C69_1.

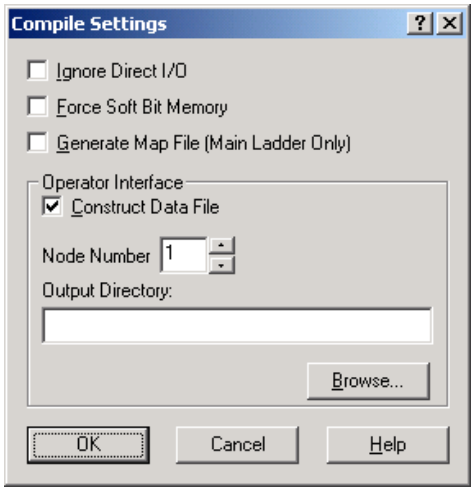
If the OK output of QS_C69_1 is OFF there is a programming error. Check for:

Problem	QS_C69_1 not operating properly
QS_C69_1 Output Conditions	OK = OFF PERR <> 0
1 - Check PERR: PERR = 1001 – QSDT structure size incorrect PERR = 1002 – STAT structure size incorrect PERR = 1003 – CTRL structure size incorrect PERR = 1004 – JOG structure size incorrect PERR = 1005 – HOME structure size incorrect PERR = 1006 – DCTL structure size incorrect PERR = 1007 – SETP structure size incorrect If an incorrect structure size error occurred make sure that the correct structure is programmed as the input to QS_C69_1, that the structures array index is not zero and that a revision changing the number of members in the structure has not occurred.	

If the OK output of QS_C69_1 is ON but the control is not communicating with the Cimrex C69 HMI and the link between the control and the C69 is RS232 serial communications then check for:

1 - Make sure that the initial value for QS1.OI_via_Ethernet is set to 0.
2 - Select View - Cimrex Diagnostics on the C69. See Driver 1 : Giddings & Lewis V 3.11.3 or later, this is the RS232 serial communications driver.

Problem	QS_C69 indicating OI error
QS_C69_1 Output Conditions	OK = ON PERR = 0 OIOK = OFF OIER = 9999 Cimrex status = *1:Node01, Comm Error*
OIER = 9999 indicates that one second has elapsed without the control receiving a communication packet from the Cimrex C69. 1 - Check the cable between the control User Port and the Cimrex C69. 2 - If Cimrex status = *1:Addr1, Comm Err* the Ethernet driver is loaded in the C69. The RS232 driver must be selected and the project transferred to the C69.	
Problem	QS_C69 indicating OI error
QS_C69_1 Output Conditions	OK = ON PERR = 0 OIOK = OFF OIER = 1,2,3 or4 Cimrex status = *1:Node01, Comm Error*
OIER = 1,2,3 or 4 indicates that the OID file checksum in the control and the OID file checksum in the Cimrex C69 do not match. 1 - In PiCPro select Compile, Settings, check to see that the checkbox for Construct Data File is checked and the Node Number is set to 1 as shown below. If the compile settings were incorrect fix them and do a compile and download. 2 - In PiCPro if the attributes of a new variable have been set to Global then after compile of the program the new OID file must be imported into the Cimrex terminal. See the Introduction to Quick Start.pps for a step-by-step description of this process. Using Cimrex Prog select View - Name List - Import - select your main ladders OID file name - OK - OK to the default Separator and OK to the default Rebind then transfer the project to the C69.	



If the OK output of QS_C69_1 is ON but the control is not communicating with the Cimrex C69 HMI and the link between the control and the C69 is Ethernet TCP/IP then check for:

1 - Make sure that the initial value for QS1.OI_via_Ethernet is set to 1.
2 - Select View - Cimrex Diagnostics on the C69. See Driver 1 : Giddings & Lewis Eth V 3.13.1 or later, this is the Ethernet TCP/IP communications driver.

Problem	QS_C69 indicating OI error
QS_C69_1 Output Conditions	OK = ON PERR = 0 OIOK = OFF OIER = 1003
1 - The control did not detect an Ethernet TCP/IP interface module in the slot specified by the initial value of QS1.Ethernet_Slot. Check the initial value of this variable using Software Declarations.	
Problem	QS_C69 indicating OI error
QS_C69_1 Output Conditions	OK = ON PERR = 0 OIOK = OFF OIER = 9999 Cimrex status = *1:Addr1, Comm Error*
OIER = 9999 indicates that one second has elapsed without the control receiving a communication packet from the Cimrex C69. 1 - Check the cable between the control Ethernet module and the Cimrex C69. 2 - If Cimrex status = *1:Node01, Comm Err* the RS232 driver is loaded in the C69. The Ethernet driver must be selected and the project transferred to the C69.	
Problem	QS_C69 indicating OI error
QS_C69_1 Output Conditions	OK = ON PERR = 0 OIOK = OFF OIER = 1,2,3 or4 Cimrex status = *1:Addr1, OIDChecksum*
OIER = 1,2,3 or 4 indicates that the OID file checksum in the control and the OID file checksum in the Cimrex C69 do not match. 1 - In PiCPro select Compile, Settings, check to see that the checkbox for Construct Data File is checked and the Node Number is set to 1. 2 - In PiCPro if the attributes of a new variable have been set to Global then after compile of the program the new OID file must be imported into the Cimrex terminal. See the Introduction to Quick Start.pps for a step-by-step description of this process. Using Cimrex Prog select View - Name List - Import - select your main ladders OID file name - OK - OK to the default Separator and OK to the default Rebind then transfer the project to the C69.	