Fast Clock Display Circuit Board
For NCE DCC Systems

Circuit board is RoHS compliant. Using RoHS-compliant (non-lead) solder and components will result in a finished board that is also RoHS compliant. If maintaining RoHS-compliancy is not important to you, you may use solder containing lead or components that are not RoHS-compliant.

Assembly and installation instructions can be found on our website at:
http://circuits4tracks.daxack.ca/php/productdocs.php?id=4

Part List

Part Number	Description	Digi-Key Number
C1	33 µF, 35 volt electrolytic capacitor	565-1569-ND
C2	100 nF, 10 volt or greater capacitor	BC2665TB-ND
D1	1N4148 diode	1N4148TATB-ND
DSPY1	LED 7-Segment, 0.4" 4-Digit Super Red	160-1550-5-ND
J1	PJ-007 power jack	CP-2519-ND
R1-R7	680 ohm, ¼ watt resistor	CF14JT680RTR-ND
U1	PIC16F1508 micro-controller	PIC16F1508-I/P-ND
VR1	78L05Z regulator	AS78L05ZTR-E1DICT-ND
X1- X3	6P6C modular connector (RJ-12)	AE10395-ND
JP1	2x2 header *	609-3375-ND **
JP2	6-pin 90° header †	609-3327-ND

* Only used for temperature display modes
** Digikey part has 20 positions - a 2-position may be cut from it
† Only used for ICSP (In Circuit Serial Programming)

R8 and R9 on schematic diagram are pre-installed SMT devices on current circuit boards.

Circuits4Tracks can supply individual parts where needed.
Send an email to circuits@daxack.ca for information.

Microcontroller Programming

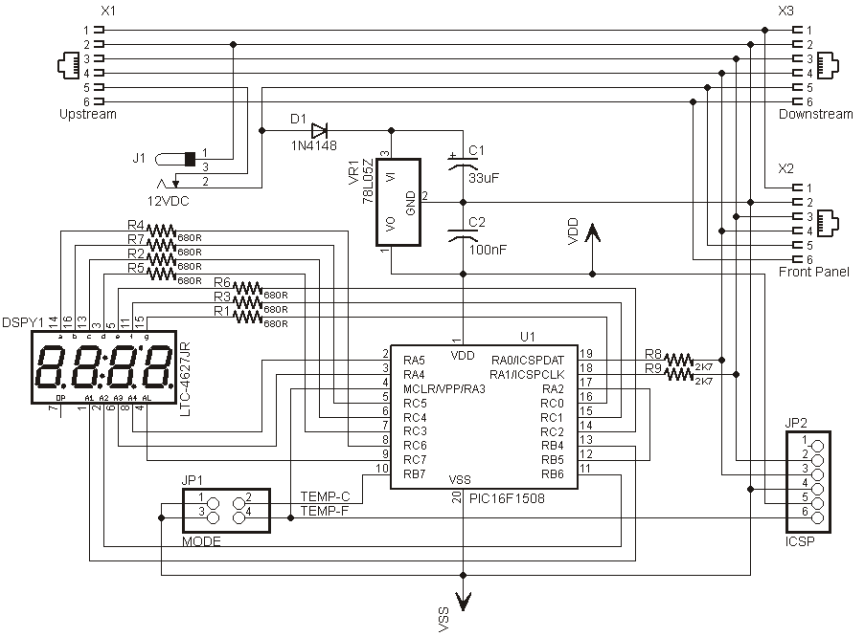
If you are using your own microcontroller, you will need to program it with our software. A HEX format image is available from our website at:

http://circuits4tracks.daxack.ca/php/productdocs.php?id=4

Instead of programming the microcontroller prior to installation, our circuit board has a connector (X6) available for in circuit serial programming (ICSP). It will be necessary to install a 6-pin header on the board.

When using ICSP, the Fast Clock Display cannot be connected to a cab bus (i.e.: use a separate 12 volt power supply) and there should be no temperature mode jumpers installed (i.e.: no jumpers on JP1).

Circuit Schematic



This document is available in PDF format on our website.