

AccessionIndex: TCD-SCSS-T.20230524.001

Accession Date: 24-May-2023

Accession By: Dr.Brian Coghlan

Object name: Echelon Lonworks module

Vintage: 1996

Synopsis: Control module for adding Lonworks to an existing system. Model CM 55020-10. S/N: 801-1059-01 G9841C.

**Description:**

This module is a twisted pair control module designed to allow the addition of LonWorks technology [1] to an existing control system. LonWorks is an open standard (ISO/IEC-14908) for networking platforms specifically created to address the needs of control applications, especially in the built environment, e.g. street lighting, heating & air conditioning systems, light rail, security systems and stadiums. It uses standardised variables to describe physical things, and has been relatively successful with many tens of millions of network nodes. The standard is based on a protocol created by Echelon Corporation for networking devices over media

Echelon's CM 55020-10 FTT-10A Control Module [2] was designed for use in OEM products, where the size of the module allowed for fitting in confined spaces. It consisted of a small circuit card containing a Neuron 3150 chip, a PROM or Flash memory socket, a FTT-10A communications transceiver, and connectors for power, input/output and the network. It measured 61W x 18H x 41D mm (2.4W x 0.7H x 1.6D inches).

The Neuron 3150 processor [3] was designed by Echelon for use with Lonworks, and fabricated by Toshiba. It consisted of three 8-bit processors, and initially was the only way to implement a LonTalk protocol node. It was used in the large majority of LonWorks platform-based hardware. The first CPU measured input parameters, timing events, made logical decisions, and ran user applications. The second CPU executed the LonTalk protocol, and encoded/decoded messages. The third CPU controlled network communications ports for send/receive packets. To support these three CPUs, the Neuron included EEPROM, RAM and an external memory port.

The FTT-10A [4] was an external through-hole LonWorks twisted two-wire transformer-isolated, free topology communication transceiver, operating at 78kbps, and using differential Manchester encoding. It was used with 3120 and 3150 Neuron processors to ensure reliable communication.

The homepage for this catalog is at: <https://www.scss.tcd.ie/SCSSTreasuresCatalog/>  
Click '*Accession Index*' (1st column listed) for related folder, or '*About*' for further guidance.  
Some of the items below may be more properly part of other categories of this catalog,  
but are listed here for convenience.

Accession Index	Object with Identification
<a href="#">TCD-SCSS-T.20230524.001</a>	Echelon Lonworks module, 1996. Control module for adding Lonworks to an existing system. Model CM 55020-10. S/N: 801-1059-01 G9841C

## References:

1. Wikipedia, *LonWorks*, see:  
<https://en.wikipedia.org/wiki/LonWorks>  
Last browsed to on 24-May-2023.
2. Echelon, *CM 55020 FTT-10A Control Module*, see:  
<https://www.scss.tcd.ie/SCSSTreasuresCatalog/hardware/TCD-SCSS-T.20230524.001/Echelon-550xx-ControlModules.pdf>  
Also see:  
<https://www.arigo-software.de/media/original/178/4987758410632761367/550xx.pdf>  
Last browsed to on 24-May-2023.
3. Toshiba, *TMPN3150/3120 Neuron Chip*, see:  
<https://www.scss.tcd.ie/SCSSTreasuresCatalog/hardware/TCD-SCSS-T.20230524.001/Toshiba-Neuron-TMPN3120-TMPN3150-Processors.pdf>  
Also see:  
<https://www.elsys.biz/wpblog/wp-content/uploads/2017/10/Toshiba-Neuron-Data-book.pdf>  
Last browsed to on 24-May-2023.
4. Echelon, *TT-10A Free Topology Twisted Pair Transceiver, Model 50051*, see:  
<https://www.scss.tcd.ie/SCSSTreasuresCatalog/hardware/TCD-SCSS-T.20230524.001/Echelon-FTT-10A-Transceiver.pdf>  
Also see:  
<https://advdownload.advantech.com/productfile/Downloadfile3/1-R46KG/FTT-10A.pdf>  
Last browsed to on 24-May-2023.



Figure 1: Echelon CM 55020-10 FTT-10A Control Module, top view

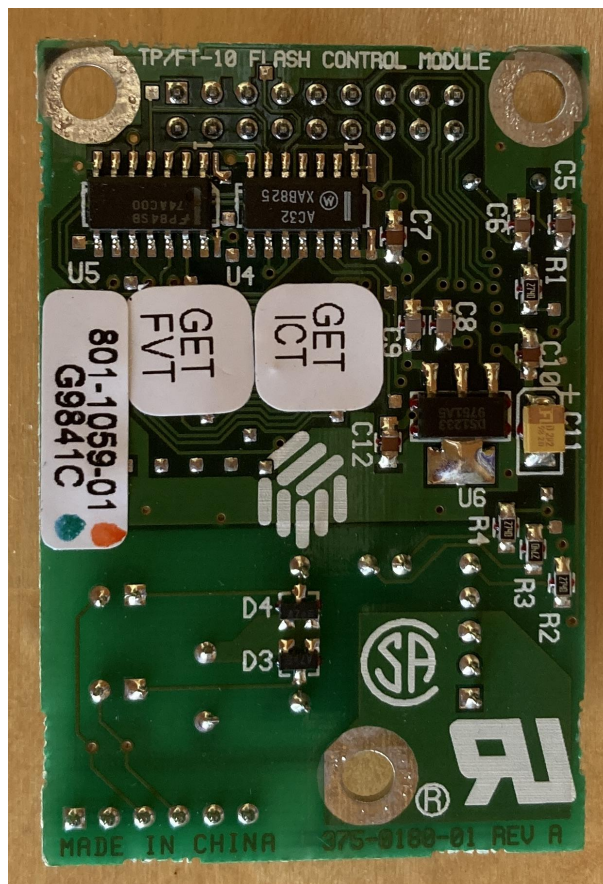


Figure 2: Echelon CM 55020-10 FTT-10A Control Module, bottom view