LCC–Daisy Chain Kit

Kit contents

The Daisy Chain Kit contains:

1. Daisy Chain Splitter (containing 3 x RJ25 socket)
2. 2 x one-on-one cable (RJ25, Gray, 30 cm length, 6 wires)
3. 1 or more x Cross link cable (RJ11, Black cable, 20 cm length, 4 wires)

The number of cross link cables that you need depend on the amount of controllers in the chain. For 2 controllers you need only one cross link cable, for 3 controllers you need 2 cross link cables, for 4 controllers you need 3 cross link cables etc. The daisy chain kit has a part numbering system. The part numbering for a standard daisy chain kit is DCK-x1. If you need more cross link cables the number behind the “x” indicates the amount of required cross link cables (DCK-x2 contains two cross link cables).
Functionality

The daisy chain functionality provides the possibility to use one serial port for multiple controllers. It does NOT enable direct communication between controllers. Since the LCC10 and LCC11 controller is only capable of acting as a slave the controller can not send commands to another controller. One can set up some form of communication between two controllers by using digital and/or analog handshaking. For the daisy chain to work each controller must have an unique node id and the daisy chain bit must be set for every controller in the chain. This bit is already set by standard config files. The message flow is as follows:
All controllers in the chain read messages that are received on port 2. If the node id of a received message does not match the node id of the controller (or is 0 that means all nodes) then the controller repeats the message on port1.

Preparing LCC controllers for Daisy Chaining

It is best to start to develop the application of each axis separately by connecting directly to the controller (no daisy chain used at that time). This means setting the node id (using MotionLab) or the axis, loading the configuration into the controller (using SMAC Control Center) and creating the program (using SMAC Control Center). Then you can connect the daisy chain and by selecting the node id you can talk and receive messages from all different node id’s on the chained network. Note that relaying one command to the next node can take about 12 ms when using firmware 1.0R. This means that if you would have 3 nodes (=3 controllers) and you would send out a message to all 3 simultaneously (node id 0 means all nodes) the first would respond 24 msec earlier than the third node in the network.
Connecting LCC controllers using Daisy Chaining

In the two images below the connections that need to be made are shown. For the connectivity to a serial port (of a PC or other device that is serving as a master controller) you also need a RS232 kit. Note that the gray one-on-one cables go to the first and last controller of the chain (channel 2 of the splitter must connect to com2 of the first controller and channel 1 of the splitter must connect to com1 of the last controller.

Daisy Chain with two controllers using DCK-x1
Daisy Chain with three controllers using DCK-x2