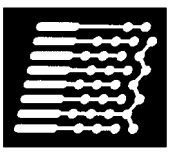
R-55e Audio Console

AUDIOARTS ENGINEERING

TECHNICAL MANUAL

July 2004



R-55e Audio Console Technical Manual - 1st Edition

©2004 Audioarts® Engineering*

AUDIOARTS ENGINEERING
600 Industrial Drive
New Bern, North Carolina 28562
252-638-7000

*a division of Wheatstone Corporation

Attention!

Federal Communications Commission (FCC) Compliance Notice:
Radio Frequency Notice

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

This equipment must be installed and wired properly in order to assure compliance with FCC regulations.

Caution! ***Any modifications not expressly approved in writing by Audioarts could void the user's authority to operate this equipment.***

R-55e Technical Manual

Table of Contents

Chapter 3 - Stereo Line Input (SL-55e)

Chapter 4 - Output Module (OM-55e)

Chapter 5 - Control Room/Studio Module (CRS-55e)

Chapter 6 - Second Studio Module (SS-55e) - optional

Chapter 7 - Superphone Module (SPN-55e) - optional

Chapter 8 - Line Select (LS-55e) - optional

Chapter 9 - Tape Remote Module (TR-55e) - optional

Chapter 10 - Meterbridge

Chapter 11 - Parts List

Chapter 12 - Schematics and Load Sheets

Installation and Power

Chapter Contents

Installation and Power

Unpacking the Console

The R-55e console is shipped as two packages. One (larger) carton contains the console and technical documentation; and the other (smaller) contains the rackmount power supply, connecting cable, and connector kit.

Countertop Mounting

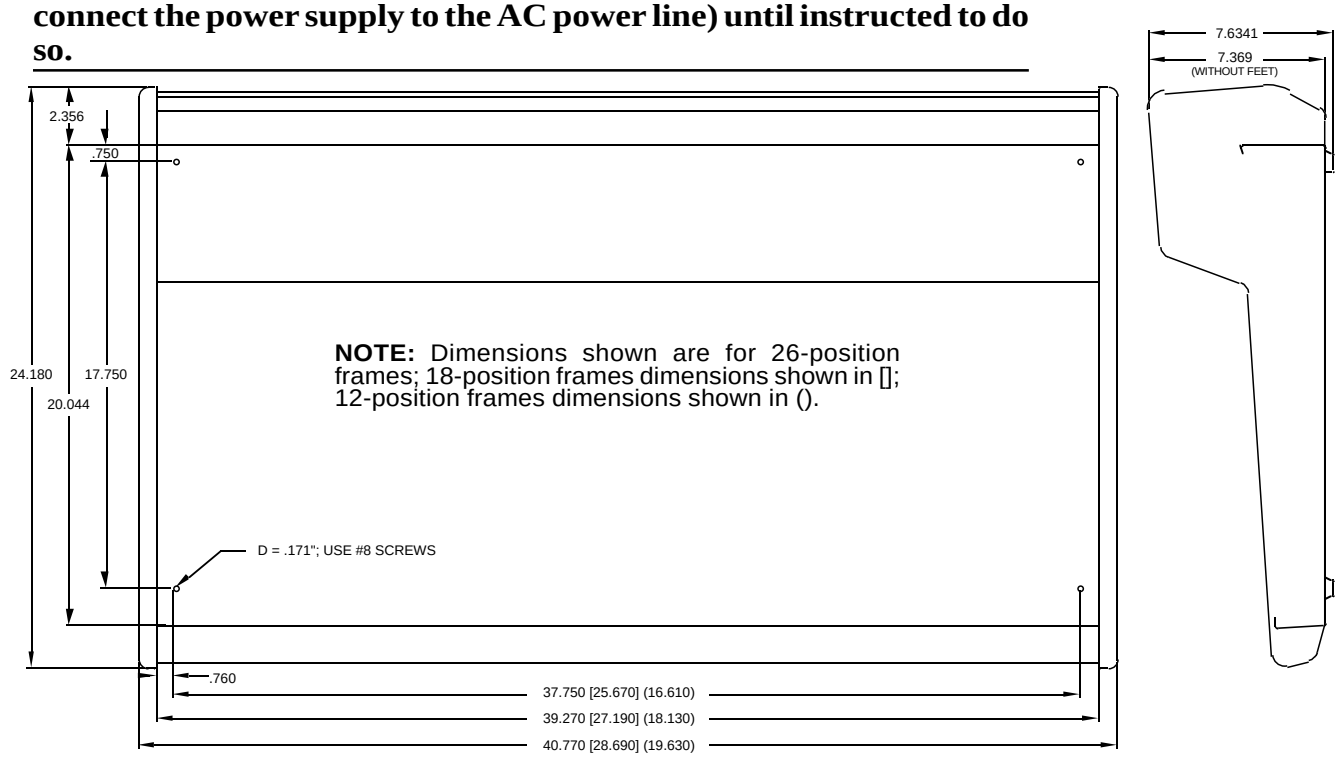
The R-55e audio console is designed for countertop mounting. Console placement should avoid proximity to any electromagnetic fields, such as large power transformers, motors, and fluorescent lighting fixtures. If you will be securing the console to the counter top, you may want to pre-drill the mounting holes (see sketch below).

Set the console in place on the counter, and remove the screws that hold down the first and the last modules in place (two per module). Carefully remove those modules from the frame. Attach the console mainframe to the counter top, using the holes provided in the bottom of the chassis and screws appropriate to the counter material, and reinstall the removed modules.

NOTE: This console contains static-sensitive devices. Normal precautions against static discharge should be observed when handling individual modules.

The console extends approximately 7 5/8" above the countertop at the meterbridge. The hinged meterbridge will require 14" above the countertop surface and 4 3/4" behind the rear meterbridge to open freely.

Do not connect the R-55e console to its power supply (and do not connect the power supply to the AC power line) until instructed to do so.



System Ground

The first step is to ground the console.

Note that as supplied from the factory, console rackmount power supply common, audio ground, and the R-55e mainframe are connected together at the console, but are NOT connected to electrical ground and the chassis of the power supply. Safety requirements dictate that a positive connection from the console mainframe to electrical ground be made in the completed installation. Use the grounding lug on the rear of the mainframe to establish your system ground. The grounding lug may be found at the rear of the console, on the rear frame panel, to the left if you are looking at the rear of the console.

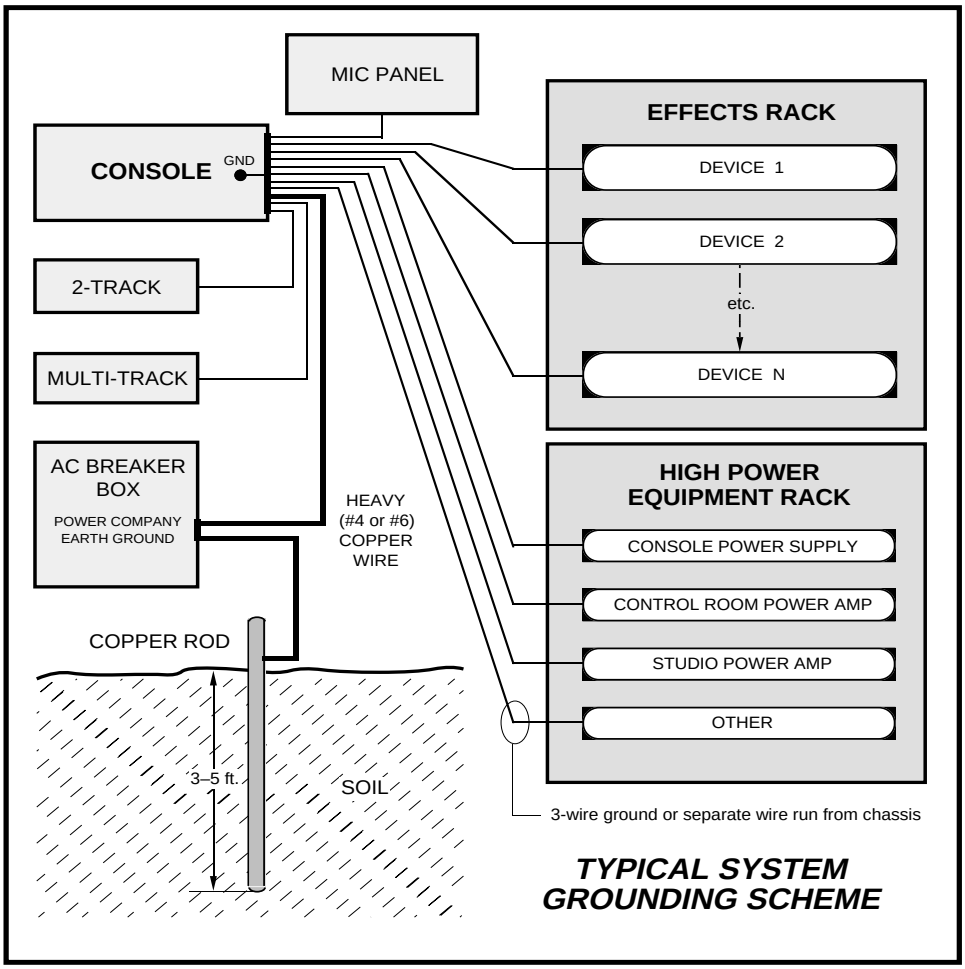
The system ground serves two important purposes:

(1) It provides a zero signal reference point for the entire audio system;

(2) It assures safety from electrical shock.

There exist two terms that one encounters in a discussion of ground:

(A) EARTH GROUND, which is usually a heavy copper rod driven into the soil adjacent to the building (around 6 feet down) or a connection to the copper water pipes leading into the building. Either is acceptable (unless, of course, the water pipe is made of plastic).



TYPICAL SYSTEM GROUNDING SCHEME

Tie the console ground lug terminal strip to the system earth ground. Tie every piece of equipment in the entire audio system to the console ground lug terminal strip.

(B) THE POWER COMPANY EARTH CONDUCTOR that enters the building at the power line breaker box; this conductor should be (and is often by code) tied to the above-mentioned earth ground at one point. This point is the SYSTEM EARTH GROUND.

TIE THE CONSOLE GROUND LUG TO THE SYSTEM EARTH GROUND. TIE EVERY PIECE OF EQUIPMENT IN THE ENTIRE AUDIO SYSTEM TO THE CONSOLE GROUND LUG. If the system earth ground point is inaccessible, tie the console ground lug to the power company earth conductor at the main breaker box (see drawing "Typical Grounding Scheme" on previous page).

Each piece of equipment should be connected by its own ground wire (usually the round third pin on the AC cord). This means that every AC outlet must have a separate conductor run to the console ground lug; the outlets cannot be daisy-chained as is normally encountered in commercial and residential AC systems. Any equipment not supplied with 3-wire AC cables must have individual ground wires (16 gauge or larger) connected to their chassis grounds and then run to the console ground lug terminal strip.

Further Grounding Details

Check all equipment to be absolutely certain that each unit is power transformer isolated from the AC mains to prevent safety hazards.

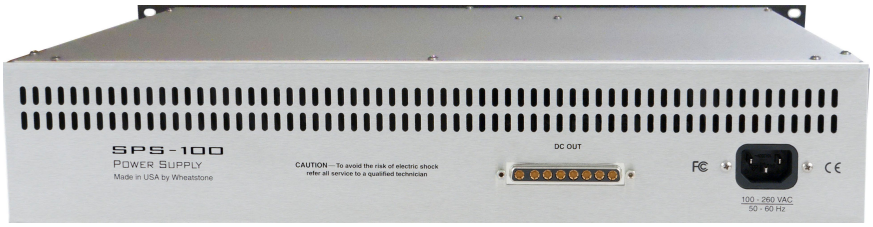
It is assumed that in each piece of audio equipment the audio ground and the chassis are tied together at some point. Any piece of equipment lacking a grounded chassis is likely to be prone to interference problems.

Locate all unbalanced audio equipment in the same rack if possible, to minimize chassis ground potential differences. It may also be helpful to insulate each piece of unbalanced equipment from its mounting rails in the rack by means of nylon 10-32 screws and insulating washers between rails and faceplates.

Once the system is properly grounded, proceed with the console power supply installation and connection (next section).

Power Supply

Front view of the SPS-100 rackmount power supply



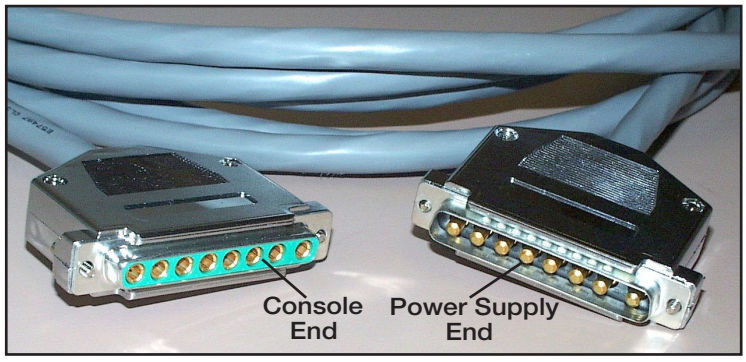
Rear view of the SPS-100 rackmount power supply

The R-55e console is powered by an Audioarts Model SPS-100 rackmount power supply. This unit occupies two 19" wide rack spaces (total height 3-1/2"). Convection cooled, it requires ample ventilation space above and below it.

If failsafe redundant supplies have been ordered, you will be installing two units and an additional rackmount panel.

Note that the power supply should be mounted in an equipment rack within fifteen feet of the console (but no closer than 3 feet). Avoid locating any high gain equipment (such as phono preamps, tape recorders, etc.) too near the rackmount supplies, to avoid magnetic interference into that equipment.

Once the supply is rackmounted, it should be connected to the console using the factory supplied cable. The cable has two different types of connectors on it: an 8-pin female connector that connects to the console's power supply connector, and an 8-pin male connector that plugs into the rear of the rackmount SPS-100 power supply. The console's power supply connector is located at the rear of the console, at the right end of the meterbridge bottom pan. If you are using one supply, connect it to the console connector. If you are using two supplies (failsafe option), connect the long power supply cable to the center connector of the rackmount failsafe panel. Then connect one supply with a short cable to either of the two remaining connectors on the failsafe panel and connect the second supply with a short cable to the last connector.



PS Cable Pinout

Console End 8-pin Connector *Female* PIN			Power Supply End 8-pin Connector *Male* PIN
VIO	1	Phantom	1 VIO
GRN	2	Digital Common	2 GRN
BRN	3	Digital Common	3 BRN
WHT	4	+ Digital	4 WHT
ORG	5	+ Digital	5 ORG
BLK	6	Audio Common	6 BLK
BLU	7	- V	7 BLU
RED	8	+ V	8 RED

Note that each power supply is fitted with a 3-wire grounded AC cord that should be plugged into a "clean" AC power source, that is, an AC source that feeds only the control room audio gear. This source should be a separate feed from those powering lighting, air-conditioning, or any other non-audio machinery. The third pin ground wire of the AC source should be tied to the central system ground point.

The power feed recommended in the text is often installed and referred to in studios as an “isolated AC ground” outlet. It is usually orange in color.

Failsafe Dual Redundant Supply

Wheatstone failsafe power supply systems use two separate rackmount power supplies for each piece of powered equipment. Though either is capable of running a full load on its own, in failsafe operation both units run in tandem: if one fails, the other takes over, assuring uninterrupted operation.

In order for failsafe systems to perform as designed, always have BOTH rackmount supplies powered up and connected to their associated equipment.

Energizing

Assuming the R-55e console mainframe is properly placed and grounded, and its SPS-100 power supply correctly rackmounted and connected to the console, you may now energize the power supply by plugging it into the AC mains. The console's VU meters will illuminate and individual module switches will assume factory default settings.

Note: To de-energize the console, unplug the rackmount power supply’s AC cord from the AC mains. ***Never de-energize the console by disconnecting the cable that connects the console and power supply together.***

Once you have verified proper power-up, unplug the rackmount power supply to de-energize the console. You may now proceed to wire up audio and control connections.

Audio and Control Wiring

All audio and control I/O connections to the R-55e console are made through multipin DB-25 connectors located on the top of each module. The output module also has a DB-9 connector. The factory supplied hand crimping tool is used for all I/O wiring connections to and from the console (see instruction on page 1-8).

Connection Procedures

As supplied from the factory, the console requires no logic connections to function. Therefore an orderly installation begins with the audio wiring. Note this manual is organized by module type (inputs, outputs, monitor modules, etc.); each chapter contains detailed wiring instructions for its module type. Proceed through the manual, chapter by chapter, until all modules have been wired to suit your particular installation requirements. Once proper audio operation is verified, go back to each individual chapter and proceed with control wiring.

Unbalanced Connections (analog audio)

ANALOG INPUTS — Wire to the console with typical shielded two conductor cable (like Belden 9451), just as if you were connecting a balanced source. At the unbalanced source machine's output, connect the black wire (LOW) to the shield. If the machine has a -10 dBu output, don't hesitate to turn module input gain as high as is needed.

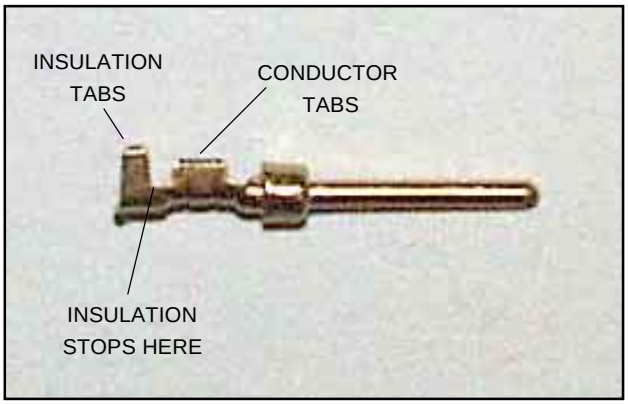
ANALOG OUTPUTS — R-55e consoles use an electronically balanced output circuit. Care must be exercised when connecting them to an unbalanced system. While temporarily shorting the low side of the output signal to ground will not cause any problems, continued operation will result in increased distortion, decreased reliability, and possible oscillation problems. If you must connect the output to an unbalanced system, be sure to leave the low side unterminated, and connect the unbalanced system to the high side output and shield connections.

Modules Layout

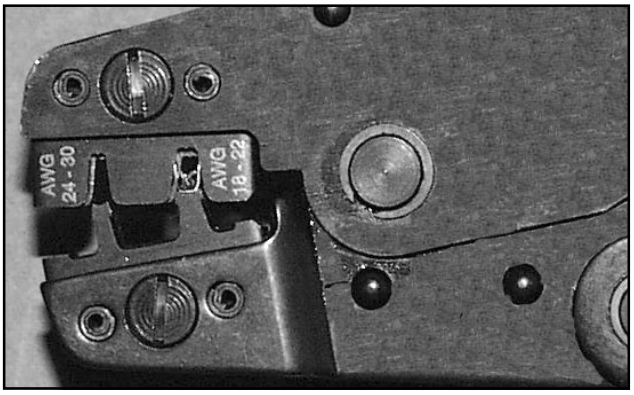
The R-55e console's mainframe comes supplied with up to 20 (for 26 pos. frame), 12 (for 18 pos. frame), or 8 (for 12 pos. frame) line level input modules along with an output module, and a control room/studio module. Each module type has its assigned slot (see drawings on pages 1-11, 11-12, and 1-13). To handle mic level inputs, a quad mic preamp is included. Also there can be optional modules: a superphone, a line select, a second studio, and a tape remote module. Optional modules (except second studio) can be placed in any input slot. The optional second studio module has a dedicated slot (see layout drawings).

HAND CRIMP TOOL WIRING INSTRUCTIONS

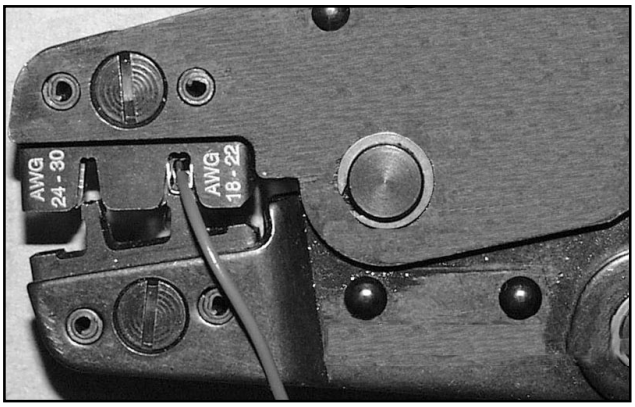
The supplied hand crimping tool (W/S#850067) is used for all I/O wiring connections to and from the console. It is to be used with the supplied pin (figure 1) intended for 22"-28" gauge wire.



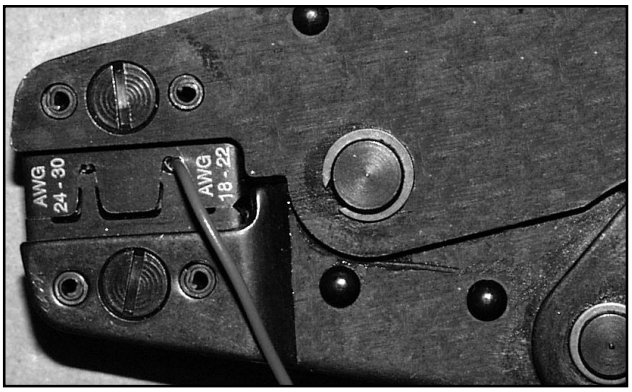
(1) Pin crimp terminal



(2) The terminal conductor tabs (pointing UP) are placed in anvil 18-22; the terminal's insulation tabs extend in front towards the camera.



(3) The stripped wire is placed into the terminal and crimped. Note the wire's insulation must stop just short of the conductor tabs (detail)



(4) Final step: jaws fully closed; the insulation tabs have been crimped.

1) Strip wire approximately 3/16" (insert in proper wire stripper, rotate one half turn, and pull insulation off wire).

2) Leaving wire aside for the moment, with crimping tool fully open (engraved side toward you) bring a terminal into position from the unmarked side of the tool. Place the conductor tabs (inner set as shown in figure 1) on the "18-22" or "24-30" (depending on the wire) anvil (slightly curved surface) so that the circular portion of the tabs rests in the curved surface of the anvil and the two tabs face up into the walls of the female jaw. The insulation tabs will be flush with the top of the tool (figure 2).

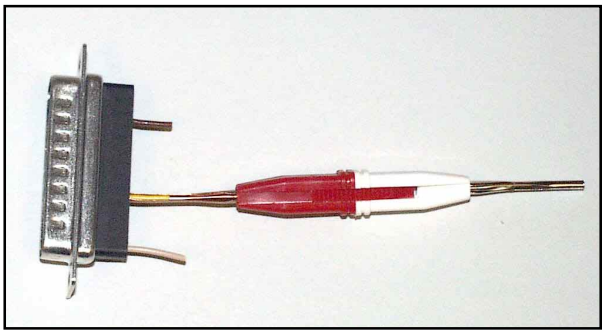
3) Close tool very slightly, only to the point of holding the terminal in position (figure 2).

4) Insert wire into terminal until wire insulation is stopped by conductor tabs (figure 3). CRIMP by squeezing handles until jaws are fully closed (figure 4).

5) If there is an insertion error or if a circuit change is needed, you'll need to use an extractor tool to remove terminals (see next page).

Note that metallized plastic hoods for each connector are also supplied with the console.

EXTRACTOR PIN INSTRUCTIONS

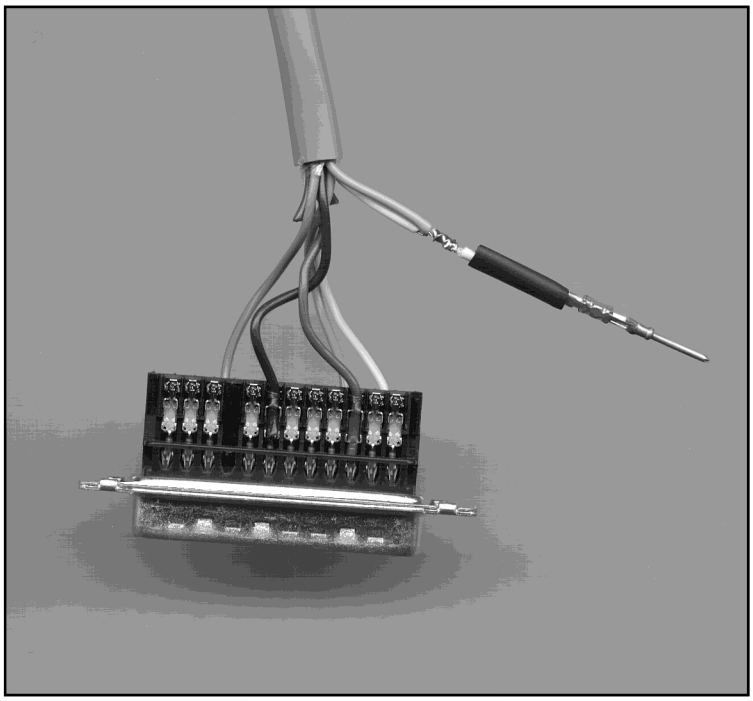


(5) Place extractor tip over pin terminal to be removed.

If you accidentally insert a crimp terminal pin into the wrong socket, you'll need to use the supplied pin extractor tool (W/S#850069) to remove terminal pin, and correct your mistake without having to sacrifice a connector. Place extractor tip (red side) over terminal pin to be removed (figure 5), and press it downwards motion until tip rests upon Housing. Then pull out the terminal pin from Housing. It should never be necessary to discard a connector due to a wiring error.

Wiring Procedure - Double Connection to One Pin

ref: DB-25 male multi-pin connector



Most audio equipment machine interfaces (as well as Wheatstone consoles) use subminiature D-type connectors. Sometimes the interfaces require making two connections to a single DB pin. If the wiring has been set up using punchblocks, this is not a problem; however, for situations where direct machine-to-console wiring is used, Wheatstone recommends the following procedure:

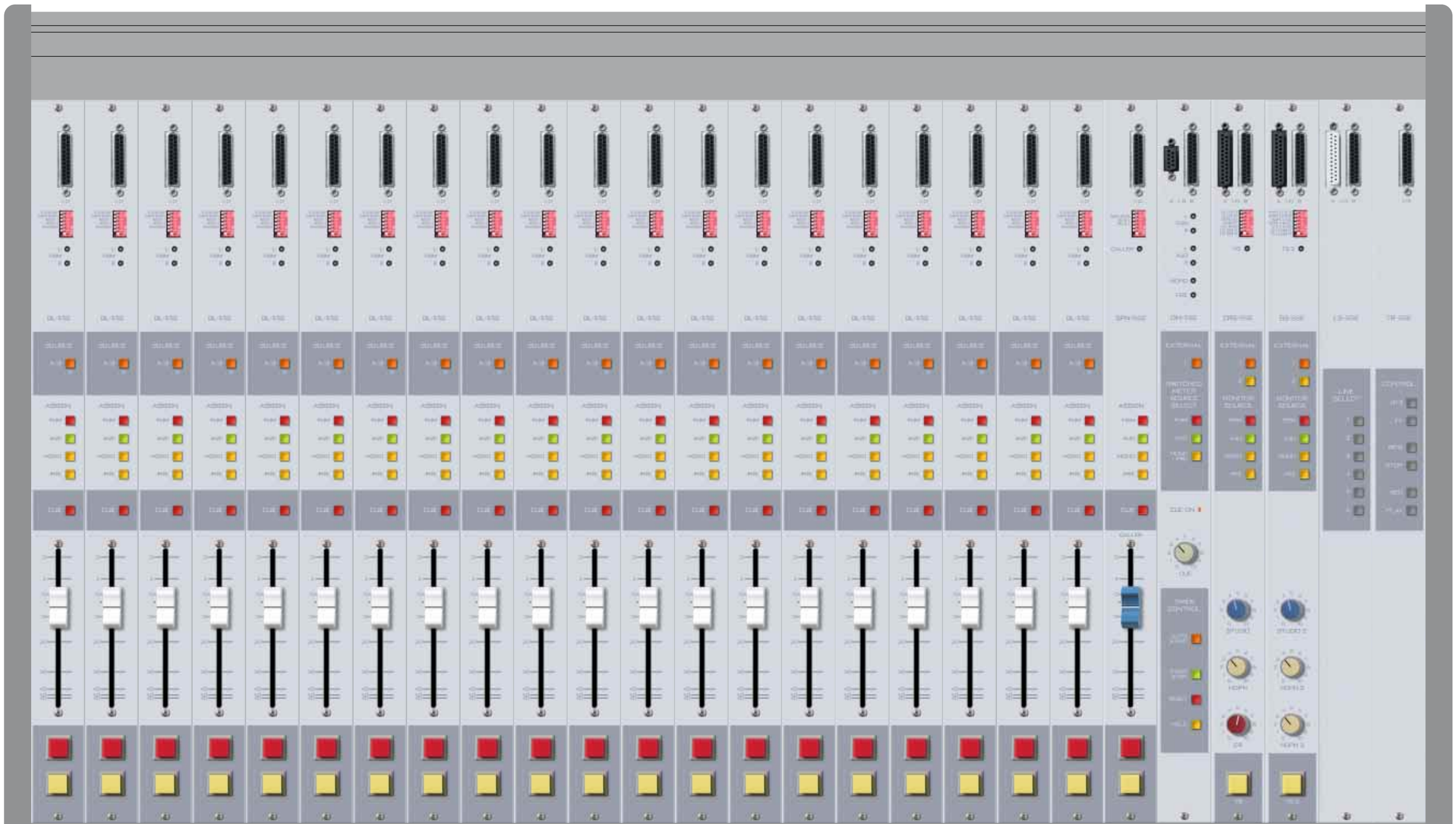
1) **Connect the first wire to the desired pin as you normally would.**
2) **Note connector pins may easily be removed from the DB-25 shell with the wire still attached: Hold the connector with the metal part down and observe its side. You will see a row of "Vees"—simply press the top of the selected vee together with a scribe or other sharp instrument; this will unlock the pin from the shell, allowing it to be removed.**
3) **With the pin removed, strip out a short section of insulation from the connected wire and wrap and solder the second wire to the first as shown above.**
4) **A short piece of heatshrink tubing (pictured here before being slid into place) completes the connection.**
5) **Re-insert the pin into the DB-25 shell, spreading the vee apart to lock it in place.**

NOTE: 1. CONSOLE CAN ACCOMMODATE UP TO 9 INPUT AND ACCESSORY MODULES (OPTIONAL MODULES—SUPERPHONE, LINE SELECT, AND TAPE REMOTE—CAN BE PLACED IN ANY SLOT POS. 1-9).
2. MASTER OUTPUT, CONTROL ROOM, AND OPTIONAL SECOND STUDIO MODULES HAVE THEIR DEDICATED SLOTS (AS SHOWN).
4. LAST SLOT AT THE RIGHT END OF THE FRAME COULD BE USED FOR OPTIONAL LINE SELECT AND TAPE REMOTE MODULES.

R-55e-12-POSITION FRAME - MODULES LAYOUT

NOTE: 1. CONSOLE CAN ACCOMMODATE UP TO 13 INPUT MODULES AND ACCESSORY MODULES (OPTIONAL MODULES—SUPERPHONE, LINE SELECT, AND TAPE REMOTE—CAN BE PLACED IN ANY SLOT POS. 1-13).
2. MASTER OUTPUT, CONTROL ROOM, AND OPTIONAL SECOND STUDIO MODULES HAVE THEIR DEDICATED SLOTS (AS SHOWN).
3. SECOND STUDIO SLOT COULD BE USED ALSO FOR OPTIONAL TAPE REMOTE OR LINE SELECT MODULE.
4. LAST TWO SLOTS AT THE RIGHT END OF THE FRAME SHOULD BE USED FOR OPTIONAL LINE SELECT AND TAPE REMOTE MODULES.

R-55e-18-POSITION FRAME - MODULES LAYOUT



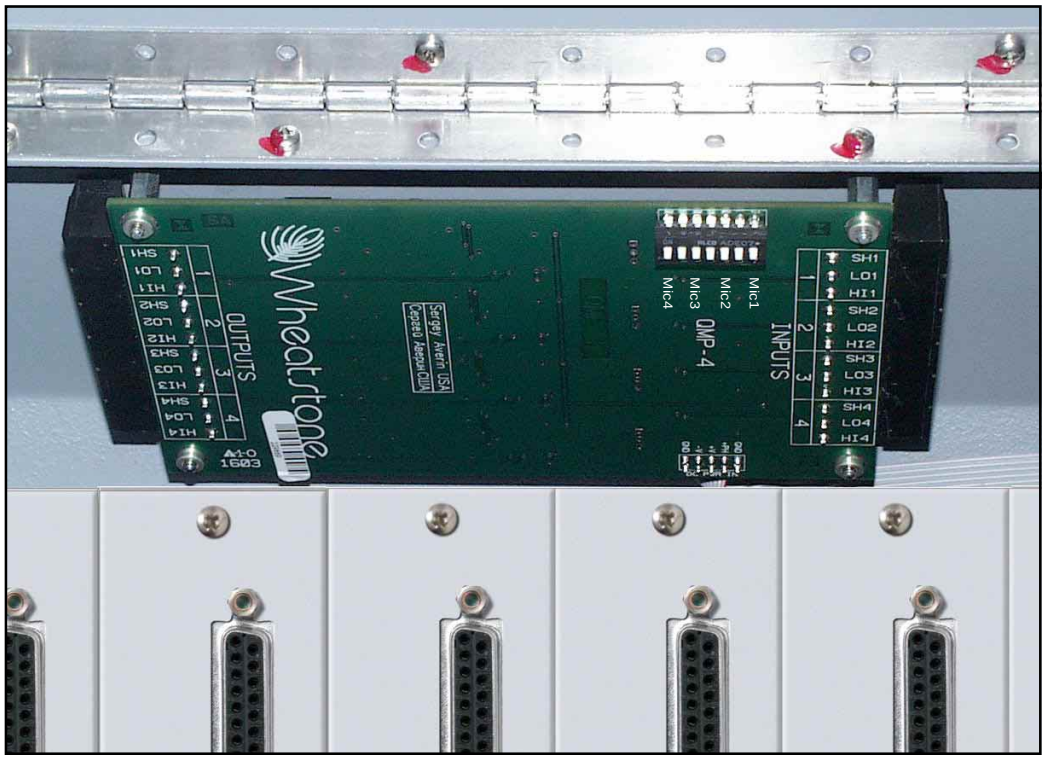
NOTE: 1. CONSOLE CAN ACCOMMODATE UP TO 21 INPUT AND ACCESSORY MODULES (OPTIONAL MODULES—SUPERPHONE, LINE SELECT, AND TAPE REMOTE—CAN BE PLACED IN ANY SLOT POS. 1-21).
2. MASTER OUTPUT, CONTROL ROOM, AND OPTIONAL SECOND STUDIO MODULES HAVE THEIR DEDICATED SLOTS (AS SHOWN).
3. SECOND STUDIO SLOT COULD BE USED ALSO FOR OPTIONAL TAPE REMOTE OR LINE SELECT MODULE.
4. LAST TWO SLOTS AT THE RIGHT END OF THE FRAME SHOULD BE USED FOR OPTIONAL LINE SELECT AND TAPE REMOTE MODULES.

R-55e-26-POSITION FRAME - MODULES LAYOUT

Quad Mic Preamp
(QMP-4)

Chapter Contents

Quad Mic Preamp
(QMP-4)



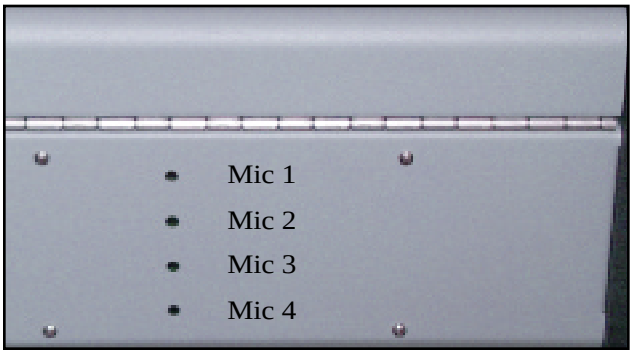
Overview

The QMP-4 is a quad mono microphone preamplifier and is mounted in the left side of the console meterbridge rear. Mic level sources are wired to QMP-4 mic preamp inputs. QMP-4 output signals are then wired to input pins of individual SL-55e input modules. Consoles are normally supplied as though the outputs of the mic preamp will be wired to A inputs of SL-55e modules 1-4.

Phantom power is available at each input port; it may be selectively activated by a dipswitch SW1 (the factory default is OFF).

Recessed meterbridge rear trimpots (range 38dB) adjust the level of each input independently.

Example: with a microphone input of –60dBm @150Ω at the port, gain trim can set levels from -22dBu to +16dBu (note maximum preamp gain is +76dB).



All audio input and output signals are made via two 12-position plug terminals mounted on the QMP-4 PCB.

Internal Programming Options

Internal programming for the quad mic preamp is made via printed circuit board (PCB) mounted seven-position dipswitch SW1. Note that when a dipswitch position is thrown to the right it is ON.

Phantom Power

Dipswitch SW1 turns phantom power on for the four microphone input ports.

SW1 position 7 activates phantom power for microphone 1
SW1 position 5 activates phantom power for microphone 2
SW1 position 3 activates phantom power for microphone 3
SW1 position 1 activates phantom power for microphone 4

Note the factory default setting for phantom power is OFF.

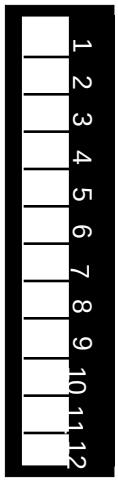
Hook-Ups

As stated before, all user wiring to and from the QMP-4 takes place at the 12-position plug terminals mounted on the QMP-4 PCB. A pinout drawing on page 2-6 shows all wiring connections at a glance.

Audio Input Connections (CT3)

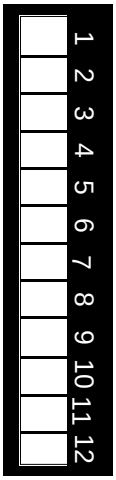
All signals are analog mono. The mic input level is normally -50dBu, balanced.

Pin 1 – Mic **1** In SH
Pin 2 – Mic **1** In LO
Pin 3 – Mic **1** In HI
Pin 4 – Mic **2** In SH
Pin 5 – Mic **2** In LO
Pin 6 – Mic **2** In HI



Typical 12-position plug terminal

Pin 7 – Mic **3** In SH
Pin 8 – Mic **3** In LO
Pin 9 – Mic **3** In HI
Pin 10 – Mic **4** In SH
Pin 11 – Mic **4** In LO
Pin 12 – Mic **4** In HI



Typical 12-position plug terminal

Audio Output Connections (CT4)

All signals are analog mono. The mic output level is normally +4dBu, balanced.

Pin 12 – Mic **1** Out SH
Pin 11 – Mic **1** Out LO
Pin 10 – Mic **1** Out HI
Pin 9 – Mic **2** Out SH
Pin 8 – Mic **2** Out LO
Pin 7 – Mic **2** Out HI
Pin 6 – Mic **3** Out SH
Pin 5 – Mic **3** Out LO
Pin 4 – Mic **3** Out HI
Pin 3 – Mic **4** Out SH
Pin 2 – Mic **4** Out LO
Pin 1 – Mic **4** Out HI

Note that each output wires in parallel to the left and right input channels of an input stereo module (SL-55e).

For example:

Pin 12 – Mic 1 Out SH wires to
- Pin 25 - Line A Lt In SH
- Pin 11 - Line A Rt In SH

Pin 11 – Mic 1 Out LO wires to
- Pin 12 - Line A Lt In LO
- Pin 23 - Line A Rt In LO

Pin 10 – Mic 1 Out HI wires to
- Pin 24 - Line A Lt In HI
- Pin 10 - Line A Rt In HI

Power Connections (CT7)

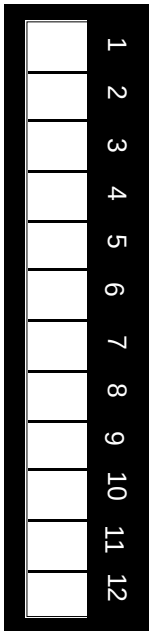
A ribbon cable connects the 10-pin connector on the QMP-4 (CT7) to the 10-pin connector mounted on the center of the MBR-2000 motherboard (CT8) or MBR-55 motherboard (CT18) to provide power to the microphone preamplifier.

Pin 1 – Analog Ground
Pin 2 – Analog Ground
Pin 3 - +Phantom V
Pin 4 – +Phantom V
Pin 5 – +V In
Pin 6 – +V In
Pin 7 – -V In
Pin 8 – -V In
Pin 9 – Analog Ground
Pin 10 – Analog Ground

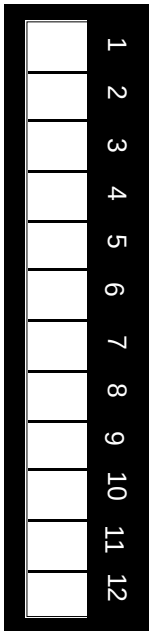
QMP-4 Quad Mic Preamp

Plug Terminal Pinouts

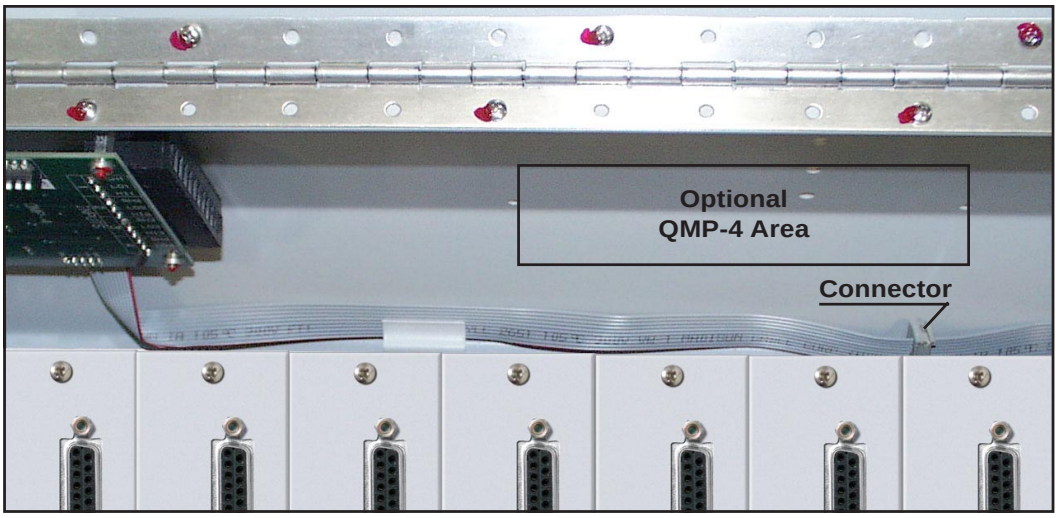
INPUT PORTS ANALOG



OUTPUT PORTS ANALOG



Installing the Optional Second QMP-4 Mic Preamp



The optional second QMP-4 comes complete with mounting hardware. The ribbon cable, installed at the factory to provide power to the pre-installed QMP-4 card, also includes a second plug ("Connector" on the picture above) for connecting the optional QMP-4 card. Handle the 10-pin plug on the ribbon cable assembly with care. Perform the following steps to install the QMP-4:

- turn off the power to the console;
- swing the meterbridge up and back until it rests in a fully opened position;
- plug in the ribbon cable connector to the 10-pin boxed header on the QMP-4 board (CT7);
- attach the QMP-4 preamp assembly directly to the right of the factory installed preamp (located at the lefthand end of the meterbridge), using four type 4-40x1/4 pan head screws and four nylon standoffs through the four predrilled holes on the meterbridge rear ("Optional QMP-4 Area" on the picture above); orient it to match the factory installed QMP-4;
- connect the required audio wiring to the 12-pin plug terminals on the QMP-4 card, referring to the "Hook-Ups" chart (see pages 2-3 - 2-5);
- close the meterbridge.

This completes the optional QMP-4 installation procedure.

NOTE: There is not enough room for an optional QMP-4 Mic Preamp in the 8 input 12-position frame.

Stereo Line Input (SL-55e)

Chapter Contents

Stereo Line Input (SL-55e)

Module Overview

SL-55e modules are for stereo line input signals.

Each module accepts two stereo sources: A and B, switched at the top of the module. Recessed front panel multi-turn trimpots adjust the left and right levels. Output switches assign the selected source signal to any combination of the console's four outputs: two stereo outputs—PGM (program) and AUD (audition); and two mono outputs—MONO and PRE. NOTE: the module does not need to be ON to feed the PRE output.

A CUE switch places the module's signal on the console's cue bus, where it may be heard on the meterbridge mounted cue speaker and/or as an interrupt to the console operator's headphones and/or control room monitor speakers. The various cue interrupt modes are programmed at the console's CRS-55e (Control Room/Studio) module via PCB-mounted dipswitch. See page 5-3.

Level is set by a long-throw fader.

Channel ON (START) and OFF (STOP) switches are at the bottom of the module. In addition to being controlled remotely, these can also be programmed (via internal PCB-mounted dipswitch) to perform a variety of functions, including starting and stopping external source machines, activating control room and studio mutes, external tallies, and timer restart. The STOP switch's LED can be controlled by an external source machine to act as a "ready" indicator.

All audio and control input and output signals are made via the multi-pin DB-25 connector mounted on the top of the module and located underneath the hinged meterbridge.

Internal Programming Options

All internal programming is made via PCB mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connector). Note that when a dipswitch position is thrown to the right it is ON.

Mutes

An SL-55e module can be programmed to mute speakers when the channel is ON. The R-55e console has two mute control lines: control room and studio. Each of these is activated by an A input source. The dipswitch SW1 programs these muting functions:

SW1 position 4 mutes the studio when source A is ON
SW1 position 5 mutes the control room when source A is ON

Timer Restart

The console's digital timer can be programmed to automatically reset to zero and begin counting up when the module's ON button is pressed.

SW1 position 6 activates timer restart

Local/Ready

The module's channel OFF switch normally has its LED indicator controlled by the switch itself (Local). This is the factory default setting. However, should you wish to have the LED function as a Ready light for an external source machine, dipswitch SW1 position 7, when thrown to the left, passes control to the Ready input on the module's DB-25 connector. A closure between the Ready input (DB-25 pin 2) and Digital Ground (DB-25 pin 19) will activate the OFF switch LED. As long as the closure is maintained, the LED will be lit.

Talkback

Typically, one of the R-55e console's input modules will be used for the control room (CRS) console operator's microphone. The third position of the dipswitch SW1 allows that microphone to also function as a talkback mic. It places the signal (pre-fader, pre-on/off) onto the console's talkback bus. When the console operator presses a TB switch on the console's CRS-55e Control Room/Studio module, the talkback bus (which is carrying his microphone signal) will interrupt the regular monitor signal being fed to the studio and talent will hear his voice through the studio monitor speakers.

In order for the studio to reply to the console operator, the SL-55e module controlling the studio's microphone signal must be routed to the console's cue bus, where it can interrupt the regular control room monitor feed and be heard by the operator. This is accomplished by a user-supplied TB switch in the studio. The switch provides a momentary closure

sure between the module's DB-25 connector "TB to CR" control pin (DB-25 pin 17) and Digital Ground (DB-25 pin 19). As long as this closure is maintained (i.e., as long as talent holds down the studio TB button) the module's (pre-fader, pre-on/off) signal will be placed on the console's Cue bus.

Hook-Ups

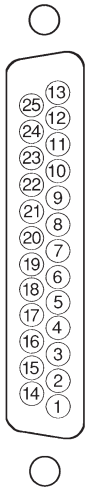
As stated before, all user wiring to and from SL-55e modules takes place at the DB-25 multi-pin connector mounted on the top of each module. There is one connector per module. Pinout drawings on page 3-7 show all wiring connections at a glance.

Audio Connections

These include A and B source inputs; level is +4dBu balanced.

Pin 25 – Line A Lt In SH
Pin 24 – Line A Lt In HI
Pin 12 – Line A Lt In LO
Pin 11 – Line A Rt In SH
Pin 10 – Line A Rt In HI
Pin 23 – Line A Rt In LO
Pin 22 – Line B Lt In SH
Pin 21 – Line B Lt In HI
Pin 9 – Line B Lt In LO
Pin 8 – Line B Rt In SH
Pin 7 – Line B Rt In HI
Pin 20 – Line B Rt In LO

NOTE: If you are bringing a mono signal into the SL-55e and want it to go to both left and right sides of the stereo busses, simply bridge the left and right sides of the input together when wiring.



Typical DB-25 connector

Control Connections

Functions include remote on and off, tally, ready, and start/stop for remote source machines.

Pin 1 – Cough
Pin 2 – Ready
Pin 3 – Start
Pin 4 – Stop
Pin 5 – Start/Stop Com
Pin 6 – B Tally
Pin 14 – Remote On
Pin 15 – On Tally
Pin 16 – Remote Off
Pin 17 – TB to CR
Pin 18 – +5V Digital
Pin 19 – Digital Ground

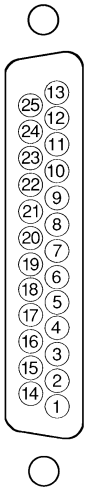
To Turn the Module ON & OFF from a Remote Location

In the case of stereo line input modules, "remote location" can also refer to a remote source machine that is feeding its audio to the module in question. A contact closure (which may be sourced by the external machine), will activate the module's channel ON and OFF switches.

REMOTE ON — Activates the module's channel ON switch. Momentarily connect Pin 14 (Remote On) and Digital Ground (Pin 19) to latch the module ON. (User-supplied momentary contact switch required.)

REMOTE OFF — Activates the module's channel OFF switch. Momentarily connect Pin 16 (Remote Off) and Digital Ground (Pin 19) to latch the module OFF. (User-supplied momentary contact switch required.)

COUGH — Temporarily Mutes the module. Provide a closure between Pin 1 (Cough) and Digital Ground (Pin 19). This will turn the module OFF. Note this is a non-latching mode; the module will turn ON again as soon as the closure stops. (User-supplied momentary contact switch required.)



Typical DB-25 connector

To START and STOP Remote Source Machines Using Module ON/OFF Switches

EXTERNAL START — Hook up the remote machine's "start" control pins to the SL-55e module's DB-25 connector control pins: for START wire to Pins 3 and 5.

EXTERNAL STOP — Hook up the remote machine's "stop" control pins to the SL-55e module's lower DB-25 connector control pins: for STOP wire to Pins 4 and 5.

To Control the Module's OFF Switch LED with an External Source Machine

READY — Hook up the remote machine's Ready output to the SL-55e module's DB-25 connector pin 2 (Ready) and pin 19 (Ground). The module's Ready port is looking for a contact closure. As long as the closure is maintained, the module's OFF LED will be illuminated.

Talkback to Control Room

If an SL-55e module is being used for a studio microphone, this connection allows talkback from that studio to the console operator. Provide a closure between Pin 17 (TB to CR) and Digital Ground (Pin 19). This will cause the module's pre fader signal to be sent to the console's Cue bus, where it may be heard by the console operator. This non-latching condition continues until the closure is released. (Requires user-supplied momentary action TALKBACK switch at the studio microphone location.)

On Tally

Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

This signal can be used to control an externally powered tally light that requires a continuous signal to function. Or an external tally light (i.e., LED) can be powered from the input module by connecting the external LED to Digital Ground (Pin 19) and the On Tally port. In either case, current should not exceed 30 milliamps.

Tally B

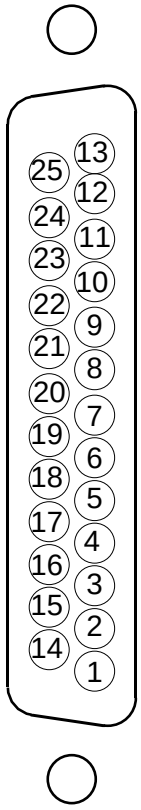
Provides a remote indication that the module's B source has been selected. This control function provides a continuous closure (open collector) between Pin 6 (Tally B) and Digital Ground (Pins 19) whenever the B source is selected.

This closure can be used to control an externally powered tally light that requires a continuous closure to function. An external tally light (i.e., LED) can be powered from the input module by connecting the external LED to +5V Digital (Pin 18) and the B Tally port. Current should not exceed 30 milliamps.

SL-55e Stereo Line Input

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



LINE A LT IN SH	25	13	AUDIO GROUND
LINE A LT IN HI	24	12	LINE A LT IN LO
LINE A RT IN LO	23	11	LINE A RT IN SH
LINE B LT IN SH	22	10	LINE A RT IN HI
LINE B LT IN HI	21	9	LINE B LT IN LO
LINE B RT IN LO	20	8	LINE B RT IN SH
DIGITAL GROUND	19	7	LINE B RT IN HI
+5V DIGITAL	18	6	TALLY B
TB TO CR	17	5	START/STOP COMMON
REMOTE OFF	16	4	STOP
ON TALLY	15	3	START
REMOTE ON	14	2	READY
		1	COUGH

Output Module (OM-55e)

Chapter Contents

Output Module (OM-55e)

Module Overview

The master output module handles the console's Program, Audition, and Mono/Mix-Minus outputs. All outputs are calibrated with recessed front panel multi-turn trimpots.

The R-55e console has two pairs of left-right VU meters, PGM and SWT (switched), except for the R-55e-8 (12 position frame), which has only the SWT meter pair. The meters are located on the console's meterbridge. The switched meter follows the SELECT switching, allowing the console operator to meter PGM, AUD, MONO and PRE, and an external stereo line signal (analog, +4dBu balanced), which may be brought into the module on its DB-25 connector.

The OM-55e module houses the master Cue LED. Whenever Cue is activated anywhere on the console this LED will illuminate and the CUE signal will automatically appear on the switched VU meter pair. When cue is de-activated, the switched meter pair goes back to its previously selected signal.

The CUE master level control sets the level of the console's cue signal.

Whenever CUE is activated elsewhere on the console (stereo line inputs, the superphone module, or for studio talkback) its signal will appear at the console's built-in cue speaker mounted in the meterbridge. Depending on how the CRS-55e module has been programmed, cue can also interrupt the control room monitor speakers. The way Cue interrupts the control room/studio outputs is determined by PCB-mounted dipswitch. See "Cue Interrupt" on page 5-3.

The OM-55e module also generates the console's monitor signals, which feed the Control Room and Studio modules.

At the bottom of module are the timer control buttons (the timer display is mounted in the righthand end of the console meterbridge):

AUTO START – enables timer restart functions from programmed input modules' ON buttons.

START/STOP - halts the timer, holds the last count, and then restarts and accumulates the count when depressed again.

RESET - return to zero (if the timer is stopped it will hold at zero; if it is running it will reset to zero and immediately begin counting up).

HOLD – when held down freezes the timer *display* (the counter keeps on going); when released the display catches up to the current count.

All user wiring to and from the OM-55e module takes place at DB-25 and DB-9 multi-pin connectors mounted on top of the module and located underneath the hinged meterbridge. All analog audio is +4dBu balanced. Pinout drawing on page 4-5 shows all wiring connections at a glance.

Hook-Ups

As stated before, all user wiring to and from the OM-55e modules takes place at DB-25 and DB-9 multi-pin connectors on the top of module.

DB-25 Connector – Audio

Handles External input and Program, Audition, Mono, and Pre outputs. All signals are +4dBu balanced.

Pin 25 – PGM Lt Out SH
Pin 24 – PGM Lt Out HI
Pin 12 – PGM Lt Out LO

Pin 11 – PGM Rt Out SH
Pin 10 – PGM Rt Out HI
Pin 23 – PGM Rt Out LO

Pin 22 – AUD Lt Out SH
Pin 21 – AUD Lt Out HI
Pin 9 – AUD Lt Out LO

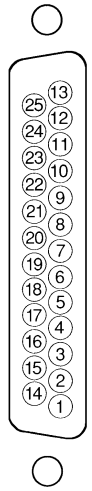
Pin 8 – AUD Rt Out SH
Pin 7 – AUD Rt Out HI
Pin 20 – AUD Rt Out LO

Pin 19 – MONO Out SH
Pin 18 – MONO Out HI
Pin 6 – MONO Out LO

Pin 5 – PRE Out SH
Pin 4 – PRE Out HI
Pin 17 – PRE Out LO

Pin 16 – EXT Lt In SH
Pin 15 – EXT Lt In HI
Pin 3 – EXT Lt In LO

Pin 2 – EXT Rt In SH
Pin 1 – EXT Rt In HI
Pin 14 – EXT Rt In LO

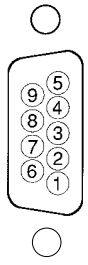


Typical DB-25 connector

DB-9 Connector – Audio

Handles CUE output.

Pin 5 – CUE Out SH
Pin 4 – CUE Out HI
Pin 9 – CUE Out LO

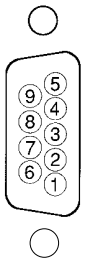


Typical DB-9 connector

DB-9 Connector — Control

Handles Tally 1 and Tally 2 control connections.

Pin 3 – Tally 1 N.O.
Pin 7 – Tally 1 Com
Pin 6 – Tally 2 Com
Pin 1 – Tally 2 N.O.
Pins 2 and 8 - Audio Common



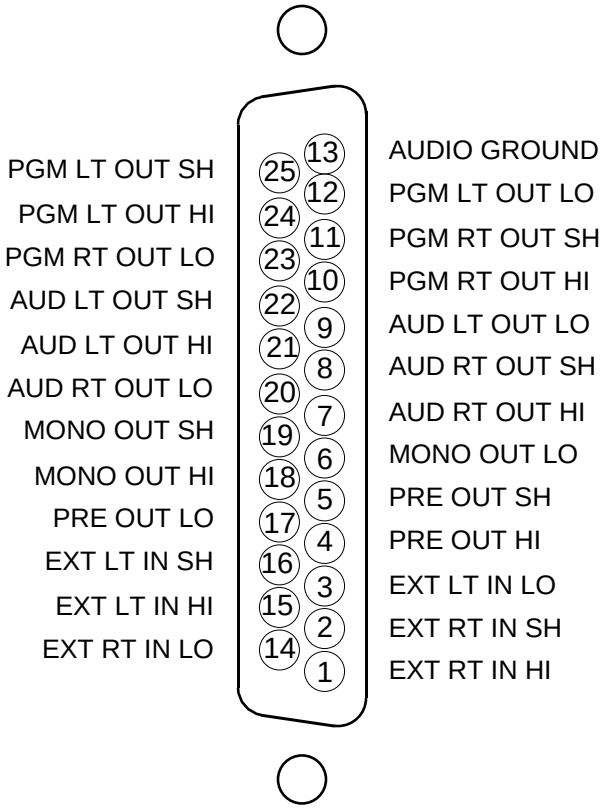
Typical DB-9 connector

These are simple relay closures that activate whenever programmed input modules are turned ON (see page 3-3). The Tally 1 closure is activated whenever the CR mute is activated, and the Tally 2 closure is activated whenever the studio mute is activated. The ports can be used to control externally powered tally lights that requires a continuous closure to function.

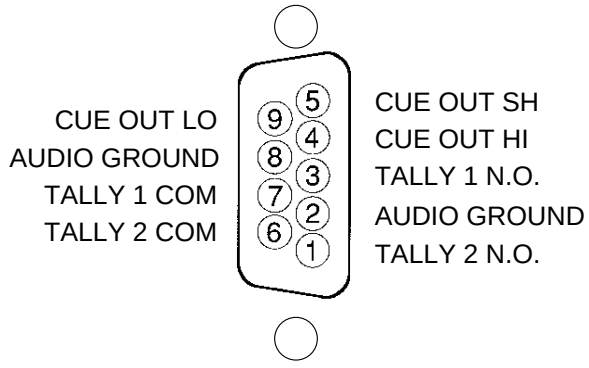
OM-55e Output Module

DB Connector Pinouts

I/O PORTS ANALOG (DB-25 "B")



ANALOG OUTPUT PORTS (DB-9 "A")



Control Room/Studio Module (CRS-55e)

Chapter Contents

Control Room/Studio Module (CRS-55e)

Module Overview

The CRS-55e module is the R-55e console operator's monitor module. It allows the operator to listen to the console's two stereo (PGM & AUD) outputs, two mono (MONO & PRE) outputs and two external stereo line level inputs brought directly into the module.

A recessed front panel multi-turn trimpot adjusts talkback level.

The CRS-55e module also houses three console monitor circuits, which follow the source selection switches. They are:

CONTROL ROOM (CR)—a dedicated output designed to drive a separate, user provided power amp/speaker system in the main control room;

STUDIO—a second stereo output intended for a remote (i.e., non CR) studio power amp/speaker system;

HEADPHONE (HDPN)—an additional output (w/built-in power amp) that drives the console operator's headphones. There are two types of headphone output: the +4dBu balanced output at the module's right DB-25 connector (B), and the headphone jack mounted in the right-hand corner of the console, which is actually the output from a built-in headphone amplifier.

MONITOR OUTPUT—a monitor source select (without CUE or MUTE interrupt) independent output.

The CRS-55e module has a talkback switch. When the talkback switch is pressed (it is momentary action), any microphone assigned to talkback bus (see page 3-3) will interrupt the regular monitor signals being sent to the studio.

All user wiring to and from the CRS-55e module takes place at the DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge. There are two connectors: the left one accepts the external 2 source input and handles audio outputs; the right accepts the external 1 source input and handles audio outputs. All audio connections are stereo line level analog signals. A pinout drawing on page 5-6 shows all wiring connections at a glance.

Internal Programming Options

Internal programming for the control room/studio module is made via printed circuit board (PCB) mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connectors). Note when a dipswitch position is thrown to the right it is ON.

Cue Interrupt

Dipswitch SW1 pos. 5-7 determines how the console's Cue function will interrupt regular monitor signals:

SW1 position 7 sends cue to CR left
SW1 position 6 sends cue to CR right
SW1 position 5 sends cue to HDPN*

*factory default settings

CR/Cue Mute

The audio from both the control room speakers and the console's built-in meterbridge speaker can easily be picked up by the console operator's microphone. This is a potential source of feedback. For this reason the console provides muting to the control room output and the built-in cue speaker whenever a mic programmed for control room/HDPN3 mute is turned ON with A selected as the input source (see page 3-3).

SW1 position 4 will mute cue and the CR output whenever an input channel set to activate the CR mute is ON

Studio Mute

When SW1 pos 3 is activated, it automatically mutes talkback out and the console's studio output whenever an input module programmed for studio/studio 2 mute is turned ON with A selected as the input source. This is used to prevent feedback from studio mics.

Studio Dim

Input modules controlling studio microphones can be programmed to MUTE a studio whenever the module is turned on (i.e., it's microphone is live). If you wish, you can have a studio DIM (drop -20dB in level) instead of MUTE:

SW1 positions 1 causes Studio right to DIM

SW1 positions 2 causes Studio left to DIM

Note the DIM functions also affect the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is programmed to DIM instead of MUTE, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

Hook-Ups

As stated before, all user wiring to and from the CRS-55e module takes place at the two DB-25 multi-pin connectors mounted at the top of the module.

Left DB-25 "A" Connector — Audio

Handles module's External 2 Stereo inputs and studio pre, headphone pre, and monitor pre outputs. All audio signals are analog stereo, +4dBu balanced.

Pin 25 – Ext 2 Lt In SH
Pin 24 – Ext 2 Lt In HI
Pin 12 – Ext 2 Lt In LO

Pin 11 – Ext 2 Rt In SH
Pin 10 – Ext 2 Rt In HI
Pin 23 – Ext 2 Rt In LO

Pin 22 – ST Pre Lt Out SH
Pin 21 – ST Pre Lt Out HI
Pin 9 – ST Pre Lt Out LO

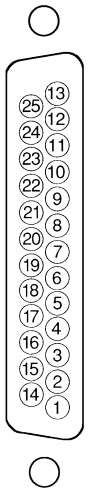
Pin 8 – ST Pre Rt Out SH
Pin 7 – ST Pre Rt Out HI
Pin 20 – ST Pre Rt Out LO

Pin 19 – HDPN Pre Lt Out SH
Pin 18 – HDPN Pre Lt Out HI
Pin 6 – HDPN Pre Lt Out LO

Pin 5 – HDPN Pre Rt Out SH
Pin 4 – HDPN Pre Rt Out HI
Pin 17 – HDPN Pre Rt Out LO

Pin 16 – MON Pre Lt Out SH
Pin 15 – MON Pre Lt Out HI
Pin 3 – MON Pre Lt Out LO

Pin 2 – MON Pre Rt Out SH
Pin 1 – MON Pre Rt Out HI
Pin 14 – MON Pre Rt Out LO



Typical DB-25 connector

Right DB-25 "B" Connector — Audio

Handles module's External 1 Stereo inputs and studio, headphone, and control room outputs. All audio signals are balanced analog stereo.

Pin 25 – Ext 1 Lt In SH
Pin 24 – Ext 1 Lt In HI
Pin 12 – Ext 1 Lt In LO

Pin 11 – Ext 1 Rt In SH
Pin 10 – Ext 1 Rt In HI
Pin 23 – Ext 1 Rt In LO

Pin 22 – ST Lt Out SH
Pin 21 – ST Lt Out HI
Pin 9 – ST Lt Out LO

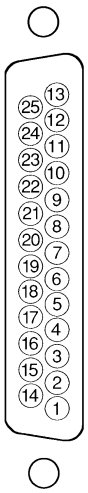
Pin 8 – ST Rt Out SH
Pin 7 – ST Rt Out HI
Pin 20 – ST Rt Out LO

Pin 19 – HDPN Lt Out SH
Pin 18 – HDPN Lt Out HI
Pin 6 – HDPN Lt Out LO

Pin 5 – HDPN Rt Out SH
Pin 4 – HDPN Rt Out HI
Pin 17 – HDPN Rt Out LO

Pin 16 – CR Lt Out SH
Pin 15 – CR Lt Out HI
Pin 3 – CR Lt Out LO

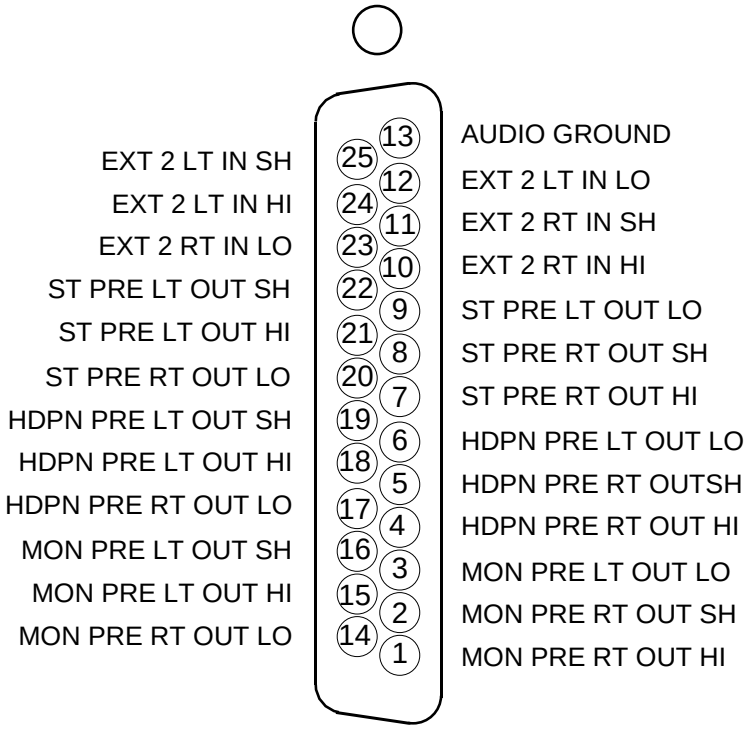
Pin 2 – CR Rt Out SH
Pin 1 – CR Rt Out HI
Pin 14 – CR Rt Out LO



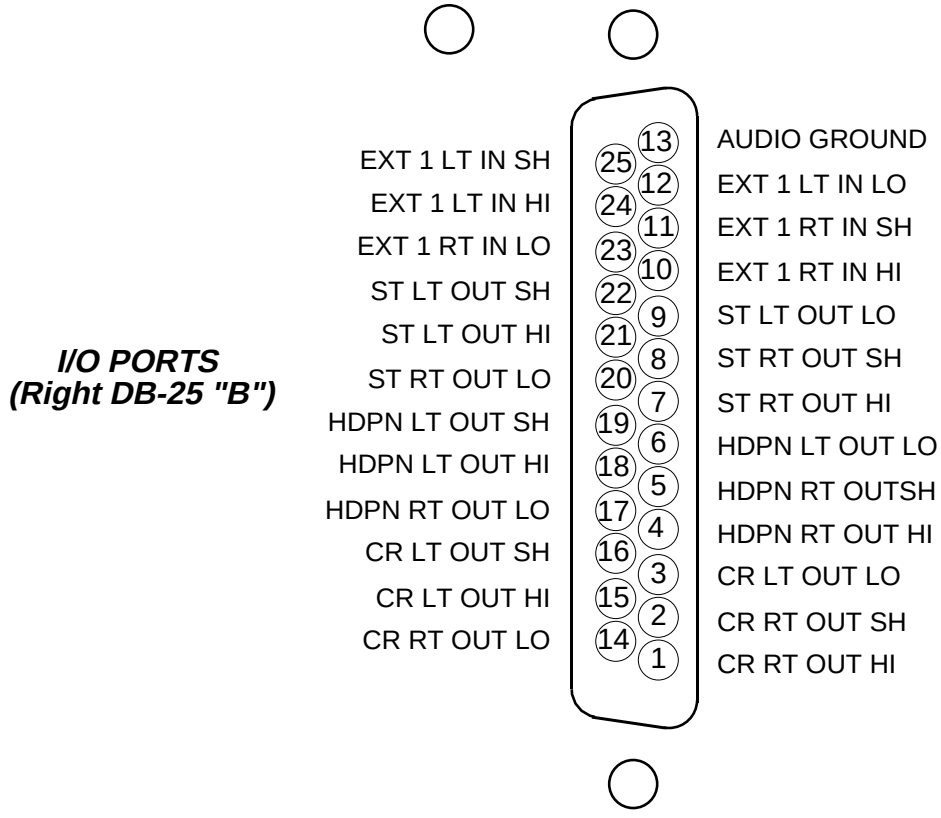
Typical DB-25 connector

CRS-55e Control Room/Studio Module

DB Connector Pinouts



I/O PORTS
(Left DB-25 "A")



I/O PORTS
(Right DB-25 "B")

Second Studio Module
(SS-55e; optional)

Chapter Contents

Second Studio Module (SS-55e; optional)

Module Overview

The optional SS-55e module is similar to the CRS-55e module. The monitor signal being sent to this studio follows the source select switching. This switching is indentical to the control room/monitor module's and includes the console's two stereo (PGM & AUD) outputs, two mono (MONO & PRE) outputs and two external stereo line level inputs brought directly into the module.

A recessed front panel multi-turn trimpot adjusts talkback level.

The SS-55e module also houses three console monitor circuits, which follow the source selection switches. They are:

STUDIO—a stereo output intended for a remote studio power amp/speaker system;

HEADPHONES (HDPN2 & HDPN3)—two additional line level balanced outputs to drive power amplifiers for guest or produce headphones. Both pre and post fader outputs are provided.

MONITOR OUTPUT—a monitor source select (without CUE or MUTE interrupt) independent output.

The SS-55e module has a talkback switch. When the talkback switch is pressed (it is momentary action), any microphone assigned to talkback bus (see pages 3-3) will interrupt the regular monitor signals being sent to the second studio output.

All user wiring to and from the SS-55e module takes place at the DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge. There are two connectors: the left one accepts the external 2 source input and handles audio outputs; the right accepts the external 1 source input and handles audio outputs. All audio connections are stereo line level analog signals. A pinout drawing on page 6-6 shows all wiring connections at a glance.

Internal Programming Options

Internal programming for the control room/studio module is made via printed circuit board (PCB) mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connectors). Note when a dipswitch position is thrown to the right it is ON.

Cue Interrupt

Dipswitch SW1 pos 5-7 determines how the console's Cue function will interrupt regular monitor signals:

SW1 position 7 sends cue to HDPN 3 left
SW1 position 6 sends cue to HDPN 3 right
SW1 position 5 sends cue to HDPN 2*

*factory default settings

HDPN 3 Mute

When SW1 pos 4 is activated, it automatically mutes the console's headphone 3 output whenever an input module programmed for control room/HDPN 3 mute is turned ON with A selected as the input source.

Studio 2 Mute

When SW1 pos 3 is activated, it automatically mutes talkback out and the console's studio 2 output whenever an input module programmed for studio/studio 2 mute is turned ON with A selected as the input source. This is used to prevent feedback from the studio mics.

Studio 2 Dim

Input modules controlling studio microphones can be programmed to MUTE a studio whenever the module is turned on (i.e., it's microphone is live). If you wish, you can have a studio DIM (drop -20dB in level) instead of MUTE:

SW1 positions 1 causes Studio 2 right to DIM
SW1 positions 2 causes Studio 2 left to DIM

Note the DIM functions also affect the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is programmed to DIM instead of MUTE, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

Hook-Ups

As stated before, all user wiring to and from the SS-55e module takes place at the two DB-25 multi-pin connectors mounted at the top of the module.

Left DB-25 "A" Connector — Audio

Handles module's External 2 Stereo inputs and studio 2 pre, headphone 2 pre, and monitor 2 pre outputs. All audio signals are analog stereo, +4dBu balanced.

Pin 25 – Ext 2 Lt In SH
Pin 24 – Ext 2 Lt In HI
Pin 12 – Ext 2 Lt In LO

Pin 11 – Ext 2 Rt In SH
Pin 10 – Ext 2 Rt In HI
Pin 23 – Ext 2 Rt In LO

Pin 22 – ST 2 Pre Lt Out SH
Pin 21 – ST 2 Pre Lt Out HI
Pin 9 – ST Pre 2 Lt Out LO

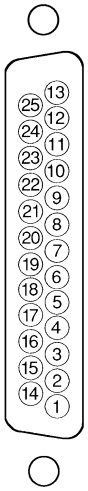
Pin 8 – ST Pre 2 Rt Out SH
Pin 7 – ST Pre 2 Rt Out HI
Pin 20 – ST Pre 2 Rt Out LO

Pin 19 – HDPN 2 Pre Lt Out SH
Pin 18 – HDPN 2 Pre Lt Out HI
Pin 6 – HDPN 2 Pre Lt Out LO

Pin 5 – HDPN 2 Pre Rt Out SH
Pin 4 – HDPN 2 Pre Rt Out HI
Pin 17 – HDPN 2 Pre Rt Out LO

Pin 16 – MON 2 Pre Lt Out SH
Pin 15 – MON 2 Pre Lt Out HI
Pin 3 – MON 2 Pre Lt Out LO

Pin 2 – MON 2 Pre Rt Out SH
Pin 1 – MON 2 Pre Rt Out HI
Pin 14 – MON 2 Pre Rt Out LO



Typical DB-25 connector

Right DB-25 "B" Connector — Audio

Handles module's External 1 Stereo inputs and studio 2 and headphones 2 and 3 outputs. All audio signals are balanced analog stereo.

Pin 25 – Ext 1 Lt In SH
Pin 24 – Ext 1 Lt In HI
Pin 12 – Ext 1 Lt In LO

Pin 11 – Ext 1 Rt In SH
Pin 10 – Ext 1 Rt In HI
Pin 23 – Ext 1 Rt In LO

Pin 22 – ST 2 Lt Out SH
Pin 21 – ST 2 Lt Out HI
Pin 9 – ST 2 Lt Out LO

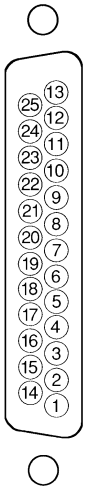
Pin 8 – ST 2 Rt Out SH
Pin 7 – ST 2 Rt Out HI
Pin 20 – ST 2 Rt Out LO

Pin 19 – HDPN 2 Lt Out SH
Pin 18 – HDPN 2 Lt Out HI
Pin 6 – HDPN 2 Lt Out LO

Pin 5 – HDPN 2 Rt Out SH
Pin 4 – HDPN 2 Rt Out HI
Pin 17 – HDPN 2 Rt Out LO

Pin 16 – HDPN 3 Lt Out SH
Pin 15 – HDPN 3 Lt Out HI
Pin 3 – HDPN 3 Lt Out LO

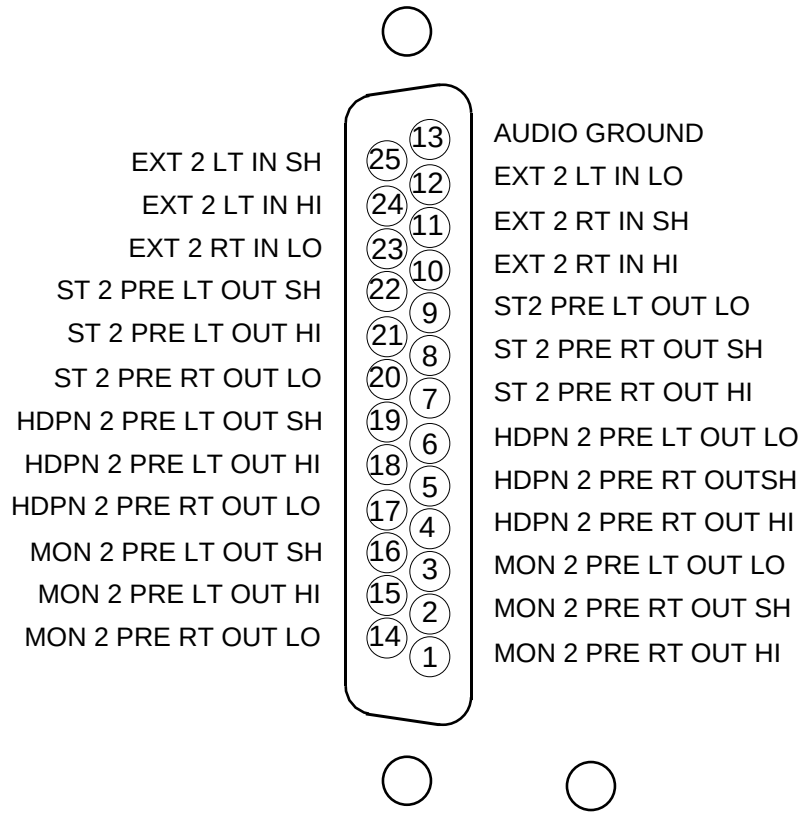
Pin 2 – HDPN 3 Rt Out SH
Pin 1 – HDPN 3 Rt Out HI
Pin 14 – HDPN 3 Rt Out LO



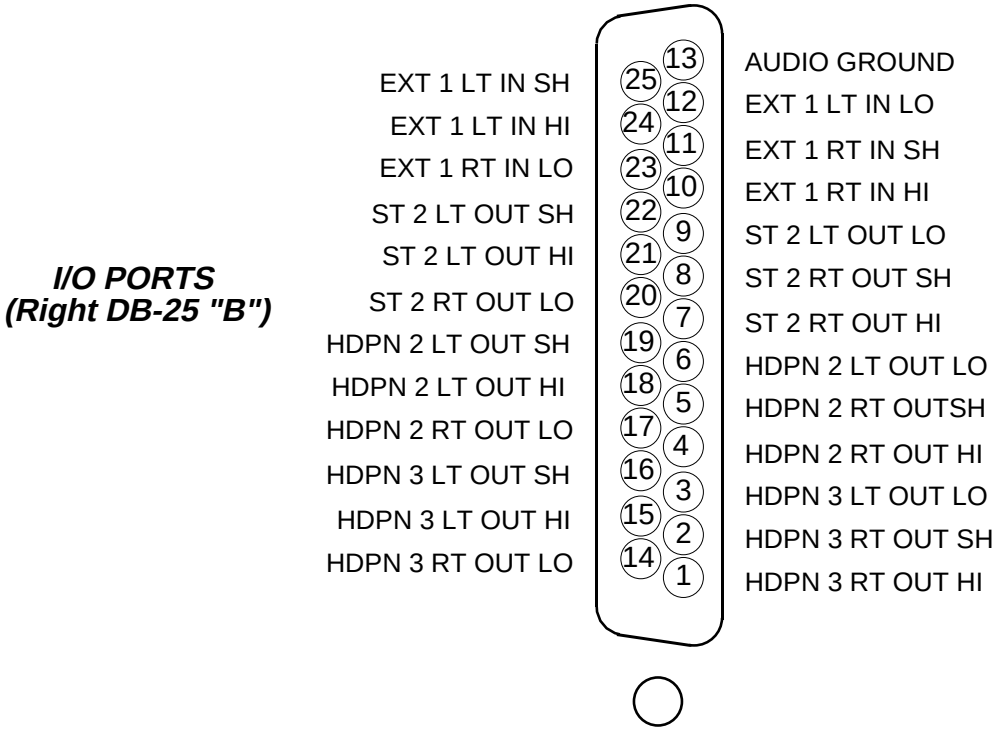
Typical DB-25 connector

SS-55e Second Studio Module

DB Connector Pinouts



I/O PORTS
(Left DB-25 "A")



I/O PORTS
(Right DB-25 "B")

Superphone Input
(SPN-55e; optional)

Chapter Contents

Superphone Input (SPN-55e; optional)

Module Overview

The SPN-55e input module is used for telephone call-ins. Caller signals enter the module from your station hybrid. The long-throw fader controls the level of the caller's voice.

Output switches assign callers to any combination of the console's four outputs: PGM (program), AUD (audition), MONO and PRE.

A front panel trimpot at the top of the module adjusts the console's CALLER level.

The channel ON (red) and OFF (amber) switches are at the bottom of the module. These can be programmed (via PCB-mounted dipswitch) to activate control room and studio mutes, and timer restart.

All audio and control signals hook-ups are made via a multi-pin DB-25 connector mounted on the top of the module and located underneath the hinged meterbridge.

Caller Set-Ups

Pre-air segment communication between the console operator (DJ) and callers is via CUE button which places the caller's voice on the console's cue speaker (or control room speakers/operator's headphone if the CRS-55e module's cue interrupt function has been so programmed).

A typical call-in segment might proceed as follows:

Caller phones in, DJ picks up off-air during a track play to set up the call. He assigns his mic channel and the phone module to PRE, places the caller in CUE, and talks to the caller. Neither the DJ mic nor the phone module need to be ON for two-way communication.

When he is ready to take the call on-air, the DJ makes sure both modules (his mic and phone) are assigned to PGM and turns them ON. He then deactivates caller CUE to hear the normal feed.

Internal Programming Options

Internal programming is accomplished via printed circuit board (PCB) mounted dipswitch SW1, located on the top of the module (beneath the DB-25 connector). Note when a dipswitch position is thrown to the right it is ON.

Mutes

When the SPN-55e phone channel ON switch is pressed, it can activate console mute functions. Dipswitch SW1 determines which of the console's two mute lines will be activated:

SW1 pos 5 mutes the control room when the phone module is ON*
SW1 pos 4 mutes studio when the phone module is ON

*factory default settings

Timer Restart

When the module is turned ON, the console's digital timer can be programmed to automatically reset to zero and begin counting up.

SW1 pos 6 activates timer restart when the phone module's ON/START switch is pressed

Gain Trimpot

There is a PCB-mounted trimpot that sets Caller In port input gain.

Hook-Ups

As stated before, all user wiring to and from the SPN-55e modules takes place at a multi-pin DB-25 connector mounted on the top of the module.

Audio Connections

These include caller inputs and outputs. All audio signals are +4dBu balanced analog mono.

Pin 25 – Call In SH
Pin 24 – Call In HI
Pin 12 – Call In LO
Pin 22 – Call Out SH
Pin 21 – Call Out HI
Pin 9 – Call Out LO

Control Connections

These include remote on and off, and on tally functions.

Pin 3 – Start
Pin 4 - Stop
Pin 5 - Start/Stop Common

Pin 14 – Remote On
Pin 15 – ON Tally
Pin 16 - Remote Off
Pin 18 - +5V Digital
Pin 19 - Digital Ground

To Turn the Module ON & OFF from a Remote Location

REMOTE ON — Activates the module's channel ON switch. Provide a momentary closure between Pin 14 (Remote On) and Digital Ground (Pin 19). This will latch the module ON. (User-supplied momentary contact switch required.)

REMOTE OFF — Activates the module's channel OFF switch. Provide a momentary closure between Pin 16 (Remote Off) and Digital Ground (Pin 19). This will latch the module OFF. (User-supplied momentary contact switch required.)

To START and STOP Remote Source Machines Using Module ON/ OFF Switches

EXTERNAL START — Hook up the remote machine's Start control pins to the SPN-55e module's DB-25 connector control pins: for START wire to pins 3 and 5.

EXTERNAL STOP — Hook up the remote machine's Stop control pins to the SPN-55e module's DB-25 connector control pins: for STOP wire to pins 4 and 5.

When the module's ON/START switch is pressed, a closure takes place between START/STOP COMMON and START; when the module's OFF switch is pressed, a closure takes place between START/STOP COMMON and STOP. These may be used to control a remote tape machine for recording phone segments.

On Tally

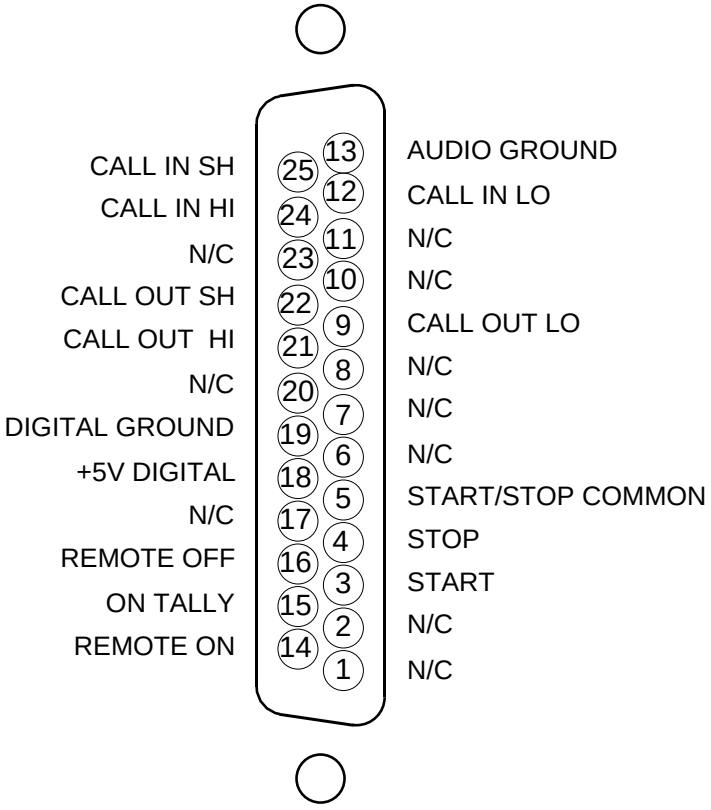
Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

This signal can be used to control an externally powered tally light that requires a continuous signal to function. Or an external tally light (i.e., LED) can be powered from the input module by connecting the external LED to Digital Ground (Pin 19) and the On Tally port. In either case, current should not exceed 30 milliamps.

SPN-55e Superphone Module

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



Line Select Module
(LS-55e; optional)

Chapter Contents

Line Select Module
(LS-55e; optional)

Module Overview

This optional module selects one of six stereo line sources and routes it to one stereo output, allowing you to expand the source capability of an input channel or monitor module.

All audio input and output signals are made via two DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge.

Internal Programming Options

There are no internal programming options on the LS-55e module.

Hook-Ups

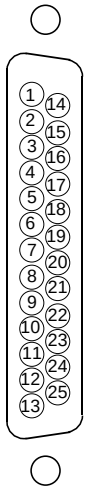
Left DB-25 “A” Connector - Audio Inputs 5, 6

Pin 25 – Line 5 Lt In SH
Pin 24 – Line 5 Lt In HI
Pin 12 – Line 5 Lt In LO

Pin 11 – Line 5 Rt In SH
Pin 10 – Line 5 Rt In HI
Pin 23 – Line 5 Rt In LO

Pin 22 – Line 6 Lt In SH
Pin 21 – Line 6 Lt In HI
Pin 9 – Line 6 Lt In LO

Pin 8 – Line 6 Rt In SH
Pin 7 – Line 6 Rt In HI
Pin 20 – Line 6 Rt In LO



Typical DB-25 connector

Left DB-25 “A” Connector - Audio Outputs

Pin 19 – Line Lt Out SH
Pin 18 – Line Lt Out HI
Pin 6 – Line Lt Out LO

Pin 5 – Line Rt Out SH
Pin 4 – Line Rt Out HI
Pin 17 – Line Rt Out LO

Right DB-25 “B” Connector - Audio Inputs 1-4

Pin 25 – Line 1 Lt In SH
Pin 24 – Line 1 Lt In HI
Pin 12 – Line 1 Lt In LO

Pin 11 – Line 1 Rt In SH
Pin 10 – Line 1 Rt In HI
Pin 23 – Line 1 Rt In LO

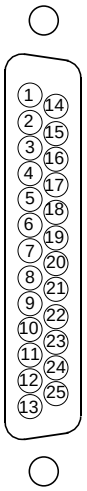
Pin 22 – Line 2 Lt In SH
Pin 21 – Line 2 Lt In HI
Pin 9 – Line 2 Lt In LO

Pin 8 – Line 2 Rt In SH
Pin 7 – Line 2 Rt In HI
Pin 20 – Line 2 Rt In LO

Pin 19 – Line 3 Lt In SH
Pin 18 – Line 3 Lt In HI
Pin 6 – Line 3 Lt In LO

Pin 5 – Line 3 Rt In SH
Pin 4 – Line 3 Rt In HI
Pin 17 – Line 3 Rt In LO

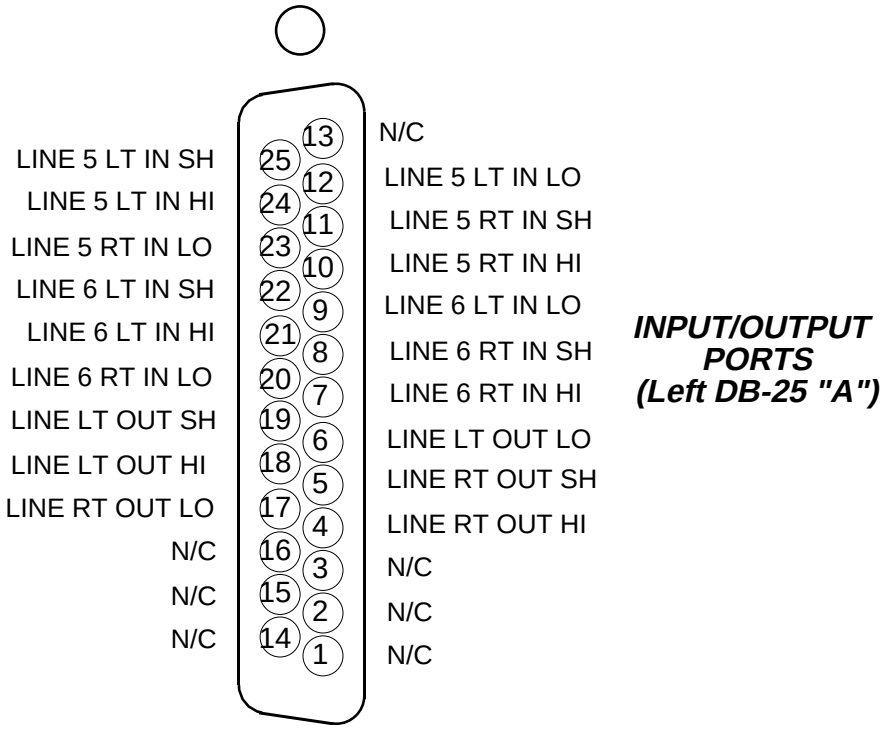
Pin 16 – Line 4 Lt In SH
Pin 15 – Line 4 Lt In HI
Pin 3 – Line 4 Lt In LO
Pin 2 – Line 4 Rt In SH
Pin 1 – Line 4 Rt In HI
Pin 14 – Line 4 Rt In LO



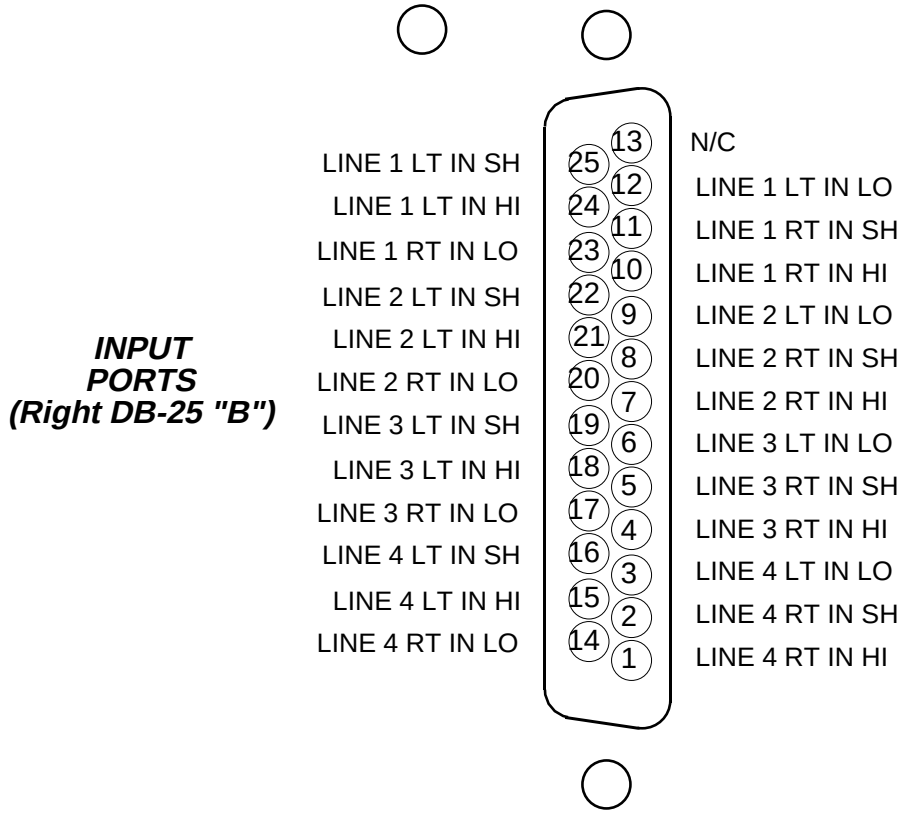
Typical DB-25 connector

LS-55e Line Selector Module

DB Connector Pinouts



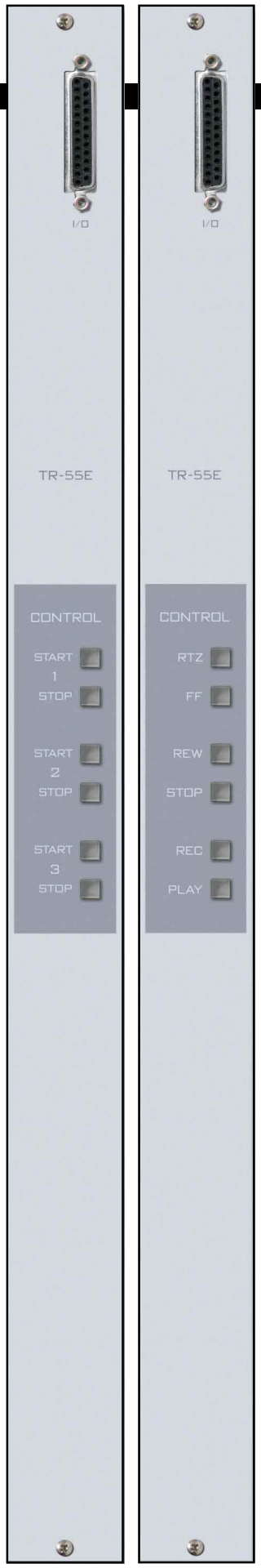
INPUT/OUTPUT PORTS (Left DB-25 "A")



INPUT PORTS (Right DB-25 "B")

Tape Remote Module
(TR-55e; optional)

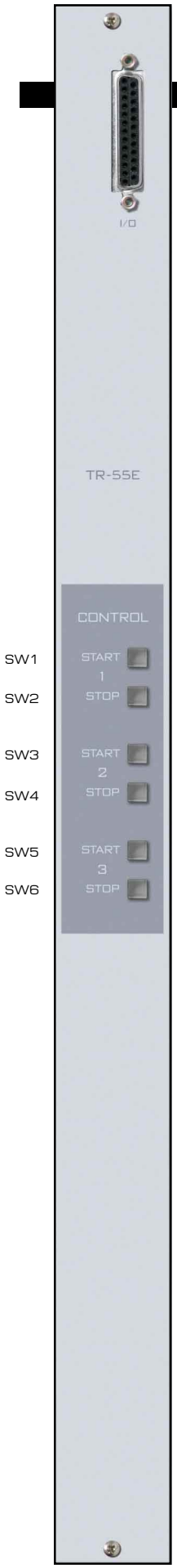
Chapter Contents



Tape Remote Module (TR-55e; optional)

Module Overview

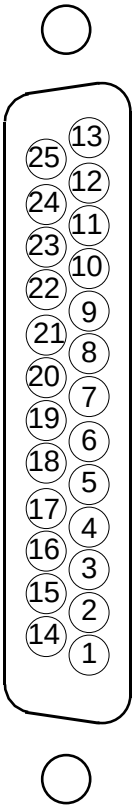
This optional module is available in two versions. The START/STOP version offers three sets of START and STOP buttons to provide start-stop control of three remote reel-to-reel machines. The full function version provides RTZ, FF, REW, STOP, REC, and PLAY buttons for a single machine. LED indicators in each switch function as tallyback indicators and are powered by the source machine. There are no internal connections between the tape remote panel and the console's power rails.



TR-55e/SS Tape Remote Module

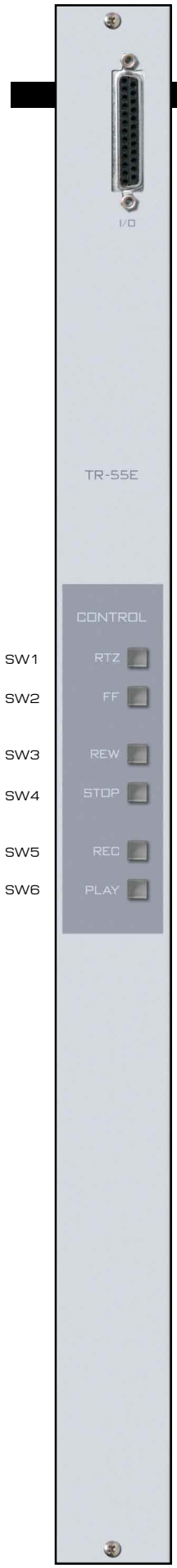
DB Connector Pinouts

I/O CONTROL PORTS (DB-25)



SW6 (STOP) COMMON	25	13
SW6 (STOP) LED-	24	12
SW5 (START) COMMON	23	11
SW5 (START) LED-	22	10
SW4 (STOP) COMMON	21	9
SW4 (STOP) LED-	20	8
SW3 (START) COMMON	19	7
SW3 (START) LED-	18	6
SW2 (STOP) COMMON	17	5
SW2 (STOP) LED-	16	4
SW1 (START) COMMON	15	3
SW1 (START) LED-	14	2
		1

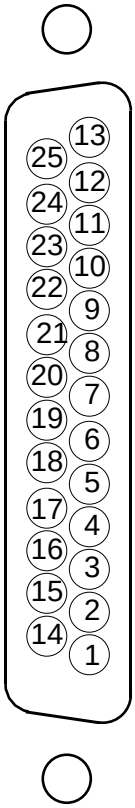
N/C
SW6 (STOP) N.O.
SW6 (STOP) LED+
SW5 (START) N.O.
SW5 (START) LED+
SW4 (STOP) N.O.
SW4 (STOP) LED+
SW3 (START) N.O.
SW3 (START) LED+
SW2 (STOP) N.O
SW2 (STOP) LED+
SW1 (START) N.O.
SW1 (START) LED+



TR-55e/FF Tape Remote Module

DB Connector Pinouts

I/O CONTROL PORTS (DB-25)



SW6 (PLAY) COMMON	N/C
SW6 (PLAY) LED-	SW6 (PLAY) N.O.
SW5 (REC) COMMON	SW6 (PLAY) LED+
SW5 (REC) LED-	SW5 (REC) N.O.
SW4 (STOP) COMMON	SW5 (REC) LED+
SW4 (STOP) LED-	SW4 (STOP) N.O.
SW3 (REW) COMMON	SW4 (STOP) LED+
SW3 (REW) LED-	SW3 (REW) N.O.
SW2 (FF) COMMON	SW3 (REW) LED+
SW2 (FF) LED-	SW2 (FF) N.O
SW1 (RTZ) COMMON	SW2 (FF) LED+
SW1 (RTZ) LED-	SW1 (RTZ) N.O.
	SW1 (RTZ) LED+

Meterbridge

Chapter Contents

Meterbridge

Overview

All three versions of the console's meterbridge house left-right VU meters (see "Output Module" Chapter 4) and the cue speaker. The 18-position frame meterbridge also includes the digital timer display, and the 26-position frame meterbridge includes the digital timer display and the digital clock.

FRAME SIZE	VU METER (pair)	TIMER	CLOCK
12-POSITION	1 (SWT)	—	—
16-POSITION	2 (PGM, SWT)	1	—
26-POSITION	2 (PGM, SWT)	1	1

The meterbridge assembly hinges open for easy access (VU meter illumination replacement, setting the clock). Simply swing the bridge up and back until it rests in a fully opened position.

Digital Timer

The console timer control buttons are located on the OM-55e Output Module (see page 4-2).

The timer is provided with an AUTO-RESTART function so programmed input modules can automatically reset the timer display to zero and start a new count, allowing the announcer to easily track his own pace.

The START/STOP button halts the timer, holds the last count, and then restarts and accumulates the count when depressed again–perfect for compiling tapes of desired duration.

RESET has a dual-mode capability:

- if you depress it while the timer is counting, the display will instantly reset to zero and start a fresh count;

- if the timer is already stopped, depressing this button will reset the timer to zero, where it will hold until start is pressed.

HOLD button allows you to hold the display for a longer viewing duration, while still allowing the counter to continue in the background. Releasing the button will then display the current count.

Digital Clock

The Wheatstone digital clock is a six-digit time-of-day clock with LED display. The clock is designed with CMOS circuits and an on-board crystal-controlled time base oscillator. The clock PCB contains the clock circuits, clock set controls and capacitor backup on one side and displays on the other side. Clock set controls may be accessed by opening the meterbridge cover.

Controls

The clock is controlled by two switches mounted on the bottom part of the clock PCB assembly.

In order to keep accurate time, the oscillator must run at 32.768 KHz. The oscillator is set to this frequency at the factory.

Setting the Time

The setting controls consist of two switches: MODE and SET. To set the clock, open the meterbridge cover:

1) The control switches (mounted on the bottom part of clock PCB assembly) are labelled "MODE" and "SET". "MODE" is used to scroll from seconds to minutes to hours; "SET" is used to set the time. The procedure is to set the clock slightly ahead of the current time, hold the second count at "00" until the current time catches up, and then release the count.
2) Press the MODE button until the hour digits blink. Depress the SET button until the desired hour is displayed.
3) Press the MODE button until the minute digits blink. Depress the SET button until the desired minute count is displayed.
4) Press the MODE button until the second digits blink. Depress and hold the SET button; the seconds display will hold at "00". When the current time catches up to the display, release the SET button. The clock will start counting. Hit the MODE button once more to place the clock into working mode.

Capacitor Backup

With the meterbridge open note the super capacitor at C20. This super capacitor is self charging. Note that the super capacitor does NOT light up the clock display; it powers the clock crystal to keep it from losing count (it will do this for about one hour).

Operational Modes

The standard factory default clock configuration is crystal-controlled, 12 hour mode, stand-alone operation. However, the clock will operate either from the internal crystal controlled time base or from an ESE master (TC-89, autodetect) signal. Because crystal time bases are subject to drift over time, Wheatstone recommends operating the clock in the ESE slave mode for those applications where the exact time is critical. Connect an ESE master at connector CT6 (Pin 1 - Signal, Pin 2 - Shield).

The clock can also be synchronized to external 60Hz or 1Hz signals. To synchronize to a 60Hz signal, connect the signal to CT3 pin 1, using CT3 pin 2 as the ground reference, and enable synchronization to 60Hz by turning SW7 position 3 on (SW7 position 2 should be off). To synchronize to a 1Hz signal, connect the signal to CT4 pin 1, using CT4 pin 2 as the ground reference, and enable synchronization to 1Hz by turning SW7 position 2 on (SW7 position 3 should be off).

Standard operation is 12 hour mode, but the clock can be switched to 24 hour mode by turning SW7 position 1 on.

For operation in areas with low ambient light, the display can be dimmed by turning SW7 position 4 on.

Parts List

Chapter Contents

QMP-4 QUAD MIC PREAMP PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U2, U4, U6, U8	8 PIN .3" DIP SMT SOCKET	4	***245001***
CT7	10PIN BOXED HEADER, STRAIGHT	1	***250077***
CT3, CT4	12 POSITION PLUG ON BARRIER STRIP	2	***260045***
CT3, CT4	12 POSITION BOXED HEADER RIGHT ANGLE	2	***260057***
U2, U4, U6, U8	2017 MIC PREAMP IC	4	***320003***
U1, U3, U5, U7	NE5532 DUAL LINEAR OP-AMP SMT	4	***325001***
Z1-Z16	5.1V SMT ZENER DIODE C5V1	16	***355002***
C1, C10, C11, C13, C19, C23, C27, C29, C34, C36, C40, C46	CAPACITOR, 10µF 50V ELECTROLYTIC SMT	12	***405001***
C6, C18, C30, C42	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	4	***405002***
C12, C35	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	2	***405003***
L1-L8	FERRITE BEAD SMT 1206 PACKAGE	8	***405010***
C2, C7, C14, C20, C24, C31, C37, C43	CAPACITOR, 33pF 100V CERAMIC SMT	8	***415002***
C5, C17, C28, C41	CAPACITOR, 330pF 100V CERAMIC SMT	4	***415004***
C4, C9, C16, C22, C26, C33, C39, C45	CAPACITOR, .001µF 50V CERAMIC SMT	8	***415005***
C3, C8, C15, C21, C25, C32, C38, C44	CAPACITOR, .1µF 50V CERAMIC SMT	8	***415007***
R2, R9, R12, R16, R23, R26, R32, R38, R41, R47, R52, R55	10 OHM 5% .25W MC1206 RESISTOR	12	***435002***
R10, R11, R24, R25, R39, R40, R53, R54	47 OHM 5% .25W MC1206 RESISTOR	8	***435005***
R6, R20, R29, R43	1.30 KOHM 1% .25W MC1206 RESISTOR	4	***435016***
R1, R3, R4, R7, R14, R15, R17, R18, R21, R28, R30, R31, R33, R34, R36, R44, R45, R46, R48	4.99 KOHM 1% .25W MC1206 RESISTOR	19	***435023***
R49	4.99 KOHM 1% .25W MC1206 RESISTOR	1	***435023***
R5, R13, R19, R27, R35, R42, R50, R56	10.0 KOHM 1% .25W MC1206 RESISTOR	8	***435028***
R8, R22, R37, R51	13.3 KOHM 1% .25W MC1206 RESISTOR	4	***435030***
CR1-CR4	1K TRIM POT SMT	4	***505001***
SW1	7 POSITION DIP SWITCH	1	***510048***
PCB_QMP4	PRINTED CIRCUIT BOARD SMT	1	***700768***
F1, F2	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	2	***835001***

SL-55e STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SL-55e	FACEPLATE	1	***005521***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	6 PIN .098" PLUG FOR #26 AWG	2	***230031***
	9 PIN .098" PLUG FOR #26 AWG	1	***230032***
CT5, CT6	6 PIN .098" HEADER	2	***250065***
CT3	9 PIN .098" HEADER	1	***250066***
U5	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U1-U4	TL072 DUAL LINEAR OP-AMP SMT	4	***325003***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D6, D7	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D1-D5, D8	1N4148 FAST SWITCHING SMT DIODE	6	***355003***
U6-U10	4053 SMT	5	***385000***
C1, C12, C24-C28, C33, C37, C39, C42	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	11	***405002***
C2, C3, C11, C32, C40, C41	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	6	***405003***
C5-C7, C9, C10, C14-C16, C18, C19, C21, C29	CAPACITOR, 10pF 100V CERAMIC SMT	12	***415001***
C44	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C4, C8, C13, C17, C20, C23, C30, C34-C36, C38, C43, C46, C47	CAPACITOR, .1µF 50V CERAMIC SMT	14	***415007***
C45	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***
R34, R36, R46	10 OHM 5% .25W MC1206 RESISTOR	3	***435002***
R27, R80, R81	100 OHM 5% .25W MC1206 RESISTOR	3	***435007***
R26, R37, R50, R78	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R41	332 OHM 1% .25W 1206 RESISTOR SMT	1	***435010***
R29, R39, R43, R45, R48	619 OHM 1% .25W MC1206 RESISTOR	5	***435013***
R30, R79	1.00 KOHM 1% .25W MC1206 RESISTOR	2	***435015***
R32, R33, R70, R71, R76, R77	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***435020***
R56, R73, R75, R84	3.32 KOHM 1% .25W MC1206 RESISTOR	4	***435021***
R1, R3, R4, R7, R8, R14, R16, R17, R20, R21, R57-R60	4.99 KOHM 1% .25W MC1206 RESISTOR	14	***435023***
R2, R5, R6, R9, R15, R18, R19, R22, R28, R31, R38, R40, R42, R44, R47, R53, R61-R69, R72	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R74, R82, R83	10.0 KOHM 1% .25W MC1206 RESISTOR	3	***435028***
R23, R35, R52	22.1 KOHM 1% .25W MC1206 RESISTOR	3	***435036***
R54, R55	40.2 KOHM 1% .25W MC1206 RESISTOR	2	***435039***
R24, R49	88.7 KOHM 1% .25W MC1206 RESISTOR	2	***435043***
CR1, CR2	POT TRIM 100KBECKMAN 72XLR100K	2	***500078A***
START/STOP SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***

SL-55e STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
START/STOP SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	6	***510097***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	WHITE FADER KNOB WITH BLACK LINE	1	***520051***
START SWITCH BUTTON	LB STYLE RED BUTTON	1	***530057***
STOP SWITCH BUTTON	LB STYLE YELLOW BUTTON	1	***530060***
A/B/PGM/AUD/MONO/PRE/CUE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
FADER	100MM DUAL STEREO AUDIO FADER TYPE “K”	1	***540064***
STOP SWITCH LED	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
START SWITCH LED	3MM RED LED FOR ON/OFF SWITCH	1	***600077***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***605010***
DS2, DS6	ULTRABRIGHT RIGHT ANGLE RED SMT LED	2	***605017***
DS3	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS4, DS5	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_SL2000	PRINTED CIRCUIT BOARD SMT	1	***700656***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	4	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

OM-55e OUTPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
OM-55e	FACEPLATE	1	***005536***
CT2	THREADED 9 PIN DB CONNECTOR-IDD9	1	***200031***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	10 PIN RIBBON PLUG	1	***230020***
	3 PIN .O98" PLUG FOR #26 AWG	1	***230028***
CT4	3 PIN .098" HEADER	1	***250062***
CT2	10 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255005***
U7	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U6, U21	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	2	***305021***
U1-U5, U8-U16	OP-275 DUAL LINEAR OP-AMP SMT	14	***325002***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D3-D6	1N4002W RECTIFYING 1AMP SMT DIODE	4	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D2	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D1	SS14 SCHOTTKY SMT DIODE	1	***355004***
U17-U20	74VHC4053 SMT Triple 2-Channel Analog Mux	4	***385001***
C22, C25-C27, C60-C62	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	7	***405002***
C20, C63, C64	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	3	***405003***
C5, C6, C12, C13	CAPACITOR, 10pF 100V CERAMIC SMT	4	***415001***
C1-C3, C7, C14-C16, C18, C29, C30, C32, C33, C35, C36, C38-C40, C42, C43, C48	CAPACITOR, 33pF 100V CERAMIC SMT	20	***415002***
C50-C53, C56, C58	CAPACITOR, 33pF 100V CERAMIC SMT	6	***415002***
C4, C8, C9-C11, C17, C19, C21, C23, C24, C28, C31, C34, C37, C41, C44-C47, C49, C54	CAPACITOR, .1µF 50V CERAMIC SMT	21	***415007***
C55, C57, C59	CAPACITOR, .1µF 50V CERAMIC SMT	3	***415007***
R1, R2, R4, R5, R7, R8, R36, R37, R71, R73, R75, R76, R79, R83, R95, R99, R103, R107	10 OHM 5% .25W MC1206 RESISTOR	18	***435002***
R109, R111, R113, R114	10 OHM 5% .25W MC1206 RESISTOR	4	***435002***
R14-R25, R126, R127	100 OHM 5% .25W MC1206 RESISTOR	14	***435007***
R68	220 OHM 5% .25W MC1206 RESISTOR	1	***435009***
R46	332 OHM 1% .25W MC1206 RESISTOR	1	***435010***
R53	475 OHM 1% .25W MC1206 RESISTOR	1	***435011***
R41, R44, R48, R65-R67, R69	619 OHM 1% .25W MC1206 RESISTOR	7	***435013***
R3, R6, R9, R29-R31, R93, R121	1.30 KOHM 1% .25W MC1206 RESISTOR	8	***435016***
R88, R91, R118, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	4	***435020***
R122-R125	3.32 KOHM 1% .25W MC1206 RESISTOR	4	***435021***
R90, R92, R116, R119	3.92 KOHM 1% .25W MC1206 RESISTOR	4	***435022***
R11, R12, R26-R28, R33, R34, R38, R52, R54-R64, R70, R72, R74, R77, R80-R82	4.99 KOHM 1% .25W MC1206 RESISTOR	27	***435023***

OM-55e OUTPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R84-R87, R89, R94, R96-R98, R100-R102, R104-R106, R110, R112, R115, R117	4.99 KOHM 1% .25W MC1206 RESISTOR	19	***435023***
R10, R13, R32, R35, R78	10.0 KOHM 1% .25W MC1206 RESISTOR	5	***435028***
R39, R40, R42, R43, R45, R47, R49, R50, R108	40.2 KOHM 1% .25W MC1206 RESISTOR	9	***435039***
R51	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1-CR6	10K 15 TURN TRIM POT	6	***500014***
CUE POT	10KΩ SINGLE AUDIO CONDUCTIVE PLASTIC, BOURNS	1	***500058***
CR7-CR10	10K TRIM POT SMT	4	***505002***
SW1	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	1	***510097***
SW2-SW8	2 POLE PUSHBUTTON SWITCH, MOMENTARY	7	***510113***
CUE KNOB	1/8" COLLET KNOB, NO POINTER, NO LINE	1	***520053***
CUE CAP	PASTEL GREEN CAP W.BLACK LINE FOR 15MM KNOB	1	***530079***
EXT/ PGM/AUD/MONO/AUTO/START-STOP SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
RESET SWITCH BUTTON	CUSTOM RED LIGHT PIPE BUTTON	1	***530084***
HOLD SWITCH BUTTON	CUSTOM YELLOW LIGHT PIPE BUTTON	1	***530085***
K1, K2	DPDT RELAY,5V	2	***550006***
DS1, DS6	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS4, DS8	ULTRABRIGHT RIGHT ANGLE RED SMT	3	***605017***
DS3, DS7	ULTRABRIGHT RIGHT ANGLE GREEN SMT	2	***605018***
DS5, DS9	ULTRABRIGHT RIGHT ANGLE YELLOW SMT	2	***605019***
PCB_BPSA1000	PRINTED CIRCUIT BOARD	1	***700299***
PCB_OM2000A	PRINTED CIRCUIT BOARD	1	***700655***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	5	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

CRS-55e CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CRS-55e	FACEPLATE	1	***005537***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	3 PIN .098" PLUG FOR #26 AWG	1	***230028***
	6 PIN .098" PLUG FOR #26 AWG	3	***230031***
	26 PIN RIBBON PLUG	1	***250043***
CT3	3 PIN .098" HEADER	1	***250062***
CT5-CT7	6 PIN .098" HEADER	3	***250065***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
U8, U25, U26	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	3	***305021***
U20-U22	LM675 POWER OP AMP	3	***320007***
U1-U7, U9-U12, U23, U24	OP-275 DUAL LINEAR OP-AMP SMT	13	***325002***
Q1	MMBTA55 PNP SMT TRANSISTOR	1	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D1, D2	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D4	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3	SS14 SCHOTTKY SMT DIODE	1	***355004***
U13-U19	74VHC4053 SMT Triple 2-Channel Analog Mux	7	***385001***
C1-C3, C19-C28, C31-C33, C47, C48, C50, C65-C68, C97-C99, C102, C105, C109-C112	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	32	***405002***
C29, C30, C95, C96, C101	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	5	***405003***
C49, C53	CAPACITOR, 330µF 25V ELECTROLYTIC SMT	2	***405004***
C69, C71, C73, C83, C86, C89	CAPACITOR, 1µF 35V ELECTROLYTIC SMT TANTALUM	6	***405005***
C4, C6, C7, C9, C11, C13, C14, C16, C34, C36, C39, C41, C43-C45, C51, C56, C58, C59, C61	CAPACITOR, 10pF 100V CERAMIC SMT	20	***415001***
C63, C75, C77, C78, C80, C82, C93, C94, C106, C108	CAPACITOR, 10pF 100V CERAMIC SMT	10	***415001***
C70, C72, C74	CAPACITOR, 33pF 100V CERAMIC SMT	3	***415002***
C85, C88, C91	CAPACITOR, 330pF 100V CERAMIC SMT	3	***415004***
C5, C8, C10, C12, C15, C17, C18, C35, C37, C38, C40, C42, C46, C52, C54, C55, C57, C60	CAPACITOR, .1µF 50V CERAMIC SMT	18	***415007***
C62, C64, C76, C79, C81, C92, C100, C103, C104, C107	CAPACITOR, .1µF 50V CERAMIC SMT	10	***415007***
C84, C87, C90	CAPACITOR, .22µF 50V CERAMIC SMT	3	***415009***
R147-R152	3.3 OHM 5% .25W MC1206 RESISTOR	6	***435001***
R6, R9, R10, R15, R20, R27, R42, R44, R55, R60, R68, R70, R106, R115, R118, R119, R131	10 OHM 5% .25W MC1206 RESISTOR	17	***435002***
R140, R156, R157, R160, R161	10 OHM 5% .25W MC1206 RESISTOR	5	***435002***
F1, F5, F6	47 OHM 5% .25W MC1206 RESISTOR	3	***435005***
R3, R4, R7, R12, R13, R16-R18, R21, R46, R48, R49, R52, R53, R57, R62, R103, R104, R107	100 OHM 5% .25W MC1206 RESISTOR	19	***435007***
R112, R113, R116, R133, R142	100 OHM 5% .25W MC1206 RESISTOR	5	***435007***

CRS-55e CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R37	332 OHM 1% .25W MC1206 RESISTOR	1	***435010***
R28, R30, R36, R38, R39	619 OHM 1% .25W MC1206 RESISTOR	5	***435013***
R123, R126, R128	1.00 KOHM 1% .25W MC1206 RESISTOR	3	***435015***
R32, R87, R98, R174, R194	1.69 KOHM 1% .25W MC1206 RESISTOR	5	***435017***
R40, R72, R188, R189	2.00 KOHM 1% .25W MC1206 RESISTOR	4	***435018***
R74, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R90, R92, R94, R162, R164, R166, R168, R170	3.32 KOHM 1% .25W MC1206 RESISTOR	8	***435021***
R23, R24, R31, R33, R65, R66, R88, R89, R99, R102, R109, R110, R136, R137, R175	4.99 KOHM 1% .25W MC1206 RESISTOR	15	***435023***
R96, R100	6.19 KOHM 1% .25W MC1206 RESISTOR	2	***435025***
R5, R8, R11, R14, R19, R22, R25, R26, R43, R45, R47, R50, R51, R54, R56, R58, R59, R61	10.0 KOHM 1% .25W MC1206 RESISTOR	18	***435028***
R63, R64, R67, R69, R75-R86, R91, R93, R95, R105, R108, R111, R114, R122, R125, R130	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R132, R134, R135, R138, R139, R141, R143-R145, R153, R154, R163, R165, R167	10.0 KOHM 1% .25W MC1206 RESISTOR	14	***435028***
R169, R171, R185, R186, R191, R192	10.0 KOHM 1% .25W MC1206 RESISTOR	6	***435028***
R158, R173, R187	15.0 KOHM 1% .25W MC1206 RESISTOR	3	***435032***
R97, R101	20.0 KOHM 1% .25W MC1206 RESISTOR	2	***435034***
R1, R2, R29, R34, R35, R41, R71, R73, R117, R121, R124, R127, R129, R146, R155, R159	40.2 KOHM 1% .25W MC1206 RESISTOR	16	***435039***
R172, R177-R184, R190, R193	40.2 KOHM 1% .25W MC1206 RESISTOR	11	***435039***
R176	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1	10K TRIM POT	1	***500021***
STUDIO/HDPN/CR POT	10K POT, DUAL AUDIO	3	***500029***
TB SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	1	***510063***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
STUDIO/HDPN/CR KNOB	15mm GREY COLLET KNOB FOR 1/4" SHAFT	3	***520038***
CR POT CAP	11mm BURGANDY CAP W/WHITE LINE FOR 15mm KNOB	1	***530039***
STUDIO POT CAP	11mm BLUE CAP W/WHITE LINE FOR 15mm KNOB	1	***530045***
TB SWITCH CAP	LB STYLE YELLOW BUTTON	1	***530060***
HDPN POT CAP	CREAM CAP W. BLACK LINE FOR 15MM KNOB	1	***530080***
EXT1/EXT2/PGM/AUD/MONO/PRE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
DS1, DS2	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS3	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
DS4	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS5, DS6	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_CR2000A	PRINTED CIRCUIT BOARD SMT	1	***700649***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	4	***821009***

CRS-55e CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U20-U22	HEATSINK FOR T-220 WITH MOUNTING PIN	3	***825010***
F1, F5, F6	FUSE/ POLYSWITCH .17 AMP RESETABLE	3	***830043***
F4	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	1	***835001***
F2, F3	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	2	***835002***

SS-55e SECOND STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SS-55e	FACEPLATE	1	***005538***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	3 PIN .098" PLUG FOR #26 AWG	1	***230028***
	6 PIN .098" PLUG FOR #26 AWG	3	***230031***
	26 PIN RIBBON PLUG	1	***250043***
CT3	3 PIN .098" HEADER	1	***250062***
CT5-CT7	6 PIN .098" HEADER	3	***250065***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
U8, U25, U26	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	3	***305021***
U20, U21	LM675 POWER OP AMP	2	***320007***
U1-U7, U9-U12, U23, U24	OP-275 DUAL LINEAR OP-AMP SMT	13	***325002***
Q1	MMBTA55 PNP SMT TRANSISTOR	1	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D1, D2	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D4	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3	SS14 SCHOTTKY SMT DIODE	1	***355004***
U13-U19	74VHC4053 SMT Triple 2-Channel Analog Mux	7	***385001***
C1-C3, C19-C28, C31-C33, C47, C48, C50, C65-C68, C97-C99, C102, C105, C109-C112	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	32	***405002***
C29, C30, C95, C96, C101	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	5	***405003***
C49, C53	CAPACITOR, 330µF 25V ELECTROLYTIC SMT	2	***405004***
C69, C71, C73, C83, C86, C89	CAPACITOR, 1µF 35V ELECTROLYTIC SMT TANTALUM	6	***405005***
C4, C6, C7, C9, C11, C13, C14, C16, C34, C36, C39, C41, C43-C45, C51, C56, C58, C59, C61	CAPACITOR, 10pF 100V CERAMIC SMT	20	***415001***
C63, C75, C77, C78, C80, C82, C93, C94, C106, C108	CAPACITOR, 10pF 100V CERAMIC SMT	10	***415001***
C70, C72, C74	CAPACITOR, 33pF 100V CERAMIC SMT	3	***415002***
C85, C88, C91	CAPACITOR, 330pF 100V CERAMIC SMT	3	***415004***
C5, C8, C10, C12, C15, C17, C18, C35, C37, C38, C40, C42, C46, C52, C54, C55, C57, C60	CAPACITOR, .1µF 50V CERAMIC SMT	18	***415007***
C62, C64, C76, C79, C81, C92, C100, C103, C104, C107	CAPACITOR, .1µF 50V CERAMIC SMT	10	***415007***
C84, C87, C90	CAPACITOR, .22µF 50V CERAMIC SMT	3	***415009***
R147-R152	3.3 OHM 5% .25W MC1206 RESISTOR	6	***435001***
R6, R9, R10, R15, R20, R27, R42, R44, R55, R60, R68, R70, R106, R115, R118, R119, R131	10 OHM 5% .25W MC1206 RESISTOR	17	***435002***
R140, R156, R157, R160, R161	10 OHM 5% .25W MC1206 RESISTOR	5	***435002***
F1, F5, F6	47 OHM 5% .25W MC1206 RESISTOR	3	***435005***
R3, R4, R7, R12, R13, R16-R18, R21, R46, R48, R49, R52, R53, R57, R62, R103, R104, R107	100 OHM 5% .25W MC1206 RESISTOR	19	***435007***
R112, R113, R116, R133, R142	100 OHM 5% .25W MC1206 RESISTOR	5	***435007***

SS-55e SECOND STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R37	332 OHM 1% .25W MC1206 RESISTOR	1	***435010***
R28, R30, R36, R38, R39	619 OHM 1% .25W MC1206 RESISTOR	5	***435013***
R123, R126, R128	1.00 KOHM 1% .25W MC1206 RESISTOR	3	***435015***
R32, R87, R98, R174, R194	1.69 KOHM 1% .25W MC1206 RESISTOR	5	***435017***
R188, R189	2.00 KOHM 1% .25W MC1206 RESISTOR	2	***435018***
R74, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R90, R92, R94, R162, R164, R166, R168, R170	3.32 KOHM 1% .25W MC1206 RESISTOR	8	***435021***
R23, R24, R31, R33, R65, R66, R88, R89, R99, R102, R109, R110, R136, R137, R175	4.99 KOHM 1% .25W MC1206 RESISTOR	15	***435023***
R96, R100	6.19 KOHM 1% .25W MC1206 RESISTOR	2	***435025***
R5, R8, R11, R14, R19, R22, R25, R26, R43, R45, R47, R50, R51, R54, R56, R58, R59, R61	10.0 KOHM 1% .25W MC1206 RESISTOR	18	***435028***
R63, R64, R67, R69, R75-R86, R91, R93, R95, R105, R108, R111, R114, R122, R125, R130	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R132, R134, R135, R138, R139, R141, R143-R145, R153, R154, R163, R165, R167	10.0 KOHM 1% .25W MC1206 RESISTOR	14	***435028***
R169, R171, R185, R186, R191, R192	10.0 KOHM 1% .25W MC1206 RESISTOR	6	***435028***
R158, R173, R187	15.0 KOHM 1% .25W MC1206 RESISTOR	3	***435032***
R40, R72, R97, R101	20.0 KOHM 1% .25W MC1206 RESISTOR	4	***435034***
R1, R2, R29, R34, R35, R41, R71, R73, R117, R121, R124, R127, R129, R146, R155, R159	40.2 KOHM 1% .25W MC1206 RESISTOR	16	***435039***
R172, R177-R184, R190, R193	40.2 KOHM 1% .25W MC1206 RESISTOR	11	***435039***
R176	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1	10K TRIM POT	1	***500021***
STUDIO/HDPN/CR POT	10K POT, DUAL AUDIO	3	***500029***
TB2 SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	1	***510063***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
STUDIO2/HDPN2/HDPN3 KNOB	15mm GREY COLLET KNOB FOR 1/4" SHAFT	3	***520038***
STUDIO2 POT CAP	11mm BLUE CAP W/WHITE LINE FOR 15mm KNOB	1	***530045***
TB2 SWITCH CAP	LB STYLE YELLOW BUTTON	1	***530060***
HDPN2/HDPN3 POT CAP	CREAM CAP W. BLACK LINE FOR 15MM KNOB	2	***530080***
EXT1/EXT2/PGM/AUD/MONO/PRE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
TB SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
DS1, DS2	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS3	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
DS4	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS5, DS6	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_CR2000A	PRINTED CIRCUIT BOARD SMT	1	***700649***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	4	***821009***

SS-55e SECOND STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U20, U21	HEATSINK FOR T-220 WITH MOUNTING PIN	2	***825010***
F1, F5, F6	FUSE/ POLYSWITCH .17 AMP RESETABLE	3	***830043***
F4	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	1	***835001***
F2, F3	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	2	***835002***

SPN-55e SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SPN-55e	FACEPLATE	1	***005523***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	6 PIN .098" PLUG FOR #26 AWG	2	***230031***
	9 PIN .098" PLUG FOR #26 AWG	1	***230032***
CT6, CT7	6 PIN .098" HEADER	2	***250065***
CT4	9 PIN .098" HEADER	1	***250066***
U6	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U1-U5	NE5532 DUAL LINEAR OP-AMP SMT	5	***325001***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D5, D6	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D1-D4	1N4148 FAST SWITCHING SMT DIODE	4	***355003***
U7-U11	74VHC4053 SMT Triple 2-Channel Analog Mux	5	***385001***
C2, C3, C23, C27, C29-C31, C35, C37-C39, C44	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	12	***405002***
C10, C22, C28	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	3	***405003***
C5, C6, C8, C11, C13-C15, C17, C19, C20, C24, C26	CAPACITOR, 10pF 100V CERAMIC SMT	12	***415001***
C41	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C4, C7, C12, C16, C18, C21, C25, C32-C34, C36, C40, C43, C45	CAPACITOR, .1µF 50V CERAMIC SMT	14	***415007***
C42	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***
R2, R5, R6, R20, R39, R41	10 OHM 5% .25W MC1206 RESISTOR	6	***435002***
R7, R8, R10, R13, R81, R82	100 OHM 5% .25W MC1206 RESISTOR	6	***435007***
R42, R79	220 OHM 5% .25W MC1206 RESISTOR	2	***435009***
R46	332 OHM 1% .25W MC1206 RESISTOR	1	***435010***
R44, R48, R50, R52	619 OHM 1% .25W MC1206 RESISTOR	4	***435013***
R80	1.00 KOHM 1% .25W MC1206 RESISTOR	1	***435015***
R12, R26, R29, R30	1.69 KOHM 1% .25W MC1206 RESISTOR	4	***435017***
R37, R38, R75-R78	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***435020***
R55, R62-R68, R73, R74	4.99 KOHM 1% .25W MC1206 RESISTOR	10	***435023***
R11, R14, R28, R31	8.45 KOHM 1% .25W MC1206 RESISTOR	4	***435026***
R1, R21, R22, R24, R25, R36, R43, R45, R47, R49, R51, R57, R59, R69-R72, R83	10.0 KOHM 1% .25W MC1206 RESISTOR	18	***435028***
R40, R54	22.1 KOHM 1% .25W MC1206 RESISTOR	2	***435036***
R35	40.2 KOHM 1% .25W MC1206 RESISTOR	1	***435039***
R15, R32	53.6 KOHM 1% .25W MC1206 RESISTOR	2	***435041***
R34, R53	88.7 KOHM 1% .25W MC1206 RESISTOR	2	***435043***
CR1	10K TRIM POT	1	***500021***

SPN-55e SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
ON/OFF SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***
SW2-SW6	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	5	***510097***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	BLUE FADER KNOB WITH WHITE LINE	1	***520052***
ON SWITCH CAP	LB STYLE RED BUTTON	1	***530057***
OFF SWITCH CAP	LB STYLE YELLOW BUTTON	1	***530060***
CUE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	1	***530083***
PGM/AUD/MONO/PRE SWITCH BUTTON	SOLID WHITE LUMA-230 BUTTON	4	***530272***
FADER	100MM STEREO AUDIO ALPS FADER TYPE "K"	1	***540064***
OFF SWITCH LED	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
ON SWITCH LED	RED LED FOR R5 ON/OFF SWITCH	1	***600077***
DS1, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	2	***605017***
DS2	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS3, DS4	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_SPN2000	PRINTED CIRCUIT BOARD SMT	1	***700657***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	3	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

LS-55e LINE SELECT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
LS-55e	FACEPLATE	1	***005526***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	26 PIN PLUG	1	***250043***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
R1-R12	10.0 KOHM 1% .25W MC1206 RESISTOR	12	***435028***
SW1-SW6	6 STATION 4 POLE INTERLOCKED SWITCH, 12.5MM SPACING	1	***510040***
1-6 SWITCH BUTTON	SOLID GREY LUMA-230 BUTTON	6	***530273***
PCB_LS2600	PRINTED CIRCUIT BOARD	1	***700679***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	3	***821009***

TR-55e/FF TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
TR-55e/FF	FACEPLATE	1	***005530***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
R1-R6	1.00 KOHM 1% .25W MC1206 RESISTOR	6	***435015***
SW1-SW6	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
RTZ/FF/REW/STOP/REC/PLAY BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
DS1, DS3, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	3	***605017***
DS2, DS4, DS6	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	3	***605018***
PCB_TR2000	PRINTED CIRCUIT BOARD SMT	1	***700658***
	PEM FASTENERS	4	***821009***

TR-55e/SS TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
TR-55e/SS	FACEPLATE	1	***005531***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
R1-R6	1.00 KOHM 1% .25W MC1206 RESISTOR	6	***435015***
SW1-SW6	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
START/STOP BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
DS1, DS3, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	3	***605017***
DS2, DS4, DS6	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	3	***605018***
PCB_TR2000	PRINTED CIRCUIT BOARD SMT	1	***700658***
	PEM FASTENERS	4	***821009***

MBE-5508 MOTHER BOARD (EXTENDER) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT9	62 PIN PC MOUNT CARDEDGE CONNECTOR	8	***220027***
CT10	60 PIN BOARD-TO-BOARD MALE CONNECTOR	1	***220074***
CT1	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
C2	CAPACITOR, 10µF 63V ELECTROLYTIC	1	***400012***
C10, C11	CAPACITOR, 1µF 35V TANTALUM ORANGE	2	***400014***
C5, C8, C12, C14, C16	330UF 35V ELECTROLYTIC CAPACITOR	5	***400075***
C1, C3, C4, C6, C7, C9, C13, C15	CAPACITOR, .1µF 50V MONOLITHIC CERAMIC	8	***410005***
PCB_MBE55	PRINTED CIRCUIT BOARD	1	***700812***

MBR-2000 MOTHER BOARD (RIGHT) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT5	62 PIN PC MOUNT CARDEDGE CONNECTOR	4	***220027***
CT1	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
CT6, CT7, CT9, CT10	3 PIN .098" HEADER	4	***250062***
CT11	16PIN BOXED HEADER, STRAIGHT	1	***250075***
CT8	10PIN BOXED HEADER, STRAIGHT	2	***250077***
PCB_MBR2000	PRINTED CIRCUIT BOARD	1	***700653***

MBR-5510 MOTHER BOARD (RIGHT) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT6-CT14, CT17	62 PIN PC MOUNT CARDEDGE CONNECTOR	10	***220027***
CT5	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
CT15, CT19	3 PIN .098" HEADER	2	***250062***
CT21	16PIN BOXED HEADER, STRAIGHT	1	***250075***
CT2, CT22	10PIN BOXED HEADER, STRAIGHT	2	***250077***
C7	CAPACITOR, 10µF 63V ELECTROLYTIC	1	***400012***
C14, C15	CAPACITOR, 1µF 35V TANTALUM ORANGE	2	***400014***
C9, C12, C16, C18, C19	330UF 35V ELECTROLYTIC CAPACITOR	5	***400075***
C1-C6, C8, C10, C11, C13, C17, C20	CAPACITOR, .1µF 50V MONOLITHIC CERAMIC	12	***410005***
PCB_MRR55	PRINTED CIRCUIT BOARD	1	***700813***
F1, F2	FUSE/ POLYSWITCH .4AMP RESETABLE	2	***830018***

CLK-55e CLOCK/TIMER PARTS LIST (for 26-pos. frame)

ITEM#	DESCRIPTION	QTY	W#
CT3-CT6	HEADER MTA 02 POS .1CC CHAIR	4	***230064A***
Y1	14 PIN .3" DIP SMT SOCKET	1	***245002***
DS1-DS11	20 POSITION SNAP APART SOCKET, .1" SIL	5	***250014***
CT7	40 PIN BREAKAWAY HEADER STRIPS, STRAIGHT .1" SIL	0.15	***250016***
CT2	10PIN BOXED HEADER, STRAIGHT	1	***250077***
U5	DS1706RESA TTL SMT 3.3V MicroMonitor	1	***305054***
U4	DS1306E 32KHZ RTC SMT	1	***305057***
U3	XCF01SV020CE PROM	1	***315077***
U1	XC2S30_100 SPARTAN II GATE ARRAY smt	1	***315080***
Q11	LT1117 3.3V 800mA REGULATOR SMT	1	***335004***
Q12	LT1117 2.5V 800mA REGULATOR SMT	1	***335005***
Q9	PQ05DZ11 5V 1A REGULATOR WITH ENABLE SMT T/R	1	***335011***
Q10	MMBTA05 NPN SMT TRANSISTOR	1	***345001***
Q1-Q8	FDN340P 2A P-CHANNEL FET SMT TRANSISTOR	8	***345005***
D1	1N4002W RECTIFYING 1AMP SMT DIODE	1	***355001***
Z1	5.1V SMT ZENER DIODE C5V1	1	***355002***
D2	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3, D4	BAT54S SCHOTTKY SMT 2 SERIES DIODES 200mA	2	***355006***
Y1	32.768 KHZ TEMPERATURE-COMPENSATED CRYSTAL OSCILLATOR	1	***370036***
C20	CAP 2.2F SUPERCAP 5.5V	1	***400069A***
C1, C41, C42	150UF 10V TANTALUM CAPACITOR, SMT	3	***405008***
C6	CAPACITOR, 33pF 100V CERAMIC 0603 SMT	1	***405011***
C5	CAPACITOR, 330µF 35V MID/LOW ESR ELECTROLYTIC SMT	1	***405014***
C13, C14	CAPACITOR, 33pF 100V CERAMIC 0603 SMT	2	***415011***
C27, C29, C31, C40	CAPACITOR, .01µF 50V CERAMIC 0603 SMT	4	***415012***
C2-C4, C7-C12, C15-C18, C21-C26, C28, C32-C39	CAPACITOR, .1µF 25V CERAMIC 0603 SMT	28	***415013***
C19, C30	CAPACITOR, 220pF 100V CERAMIC 0603 SMT	2	***415015***
J3, J4	0 OHM 5% .25W JUMPER-RESISTOR	2	***430100***
R45	1.0 MOHM 5% .25W MC1206 RESISTOR	1	***435049***
R57	5.1 OHM 5% 1/16W 0603 RESISTOR SMT	1	***435057***
R39, R40, R44, R48, R51, R53, R60, R64, R69, R80	10.0 KOHM 1% 1/16W 0603 RESISTOR SMT	10	***435060***
R4, R7, R9, R11, R13, R15, R18, R21, R36, R37, R58, R66, R71, R85	1.00 KOHM 1% 1/16W 0603 RESISTOR SMT	14	***435061***
R1-R3, R6, R17, R20, R41-R43, R46, R47, R49, R50, R52	51 OHM 1% 1/16W 0603 RESISTOR SMT	14	***435062***
R62, R65, R70, R77	33 OHM 1% 1/16W 0603 RESISTOR SMT	4	***435065***
R23, R25, R27, R29, R33, R34, R38, R61, R63, R68, R75, R76, R78, R83, R84	4.99 KOHM 1% 1/16W 0603 RESISTOR SMT	15	***435067***
R54, R73	40.2 KOHM 1% 1/16W 0603 RESISTOR SMT	2	***435068***

CLK-55e CLOCK/TIMER PARTS LIST (for 26-pos. frame)

ITEM#	DESCRIPTION	QTY	W#
R5, R8, R10, R12, R14, R16, R19, R22, R87	332 OHM 1% 1/16W 0603 RESISTOR SMT	9	***435070***
R24, R26, R28, R30-R32, R35, R67, R74, R79, R81, R86, R88	220Ω 5% 0603 SMT RESISTOR	13	***435073***
R72, R82	88.7 KOHM 1% 1/16W 0603 RESISTOR SMT	2	***435078***
R59	3.83KΩ 1% 0603 SMT RESISTOR	1	***435081***
SW5	PUSHBUTTON SWITCH GREEN LED/ NO CAP	1	***510094***
SW6	PUSHBUTTON SWITCH RED LED/ NO CAP	1	***510095***
SW7	4 POSITION SMT DIP SWITCH, TAPE SEALED	1	***515001***
SW5	GREEN SWITCH CAP	1	***530001***
SW6	CLEAR BUTTON WITH WHITE FRAME AND RED DIFFUSER	1	***530266***
DS12	HIGH INTENSITY RED SMT 0603 LED VERTICAL	1	***605020***
DS13	HIGH INTENSITY GREEN SMT 0603 LED VERTICAL	1	***605023***
DS1-DS6	SINGLE DIGIT LED DISPLAY	6	***610004***
DS8-DS11	SINGLE SEGMENT GREEN LED DISPLAY	4	***610018***
PCB_CLK55	PRINTED CIRCUIT BOARD SMT	1	***700815***
	ID=.125_OD=.187_H=.12 NYLON SPACER	2	***823049***
F1	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	1	***835002***

TMR-55e TIMER PARTS LIST (for 18-pos. frame)

ITEM#	DESCRIPTION	QTY	W#
Y1	14 PIN .3" DIP SMT SOCKET	1	***245002***
DS8-DS11	20 POSITION SNAP APART SOCKET, .1" SIL	2	***250014***
CT7	40 PIN BREAKAWAY HEADER STRIPS, STRAIGHT .1" SIL	0.15	***250016***
CT2	10PIN BOXED HEADER, STRAIGHT	1	***250077***
U5	DS1706RESA TTL SMT 3.3V MicroMonitor	1	***305054***
U4	DS1306E 32KHZ RTC SMT	1	***305057***
U3	XCF01SV020CE PROM	1	***315077***
U1	XC2S30_100 SPARTAN II GATE ARRAY smt	1	***315080***
Q11	LT1117 3.3V 800mA REGULATOR SMT	1	***335004***
Q12	LT1117 2.5V 800mA REGULATOR SMT	1	***335005***
Q9	PQ05DZ11 5V 1A REGULATOR WITH ENABLE SMT T/R	1	***335011***
Q10	MMBTA05 NPN SMT TRANSISTOR	1	***345001***
Q1-Q8	FDN340P 2A P-CHANNEL FET SMT TRANSISTOR	8	***345005***
D1	1N4002W RECTIFYING 1AMP SMT DIODE	1	***355001***
Z1	5.1V SMT ZENER DIODE C5V1	1	***355002***
D2	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3, D4	BAT54S SCHOTTKY SMT 2 SERIES DIODES 200mA	2	***355006***
Y1	32.768 KHZ TEMPERATURE-COMPENSATED CRYSTAL OSCILLATOR	1	***370036***
C1, C41, C42	150UF 10V TANTALUM CAPACITOR, SMT	3	***405008***
C6	CAPACITOR, 33pF 100V CERAMIC 0603 SMT	1	***405011***
C5	CAPACITOR, 330µF 35V MID/LOW ESR ELECTROLYTIC SMT	1	***405014***
C13, C14	CAPACITOR, 33pF 100V CERAMIC 0603 SMT	2	***415011***
C27, C29, C31, C40	CAPACITOR, .01µF 50V CERAMIC 0603 SMT	4	***415012***
C2-C4, C7-C12, C15-C18, C21-C26, C28, C32-C39	CAPACITOR, .1µF 25V CERAMIC 0603 SMT	28	***415013***
C19, C30	CAPACITOR, 220pF 100V CERAMIC 0603 SMT	2	***415015***
J3, J4	0 OHM 5% .25W JUMPER-RESISTOR	2	***430100***
R45	1.0 MOHM 5% .25W MC1206 RESISTOR	1	***435049***
R57	5.1 OHM 5% 1/16W 0603 RESISTOR SMT	1	***435057***
R39, R40, R44, R48, R51, R53, R60, R64, R69, R80	10.0 KOHM 1% 1/16W 0603 RESISTOR SMT	10	***435060***
R4, R7, R9, R11, R13, R15, R18, R21, R36, R37, R58, R66, R71, R85	1.00 KOHM 1% 1/16W 0603 RESISTOR SMT	14	***435061***
R1-R3, R6, R17, R20, R41-R43, R46, R47, R49, R50, R52	51 OHM 1% 1/16W 0603 RESISTOR SMT	14	***435062***
R62, R65, R70, R77	33 OHM 1% 1/16W 0603 RESISTOR SMT	4	***435065***
R23, R25, R27, R29, R33, R34, R38, R61, R63, R68, R75, R76, R78, R83, R84	4.99 KOHM 1% 1/16W 0603 RESISTOR SMT	15	***435067***
R54, R73	40.2 KOHM 1% 1/16W 0603 RESISTOR SMT	2	***435068***
R5, R8, R10, R12, R14, R16, R19, R22, R87	332 OHM 1% 1/16W 0603 RESISTOR SMT	9	***435070***
R24, R26, R28, R30-R32, R35, R67, R74, R79, R81, R86, R88	220Ω 5% 0603 SMT RESISTOR	13	***435073***

TMR-55e TIMER PARTS LIST (for 18-pos. frame)

ITEM#	DESCRIPTION	QTY	W#
R72, R82	88.7 KOHM 1% 1/16W 0603 RESISTOR SMT	2	***435078***
R59	3.83KΩ 1% 0603 SMT RESISTOR	1	***435081***
SW7	4 POSITION SMT DIP SWITCH, TAPE SEALED	1	***515001***
DS12	HIGH INTENSITY RED SMT 0603 LED VERTICAL	1	***605020***
DS13	HIGH INTENSITY GREEN SMT 0603 LED VERTICAL	1	***605023***
DS8-DS11	SINGLE SEGMENT GREEN LED DISPLAY	4	***610018***
PCB_CLK55	PRINTED CIRCUIT BOARD SMT	1	***700815***
F1	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	1	***835002***

SPS-100 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	SPS POWER SUPPLY CABLE	1	***007222***
	PSU-1 FACE BRACKET	1	***007328***
	SPS-100 COVER	2	***007355***
	SPS-100 CHASSIS	1	***007356***
	SPS-100 RACK FACE	1	***007357***
	7 1/2' BLACK POWER CORD	1	***150017***
	40 AMP RIGHT ANGLE PCB MOUNT SOCKET ROHS COMPLIANT	8	***200116***
	8 POSITION RECEPTACLE HOUSING	1	***200121***
	GROUND LUG	1	***230002***
CT1	POWER CORD CONNECTOR WITH PRINTED CIRCUIT TERMINALS ROHS COMPLIANT	1	***230071***
CT4, CT5	3 PIN .098" HEADER	2	***250062***
U1	IC PROGRAMMABLE SHUNT REGULATOR ROHS COMPLIANT	1	***320034***
U3	FLYBACK QUASY SMPS CONTROLLER	1	***320035***
U2	OPTO ROHS COMPLIANT	1	***340050***
D12	MB3510 BRIDGE RECTIFIER 35 AMP 1000 VOLT	1	***350000***
D5, D6	MBR4045 SCHOTTKY DIODE	2	***350014***
D3, D4	DIODE ROHS COMPLIANT	2	***350038***
Z1	33V 5 WATT ZENER DIODE	1	***350039***
D7	800V 4A BRIDGE RECTIFIER ROHS COMPLIANT	1	***350042***
D1, D2, D11, D13, D14	DIODE ULTRA FAST SWITCHING ROHS COMPLIANT	5	***350043***
D8, D10	1N4148 FAST SWITCHING SMT DIODE	2	***355003***
D9	SS14 SCHOTTKY SMT DIODE	1	***355004***
Z2-Z6	5.6V SMT 3WATT ZENER DIODE ROHS COMPLIANT	5	***355007***
RT1	10 OHMS 3 AMPS THERMISTOR ROHS COMPLIANT	1	***360007***
V1	250V METAL OXIDE VARISTOR ROHS COMPLIANT	1	***360008***
C62, C65	270UF 420V ELECTROLYTIC CAPACITOR ROHS COMPLIANT	2	***400073***
C54	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	1	***405002***
C15-C18, C20-C23, C27-C30, C33-C36, C53, C64	CAPACITOR, 330µF 35V MID/LOW ESR ELECTROLYTIC SMT ROHS COMPLIANT	18	***405014***
C14, C19, C26, C32	CAPACITOR, 220µF 50V MID/LOW ESR ELECTROLYTIC SMT	4	***405015***
L1-L4	4.7µH FERRITE CHOKE FOR BUCK REGULATOR SMT ROHS COMPLIANT	4	***405017***
C24, C25, C37, C43	CAPACITOR, .0047µUF 1KV CERAMIC, UL RATED	4	***410015***
C59, C60	2.2NF 1KV CERAMIC CAPACITOR ROHS COMPLIANT	2	***410041***
C1-C8, C51, C52	CAPACITOR, .001µF 50V CERAMIC SMT	10	***415005***
C50	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C48, C58	CAPACITOR, .1µF 50V CERAMIC SMT	2	***415007***
C57	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***

SPS-100 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
C45, C46	CAPACITOR, 1uF 50V CERAMIC 1210 SMT ROHS COMPLIANT	2	***415016***
C10-C13, C39-C42, C55	22UF 25V CERAMIC SMT CAPACITOR ROHS COMPLIANT	9	***415018***
C9, C38	10UF 50V CERAMIC SMT CAPACITOR ROHS COMPLIANT	2	***415019***
C31, C44, C56, C61	CAPACITOR, .47µF 250V METAL FILM ROHS COMPLIANT	4	***420032***
C63	CAPACITOR, .1µF 400V SNUBER FILM ROHS COMPLIANT	1	***420068***
C47, C49	2.2NF 250V FILM CAPACITOR WITH 16MM LEADS ROHS COMPLIANT	2	***420069***
R39, R40, R64	1 MEG 5% 3 WATT MINIATURE FLAMEPROOF RESISTOR ROHS COMPLIANT	3	***430389***
R65	11K OHM 5% 5 WATT RESISTOR	1	***430402***
R58, R59	10 OHM 5% .25W MC1206 RESISTOR	2	***435002***
R47, R49	220 OHM 5% .25W MC1206 RESISTOR	2	***435009***
R13, R14, R19, R20, R24, R25, R29-R31, R34, R37, R38	619 OHM 1% .25W MC1206 RESISTOR	12	***435013***
R46, R63	1.00 KOHM 1% .25W MC1206 RESISTOR	2	***435015***
R45	1.30 KOHM 1% .25W MC1206 RESISTOR	1	***435016***
R1, R2, R4, R5, R7, R8, R10-R12, R16-R18,R22, R23, R27, R28, R32, R33, R35, R36, R54, R55	2.00 KOHM 1% .25W MC1206 RESISTOR	22	***435018***
R51-R53	2.43 KOHM 1% .25W MC1206 RESISTOR	3	***435020***
R50	3.32 KOHM 1% .25W MC1206 RESISTOR	1	***435021***
R41, R42	4.99 KOHM 1% .25W MC1206 RESISTOR	2	***435023***
R3, R6, R9, R15, R21, R26, R56, R57	10.0 KOHM 1% .25W MC1206 RESISTOR	8	***435028***
R44	26.7 KOHM 1% .25W MC1206 RESISTOR	1	***435037***
R43	40.2 KOHM 1% .25W MC1206 RESISTOR	1	***435039***
R48	53.6 KOHM 1% .25W MC1206 RESISTOR	1	***435041***
R60-R62	88.7 KOHM 1% .25W MC1206 RESISTOR	3	***435043***
CR1	1K TRIM POT SMT	1	***505001***
DS1	HIGH INTENSITY GREEN LED ROHS COMPLIANT	1	***600072***
PCB_SPS100	PRINTED CIRCUIT BOARD SMT	1	***700915***
L5	COMMOM MODE LINE FILTER CHOKE ROHS COMPLIANT	1	***800057***
T1	TRANSFORMER +3.3V,+5V,+8V,±16V,+36V 40W OUTPUT ROHS COMPLIANT	1	***800067***
T2	TRANSFORMER +8V,±16V,+36/48V 100W OUTPUT	1	***800069***
	PHILLIPS PANHEAD S/S SCREW	18	***820019***
	PHILLIPS PAN HEAD MACHINE SCREW SS	3	***820021***
	PHILLIP PANHEAD STAINLESS STEEL SCREW	4	***820035***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	SOCKET HEAD CAP SCREW BLACK	4	***820117***
	1/4" HEX KEPNUTS S/Z	3	***821005***
	WASHER #4 FLAT BLACK FW-4-032	8	***822024A***
	RESISTOR STANDOFF	27	***823011***

SPS-100 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	3/16 HEX 4-40 X 3/8" LONG BRASS/ZINC PLATE STANDOFF	6	***823085***
D3-D6	HEATSINK TO-220/T-3P DIODE ROHS COMPLIANT	4	***825030***
U3	HEATSINK TO-220F5 CONTROLLER ROHS COMPLIANT	1	***825032***
F1, F2	PC MOUNT FUSE HOLDER	4	***830014***
F1, F2	SMALL 2 AMP FUSE	2	***830015***
F4	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	1	***835002***
F3	FUSE/ POLYSWITCH .160AMP SMT 1206 RESETABLE ROHS COMPLIANT	1	***835003***
CT2	POWER LINE FILTER MODULE R/A	1	***960015***

LED-3 METER LED LAMP PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
Q1-Q5	MMBTA05 NPN SMT TRANSISTOR	5	***345001***
C1, C2	CAPACITOR, .1µF 50V CERAMIC SMT	2	***415007***
R2-R4, R7	3.3 OHM 5% .25W MC1206 RESISTOR	4	***435001***
R5, R6,R8, R9	39 OHM 5% .25W MC1206 RESISTOR	4	***435004***
R1	1.00 KOHM 1% .25W MC1206 RESISTOR	1	***435015***
DS1-DS8	HIGH INTENSITY YELLOW SMT LED VERTICAL	8	***605013***
PCB_LED3	PRINTED CIRCUIT BOARD SMT	1	***700292***

R-55e-18 26-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	CLK-55e CLOCK/TIMER ASSEMBLY	1	***005558***
	MB REAR	1	***003565***
	PAN BRACE	1	***003567***
	MB POWER CONNECTOR BRACKET	1	***003579***
	BLANK FACEPLATE FOR R-55e	6	***005539***
	QMP-4 LOADED CARD ASSEMBLY	1	***005549***
	MBE-5508 LOADED CARD ASSEMBLY	1	***005551***
	MBR-5510 LOADED CARD ASSEMBLY	1	***005555***
	R55e-18 METAL ARMREST	1	***005577***
	R55e-18 METERBRIDGE COVER	1	***005578***
	R55e-18 FRAME PAN	1	***005579***
	R55e-18 CONNECTOR KIT	1	***005596***
	LED-3 LOADED CARD	4	***007104***
	CLK-220 LENSE	1	***026057A***
	PAINTED MDF LEFT SIDEPLATE	1	***100090***
	PAINTED MDF RIGHT SIDEPLATE	1	***100091***
	ALUMINUM CONTINUOUS HINGE, 72"X1.06" X .040"	0.55	***110024***
	SET RIGHT/LEFT END CAP	1	***130231***
	SET FRONT/BACK FOAM INSERT	1	***130232***
	3/8" WIDE X 1/16" THICK X 100' LONG BLACK FELT STRIP	0.02	***130248***
	26 COND FLAT RIBBON CABLE	2.5	***150083***
	29 7/8" X 17 3/4" X 31 7/8" 275D BOX TOP	1	***160046***
	29 1/8" X 17 5/16" X 31 3/4" BOX BOTTOM	1	***160047***
	10 PIN PLUG	5	***230020***
	3 PIN .098" PLUG FOR #26 AWG	2	***230028***
	PLASTIC SHELL CHASSIS CONNECTOR	1	***230070***
	16 PIN RIBBON PLUG	1	***250039***
	RTS JACK	1	***260005***
	PIN M MOLEX 14-20GA REEL	8	***270050A***
	PATCH CLIPS	9	***280000***
	PATCH CLIPS	3	***280007***
	VU METER	4	***630004***
	LIGHT BOX FOR AL29 METER WITHOUT LAMP OR LAMPHOLDER	4	***630008***
	FLAT WASHER	1	***822007***
	SHOULDER WASHER	1	***822008***
	4-40 X .250 HEX ZINC	27	***823016***

R-55e-18 26-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	#6 THUMB SCREW	1	***823029***
	4-40 X .50 ROUND NYLON SPACER	4	***823038***
	4-40 X .375 THREADED HEX NYLON STANDOFF	4	***823045***
	RECESSED BUMPER FOR #8 SCREW	4	***824032***
	METER TERMINAL	8	***826001***
	SPEAKER	1	***960000***

R-55e-12 18-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	MB REAR	1	***003564***
	PAN BRACE	1	***003566***
	MB POWER CONNECTOR BRACKET	1	***003579***
	BLANK FACEPLATE FOR R-55e	4	***005539***
	QMP-4 LOADED CARD ASSEMBLY	1	***005549***
	MBE-5508 LOADED CARD ASSEMBLY	1	***005551***
	TIMER ASSEMBLY FOR R55e-12	1	***005552***
	MBR-5510 LOADED CARD ASSEMBLY	1	***005555***
	R55e-12 FRAME PAN	1	***005580***
	R55e-12 METERBRIDGE COVER	1	***005583***
	R55e-12 METAL ARMREST	1	***005584***
	R55e-12 CONNECTOR KIT	1	***005595***
	LED-3 LOADED CARD	4	***007104***
	CLK-220 LENSE	1	***026057A***
	PAINTED MDF LEFT SIDEPLATE	1	***100090***
	PAINTED MDF RIGHT SIDEPLATE	1	***100091***
	ALUMINUM CONTINUOUS HINGE, 72"X1.06" X .040"	0.33	***110024***
	SET RIGHT/LEFT END CAP	1	***130231***
	SET FRONT/BACK FOAM INSERT	1	***130232***
	3/8" WIDE X 1/16" THICK X 100' LONG BLACK FELT STRIP	0.02	***130248***
	26 COND FLAT RIBBON CABLE	2.5	***150083***
	29 7/8" X 17 3/4" X 31 7/8" 275D BOX TOP	1	***160046***
	29 1/8" X 17 5/16" X 31 3/4" BOX BOTTOM	1	***160047***
	10 PIN PLUG	2	***230020***
	3 PIN .098" PLUG FOR #26 AWG	2	***230028***
	PLASTIC SHELL CHASSIS CONNECTOR	1	***230070***
	16 PIN RIBBON PLUG	1	***250039***
	RTS JACK	1	***260005***
	PIN M MOLEX 14-20GA REEL	8	***270050A***
	PATCH CLIPS	8	***280000***
	PATCH CLIPS	3	***280007***
	VU METER	4	***630004***
	LIGHT BOX FOR AL29 METER WITHOUT LAMP OR LAMPHOLDER	4	***630008***
	FLAT WASHER	1	***822007***
	SHOULDER WASHER	1	***822008***
	4-40 X .250 HEX ZINC	27	***823016***

R-55e-12 18-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	#6 THUMB SCREW	1	***823029***
	4-40 X .50 ROUND NYLON SPACER	4	***823038***
	4-40 X .375 THREADED HEX NYLON STANDOFF	4	***823045***
	RECESSED BUMPER FOR #8 SCREW	4	***824032***
	METER TERMINAL	8	***826001***
	SPEAKER	1	***960000***

R-55e-8 12-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	MBR-2000 LOADED CARD	1	***003549***
	MB POWER CONNECTOR BRACKET	1	***003579***
	BLANK FACEPLATE FOR R55e	2	***005539***
	QMP-4 LOADED CARD ASSEMBLY	1	***005549***
	MBE-5508 LOADED CARD ASSEMBLY	1	***005551***
	R55e-8 FRAME PAN	1	***005570***
	R55e-8 PAN BRACE	1	***005571***
	R55e-8 MB REAR	1	***005572***
	R55e-8 MB COVER	1	***005573***
	R55e-8 METAL ARMREST	1	***005574***
	R55e-8 CONNECTOR KIT	1	***005594***
	LED-3 LOADED CARD	2	***007104***
	PAINTED MDF LEFT SIDEPLATE	1	***100090***
	PAINTED MDF RIGHT SIDEPLATE	1	***100091***
	ALUMINUM CONTINUOUS HINGE, 72"X1.06" X .040"	0.3	***110024***
	SET RIGHT/LEFT END CAP	1	***130231***
	SET FRONT/BACK FOAM INSERT	1	***130232***
	3/8" WIDE X 1/16" THICK X 100' LONG BLACK FELT STRIP	0.015	***130248***
	26 COND FLAT RIBBON CABLE	2	***150083***
	29 7/8" X 17 3/4" X 31 7/8" 275D BOX TOP	1	***160046***
	29 1/8" X 17 5/16" X 31 3/4" BOX BOTTOM	1	***160047***
	10 PIN RIBBON PLUG	2	***230020***
	3 PIN .098" PLUG FOR #26 AWG	2	***230028***
	PLASTIC SHELL CHASSIS CONNECTOR	1	***230070***
	16 PIN RIBBON PLUG	1	***250039***
	RTS JACK	1	***260005***
	PIN M MOLEX 14-20GA REEL	8	***270050A***
	PATCH CLIPS	2	***280007***
	VU METER	2	***630004***
	LIGHT BOX FOR AL29 METER WITHOUT LAMP OR LAMPHOLDER	2	***630008***
	FLAT WASHER	1	***822007***
	SHOULDER WASHER	1	***822008***
	4-40 X .250 HEX ZINC	19	***823016***
	632 THUMB SCREW	1	***823029***
	4-40 X .375 THREADED HEX NYLON STANDOFF	4	***823045***
	RECESSED BUMPER FOR #8 SCREW	4	***824032***

R-55e-8 12-pos. FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	METER TERMINAL	4	***826001***
	SPEAKER	1	***960000***

R-55e-18 CONNECTOR KIT PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	R-55e MANUAL	1	***005598***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	30	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	759	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	21	***200102***
	9 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	1	***200107***
	25 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	9	***200108***
	DB9 INDIVIDUAL CRIMP PIN PLUG FOR R-55e CONNECTOR KIT	1	***200109***
	CRIMP TOOL	1	***850067***
	PIN EXTRACTOR TOOL FOR 220 DB PINS	1	***850069***

R-55e-12 CONNECTOR KIT PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	R-55e MANUAL	1	***005598***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	22	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	559	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	13	***200102***
	9 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	1	***200107***
	25 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	9	***200108***
	DB9 INDIVIDUAL CRIMP PIN PLUG FOR R-55e CONNECTOR KIT	1	***200109***
	CRIMP TOOL	1	***850067***
	PIN EXTRACTOR TOOL FOR 220 DB PINS	1	***850069***

R-55e-8 CONNECTOR KIT PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	R-55e MANUAL	1	***005598***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	14	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	359	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	9	***200102***
	9 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	1	***200107***
	25 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	5	***200108***
	DB9 INDIVIDUAL CRIMP PIN PLUG FOR R-55e CONNECTOR KIT	1	***200109***
	CRIMP TOOL	1	***850067***
	PIN EXTRACTOR TOOL FOR 220 DB PINS	1	***850069***

R-55e CONSOLE PARTS LIST

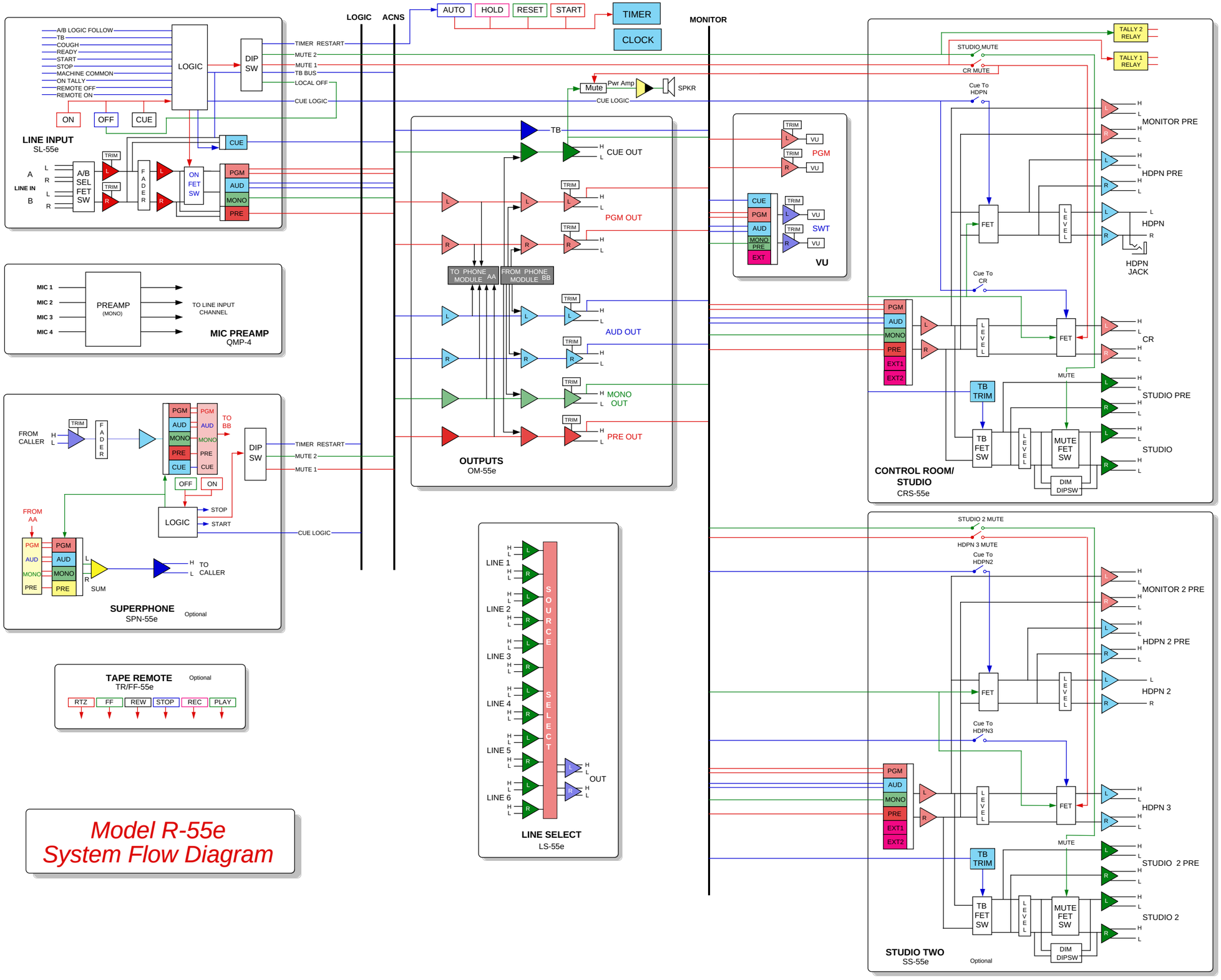
ITEM#	DESCRIPTION	QTY	W#
	SL-55e MODULE		***005501***
	SPN-55e MODULE		***005503***
	LS-55e MODULE		***005506***
	TR-55e/FF MODULE		***005510***
	TR-55e/SS MODULE		***005511***
	OM-55e MODULE		***005516***
	CRS-55e MODULE		***005517***
	SS-55e MODULE		***005518***
	BK-55e FACEPLATE		***002919***
	R55e-8 12-pos. WIRED FRAME		***005561***
	R55e-12 18-pos. WIRED FRAME		***005562***
	R55e-18 26-pos. WIRED FRAME		***005563***
	R60 POWER SUPPLY		***007010***
	POWER CABLE FROM CONSOLE TO PS-6040 POWER SUPPLY		***027096A***
	OPTIONAL SPARE PARTS KIT FOR R-55e		***055575***

SPARE PARTS KIT PARTS LIST

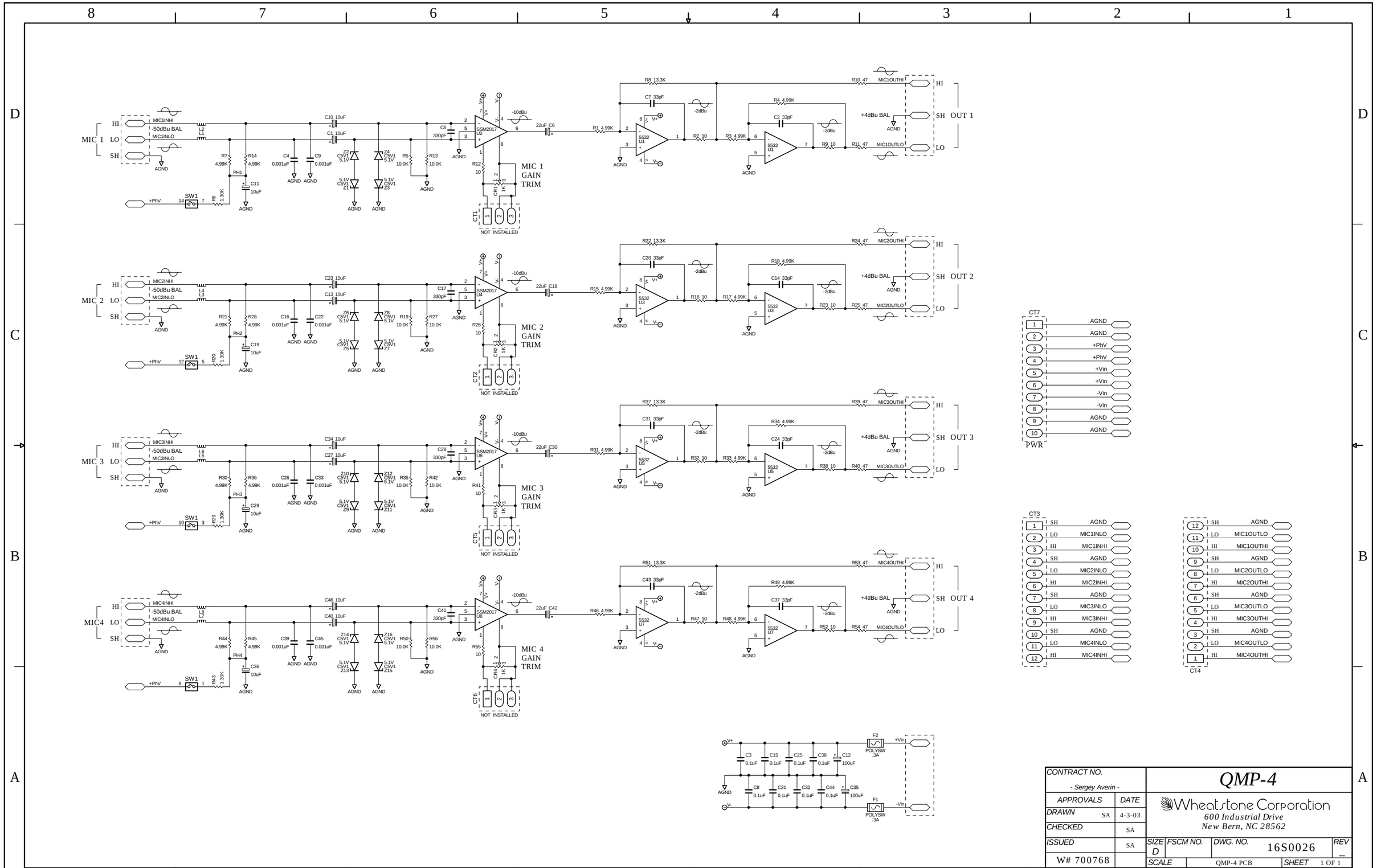
ITEM#	DESCRIPTION	QTY	W#
	WIRED SELMARK CARBON STEREO FADER FOR R-55e	1	***053578***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	1	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	10	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	1	***200102***
	2017 MIC PREAMP IC	1	***320003***
	LM675 POWER OP AMP	2	***320007***
	10K POT, DUAL AUDIO	1	***500029***
	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***
	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	2	***510097***
	2 POLE PUSHBUTTON SWITCH, MOMENTARY	1	***510113***
	LB STYLE RED BUTTON	1	***530057***
	LB STYLE YELLOW BUTTON	1	***530060***
	DPDT RELAY,5V	1	***550006***
	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
	RED LED FOR R5 ON/OFF SWITCH	1	***600077***
	PHILLIPS SERRATED PANHEAD S/S SCREW	10	***820106***

Schematics and Load Sheets

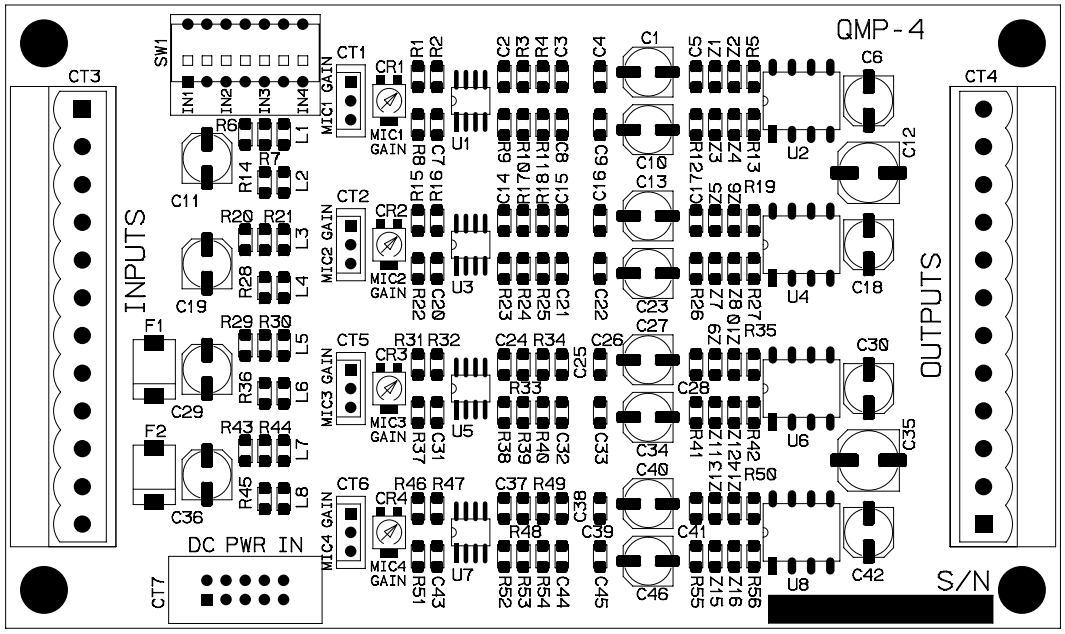
Chapter Contents



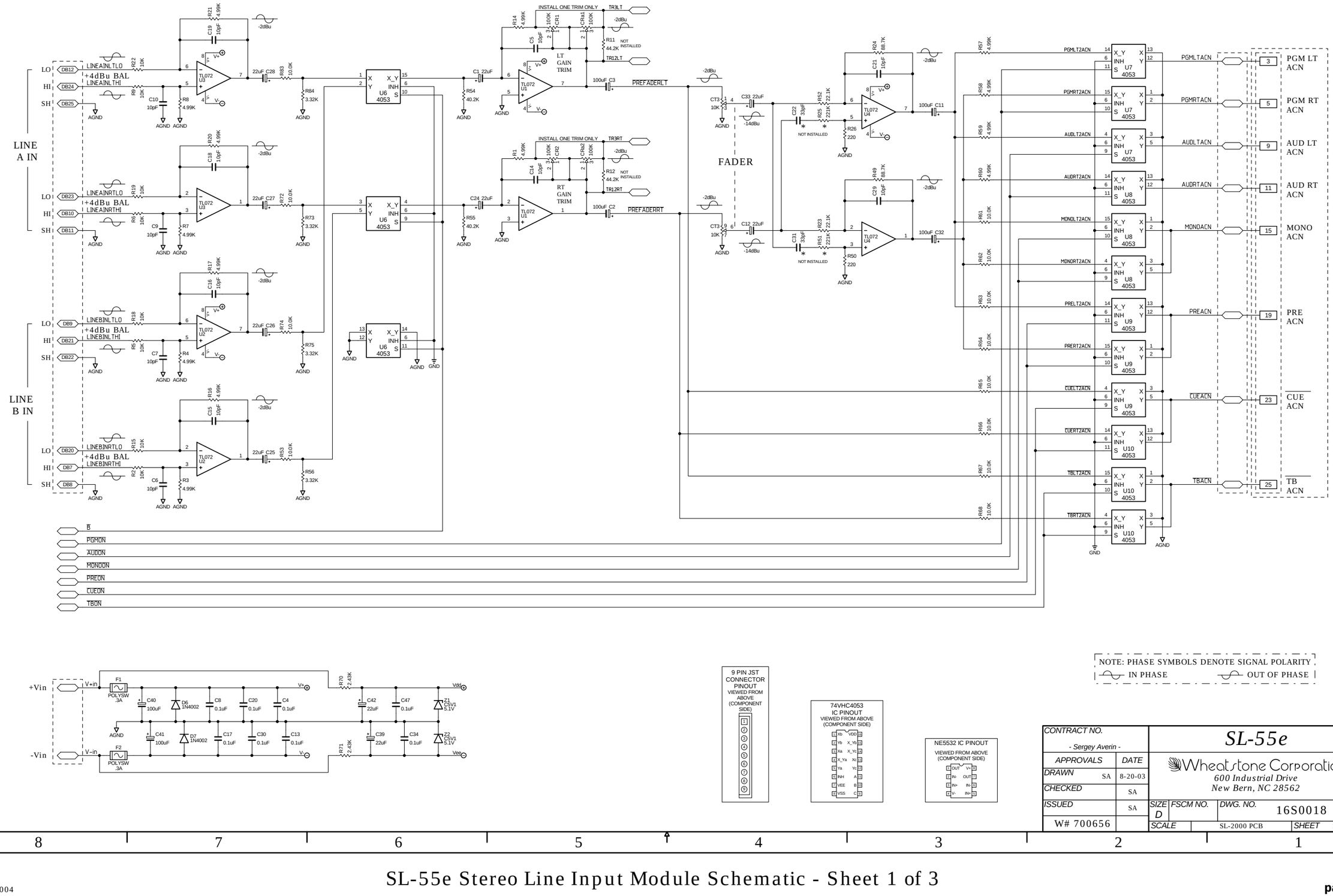
Model R-55e System Flow Diagram



CONTRACT NO. - Sergey Averin -	QMP-4
APPROVALS / DATE	Wheatstone Corporation, 600 Industrial Drive, New Bern, NC 28562
DRAWN SA 4-3-03	
CHECKED SA	
ISSUED SA	SIZE D / FSCM NO. / DWG. NO. 16S0026 / REV —
W# 700768	SCALE QMP-4 PCB / SHEET 1 OF 1

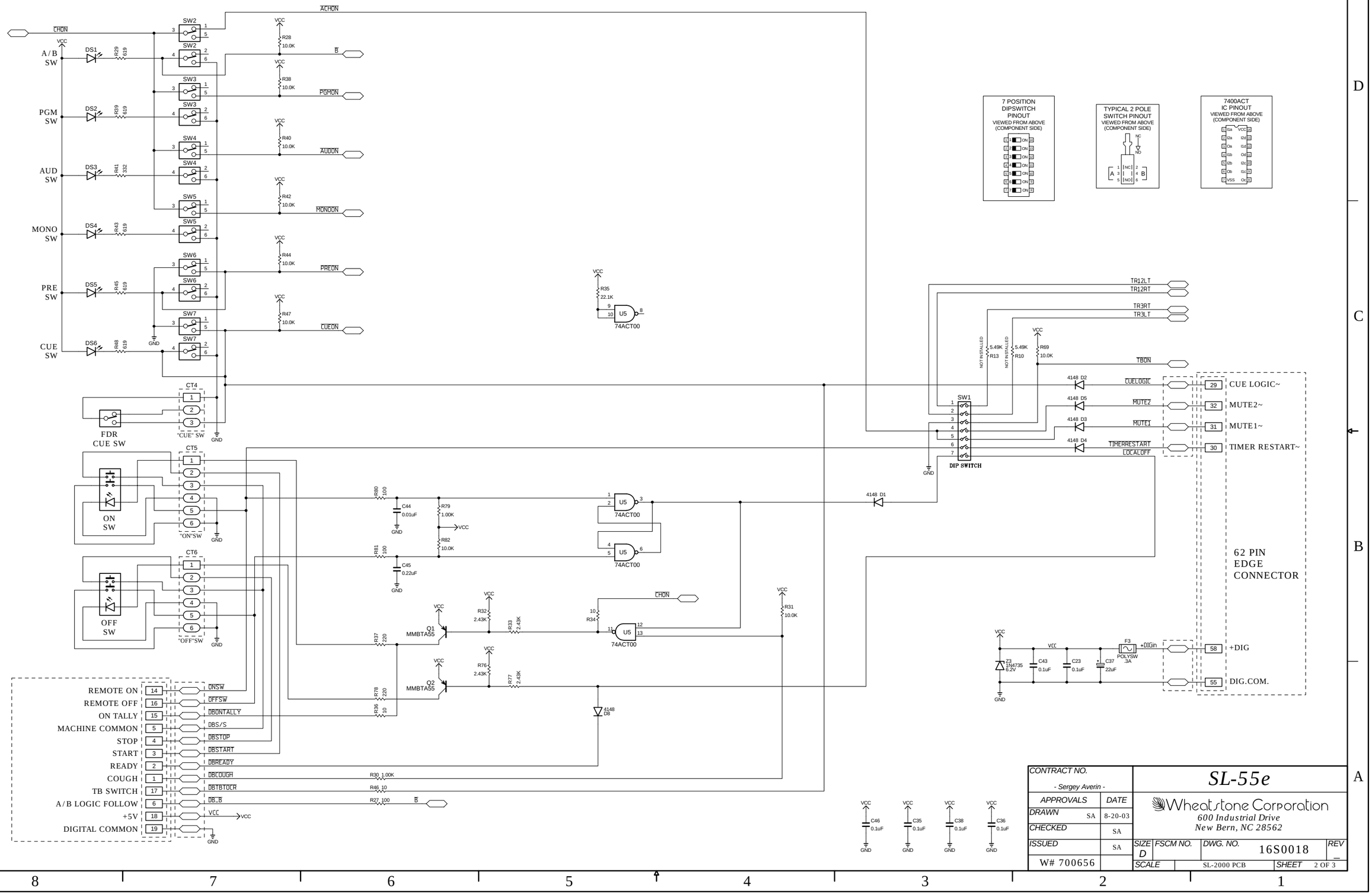


QMP-4 Quad Mic Preamp - Load Sheet



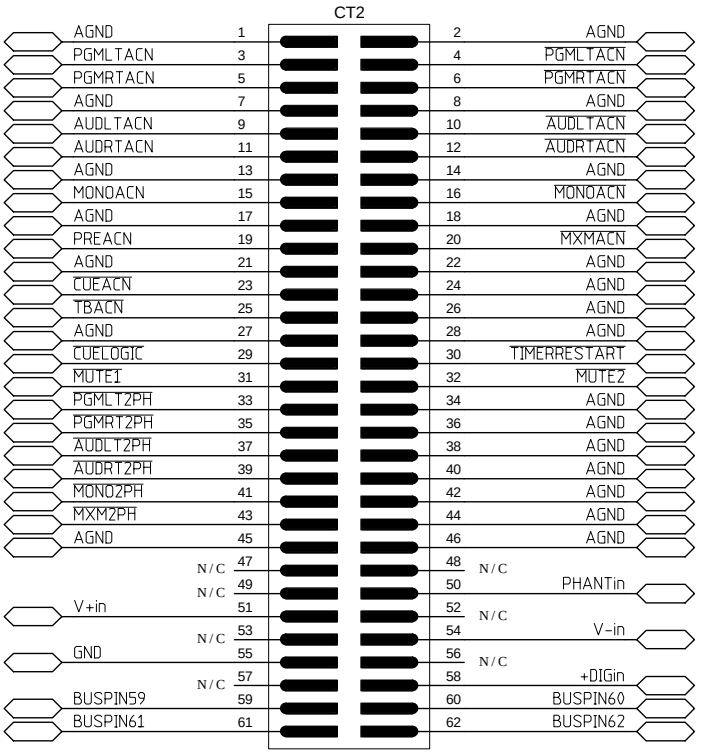
CONTRACT NO.		SL-55e	
- Sergey Averin -			
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	8-20-03	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0018 / REV —	
W# 700656		SCALE / SL-2000 PCB / SHEET 1 OF 3	

SL-55e Stereo Line Input Module Schematic - Sheet 1 of 3

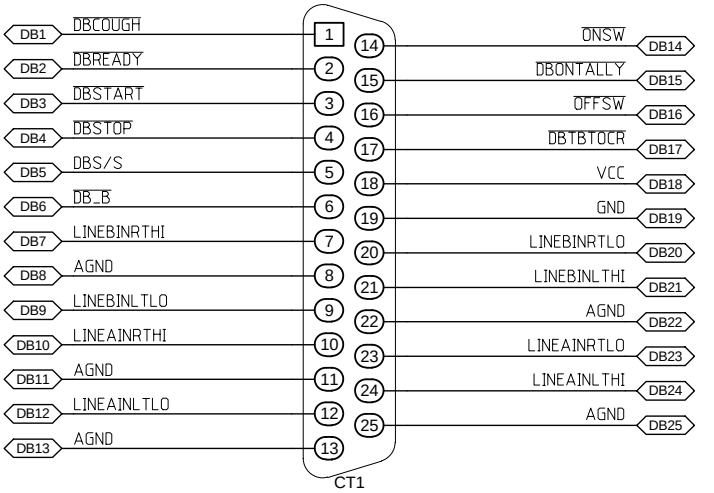


SL-55e Stereo Line Input Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART



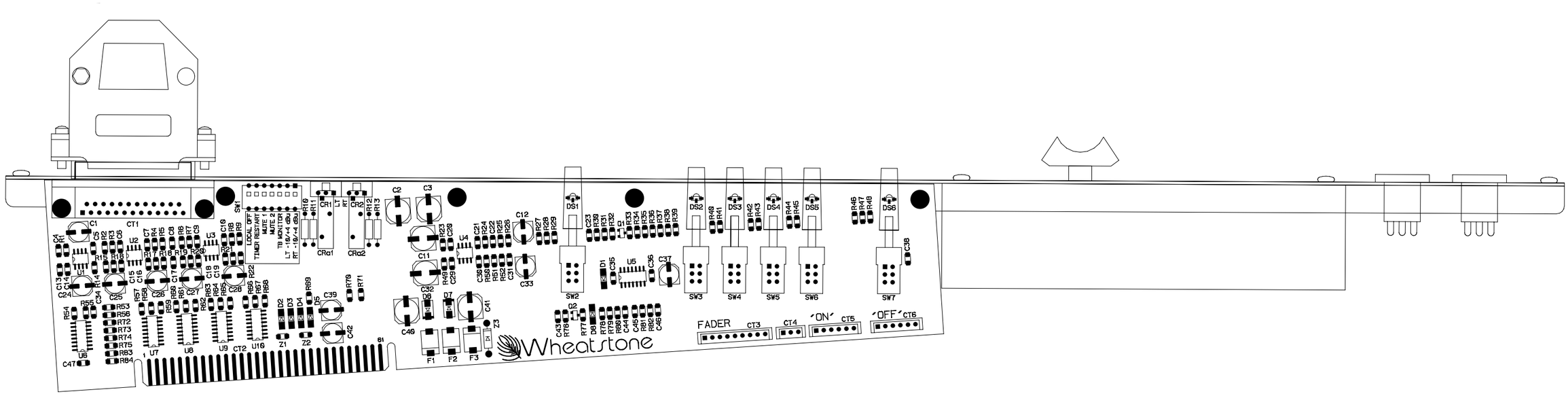
DB-25 CONNECTOR

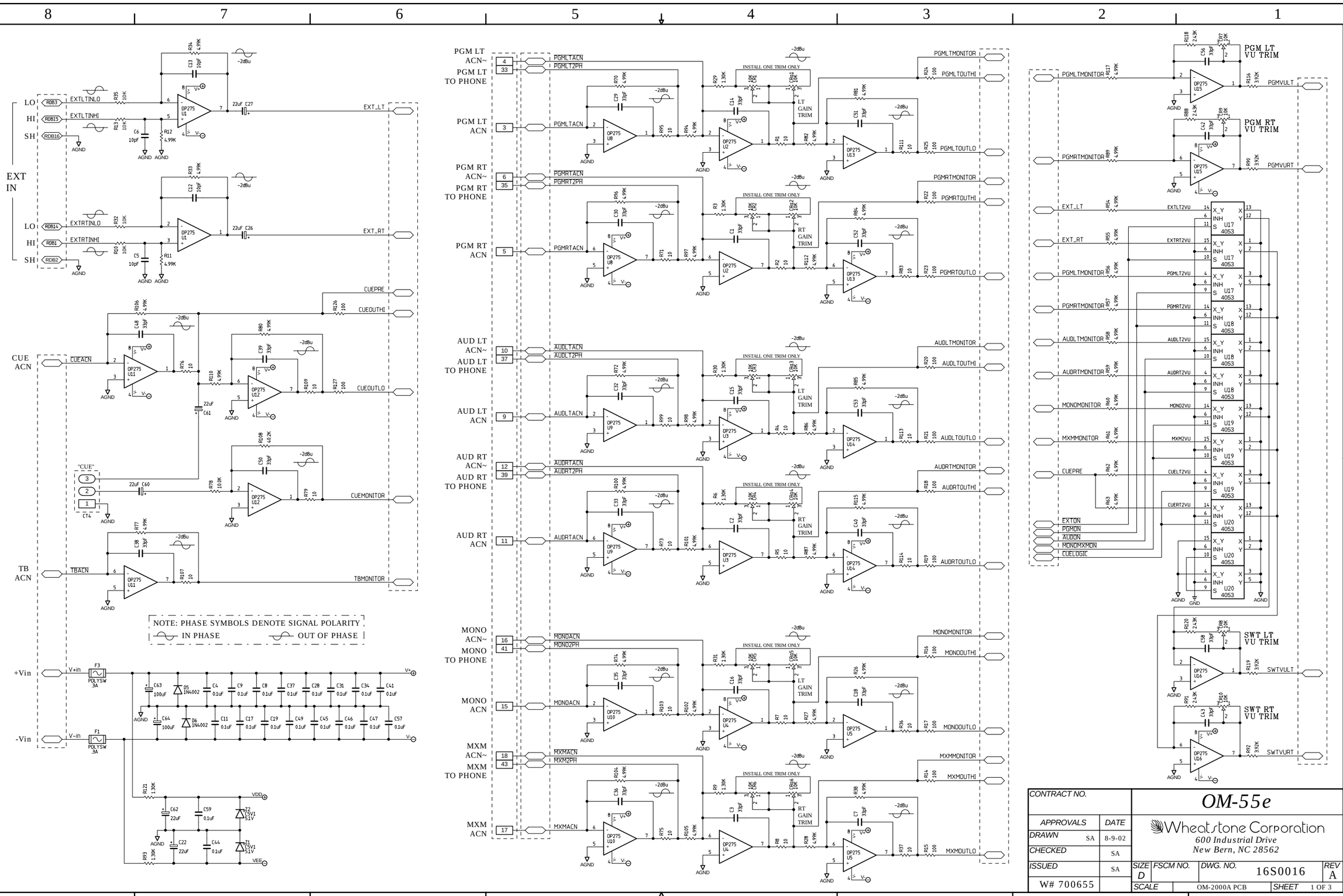


CONTRACT NO. - Sergey Averin -		SL-55e	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-20-03		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0019	REV –
W# 700656		SCALE / SL-2000 PCB	SHEET 3 OF 3

SL-55e Stereo Input Module Schematic - Sheet 3 of 3

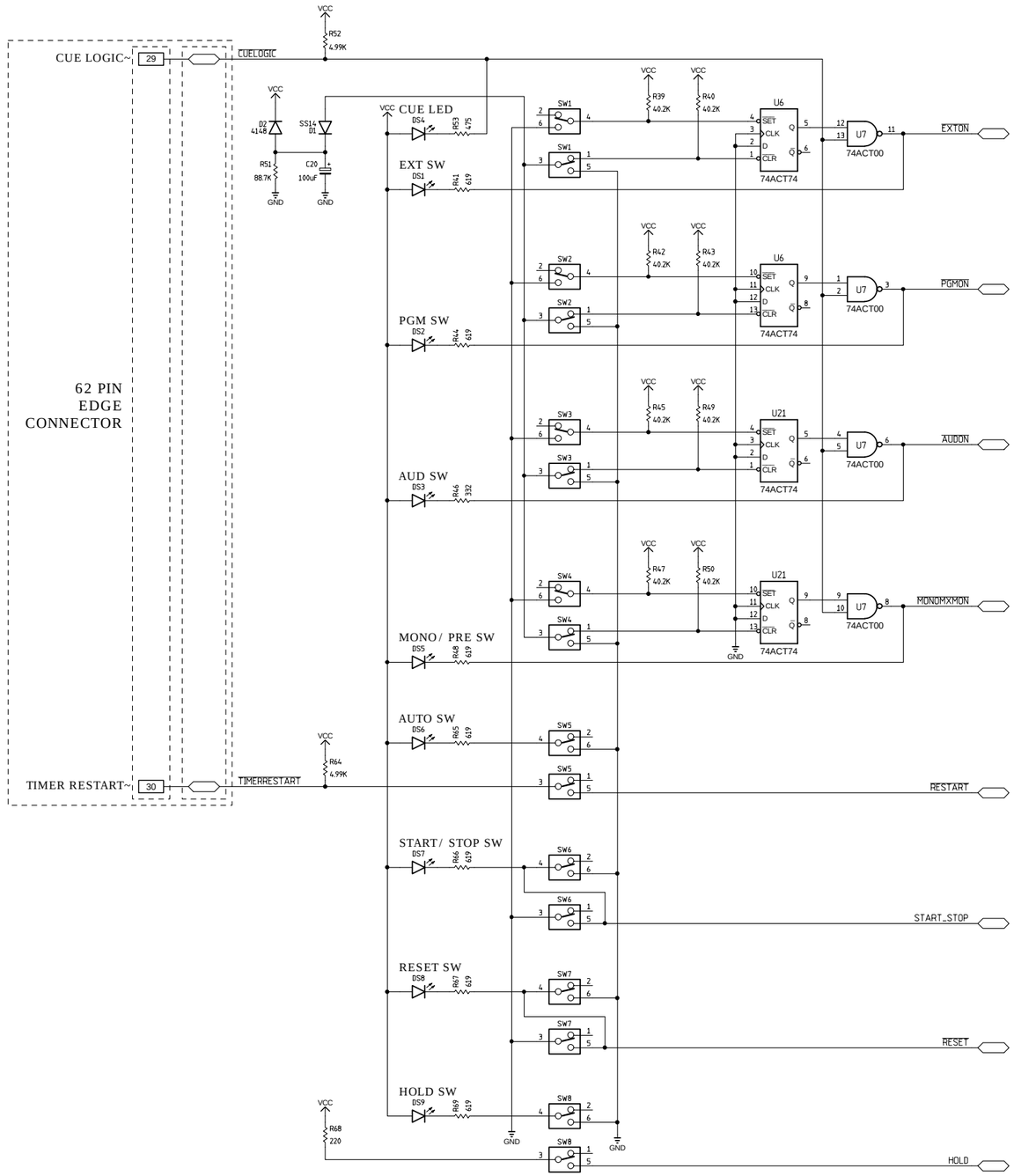

I/O
SL-55E
EQ/DYN
A/B
ASSIGN
PGM
AUD
MONO
PRE
CUE
0
5
10
15
20
30
40
50
60


FADER
ON
OFF
Wheatstone



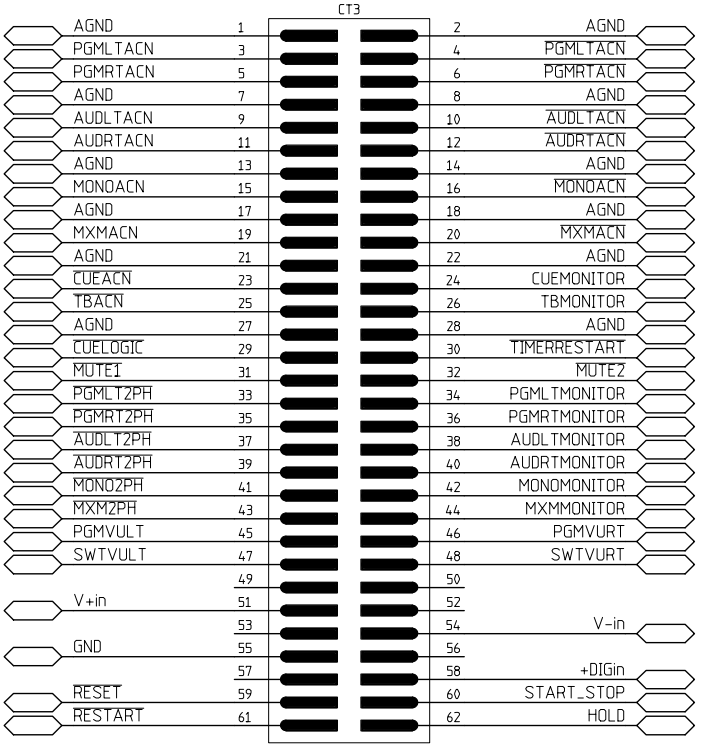
CONTRACT NO.		OM-55e		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	8-9-02			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0016 REV A
W# 700655		SCALE	OM-2000A PCB	SHEET 1 OF 3

OM-55e Output Module Schematic - Sheet 1 of 3

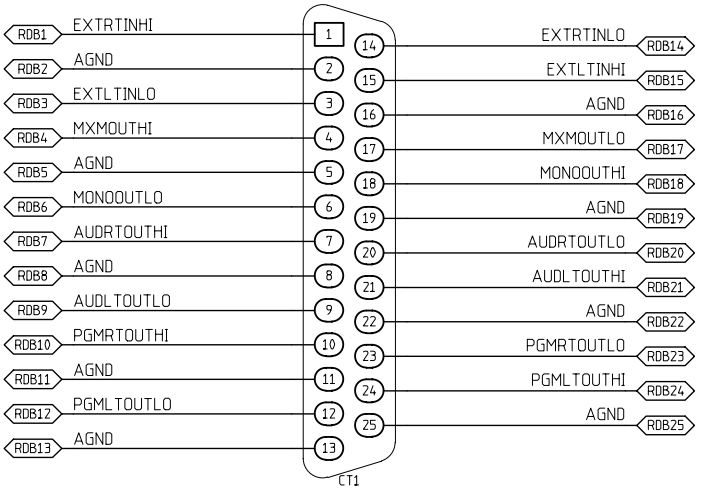


CONTRACT NO.		OM-55e	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-9-02		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0017 / REV A	
W# 700655		SCALE OM-2000A PCB / SHEET 2 OF 3	

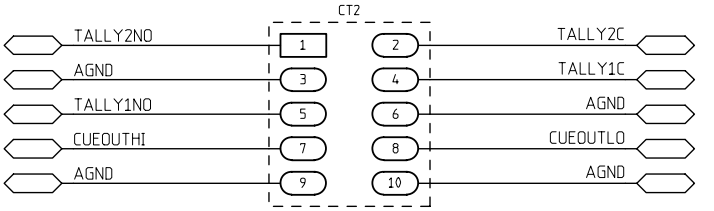
EDGE CONNECTOR BUSS CHART



RIGHT DB-25 CONNECTOR



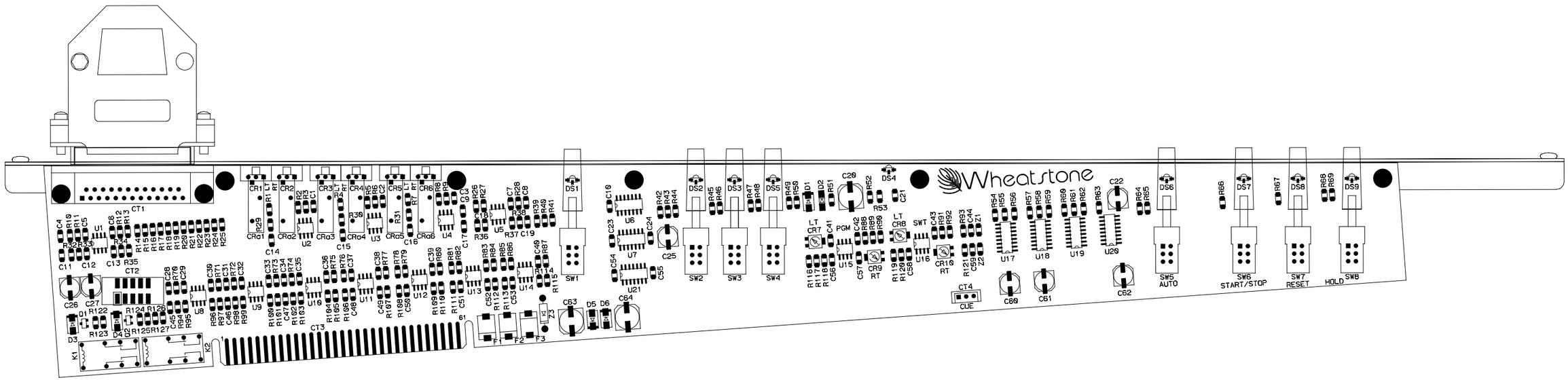
TO LEFT DB-9 CONNECTOR

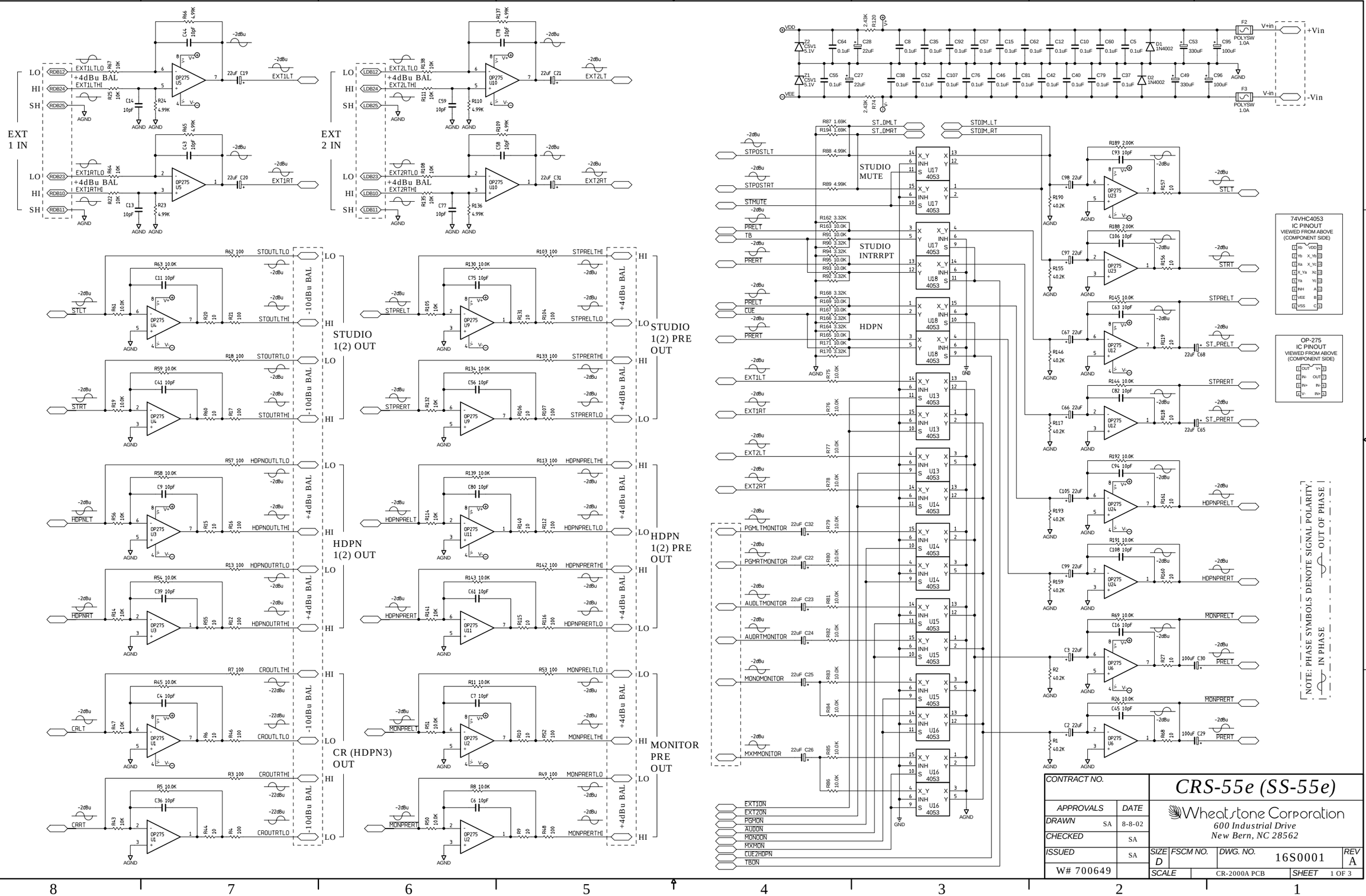


CONTRACT NO.		OM-55e	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-9-02		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0008	REV A
W# 700655		SCALE / OM-2000A PCB	SHEET 3 OF 3

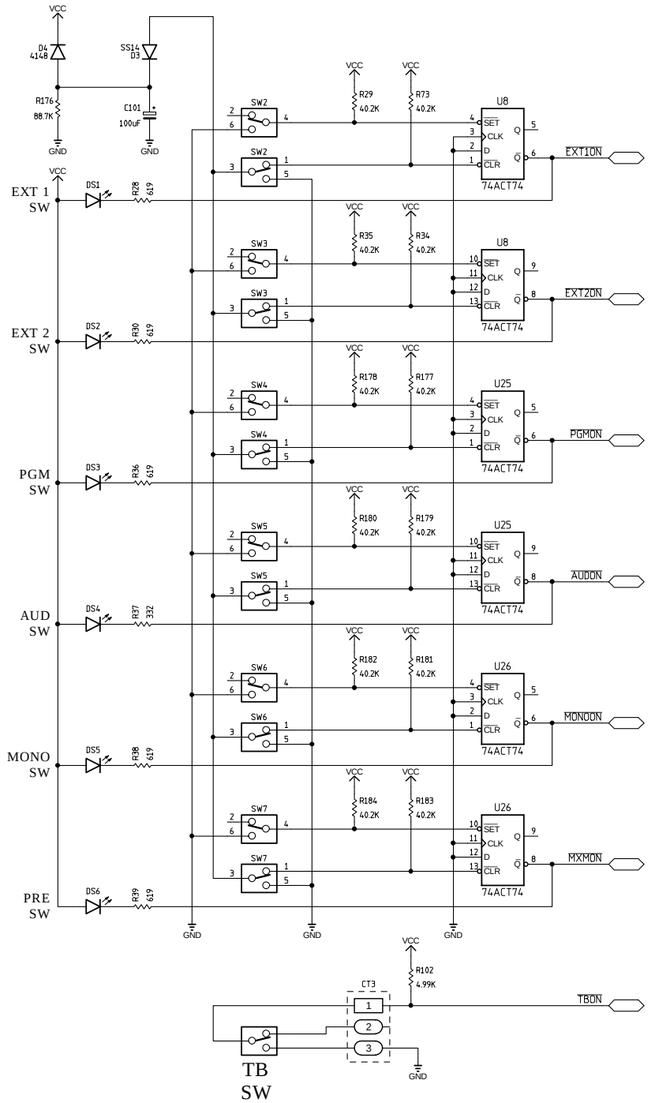
OM-55e Output Module Schematic - Sheet 3 of 3

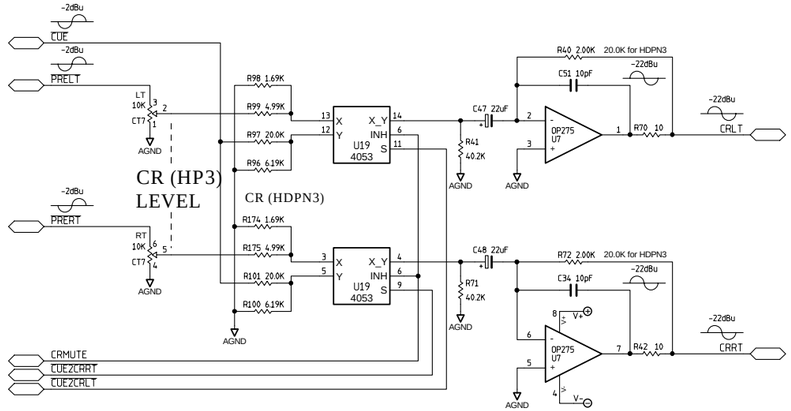

A I/O B
L
PGM
R
L
AUD
R
MONO
PRE
OM-55E
EXTERNAL
1
SWITCHED METER SOURCE SELECT
PGM
AUD
MONO /PRE
CUE ON
CUE
TIMER CONTROL
AUTO START
START STOP
RESET
HOLD

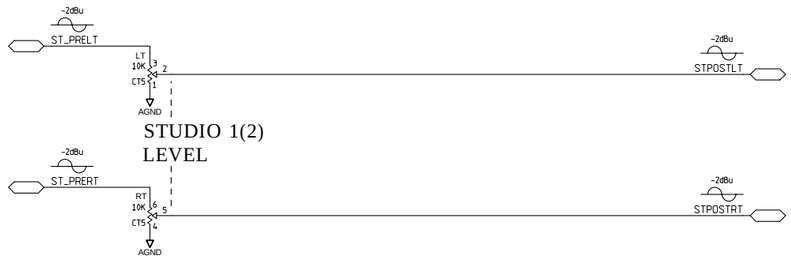

Wheatstone
CT1
CT2
CT3
CT4
CUE
SW1
SW2
SW3
SW4
SW5 AUTO
SW6 START/STOP
SW7 RESET
SW8 HOLD
F1
F2
F3
K1
K2

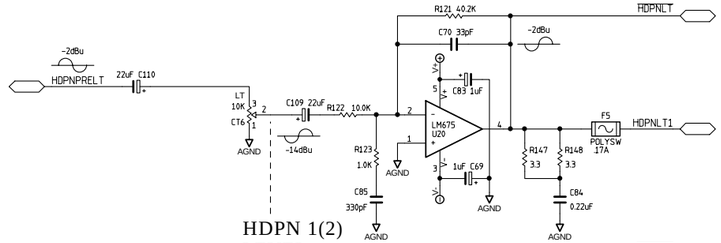


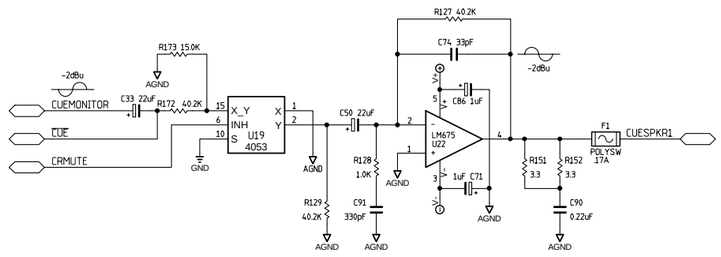
CRS-55e (SS-55e) Control Room (Second Studio) Module Schematic - Sheet 1 of 3

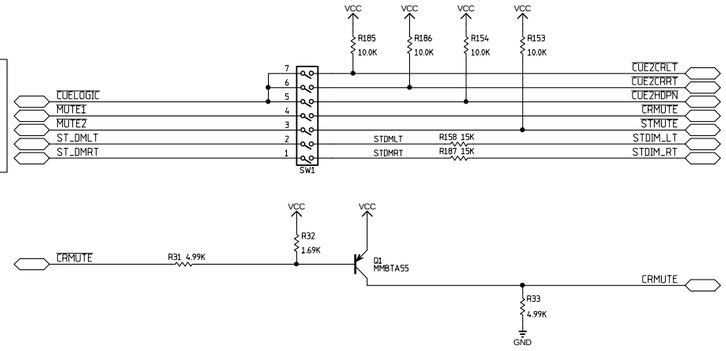


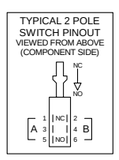


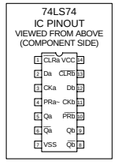




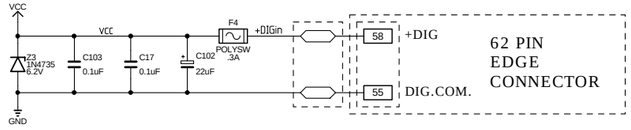


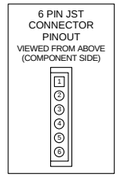


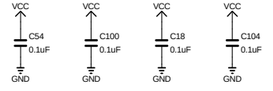




NOTE: PHASE SYMBOLS DENOTE SIGNAL POLARITY
IN PHASE OUT OF PHASE

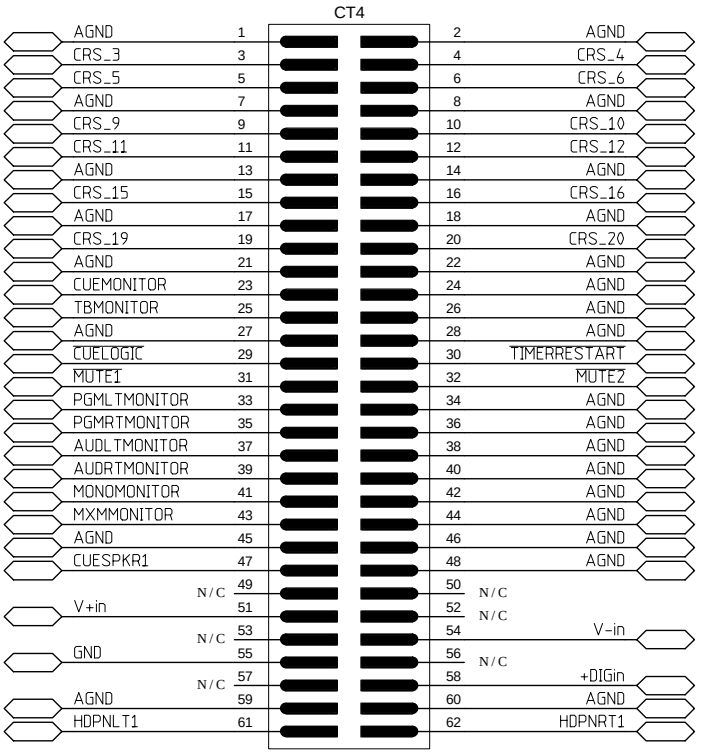




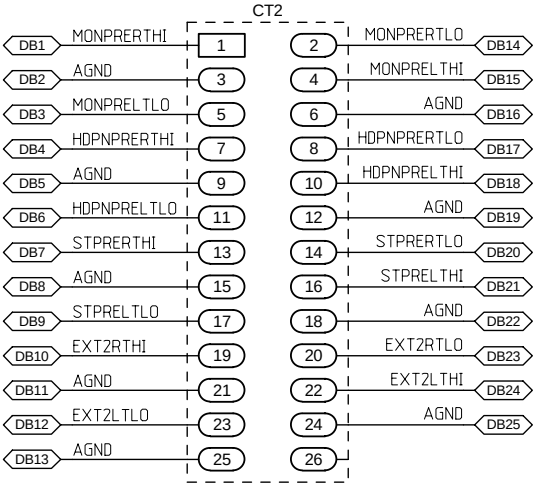


CONTRACT NO.		CRS-55e (SS-55e)		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	8-8-02			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0002 REV A
W# 700649		SCALE CR-2000A PCB		SHEET 2 OF 3

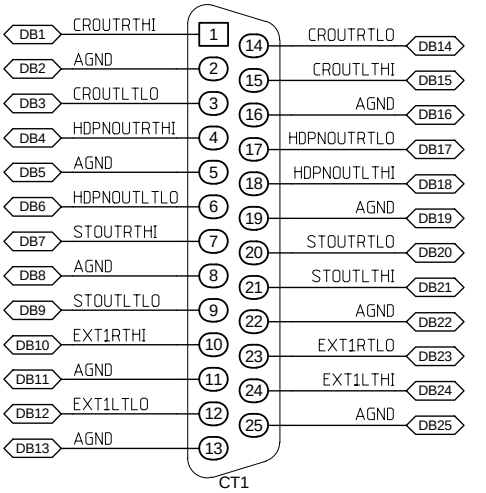
EDGE CONNECTOR BUSS CHART



To Left DB-25 CONNECTOR

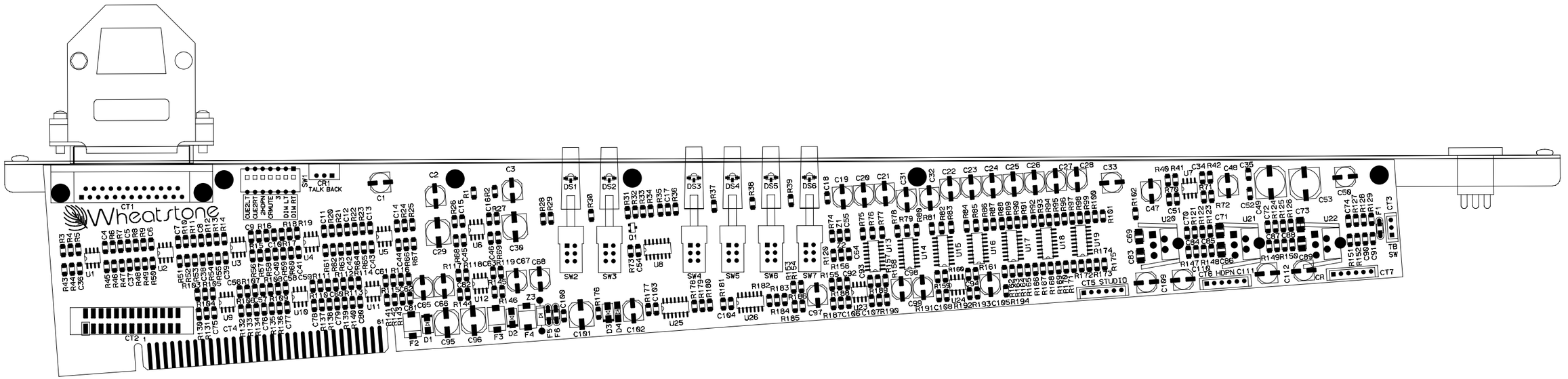


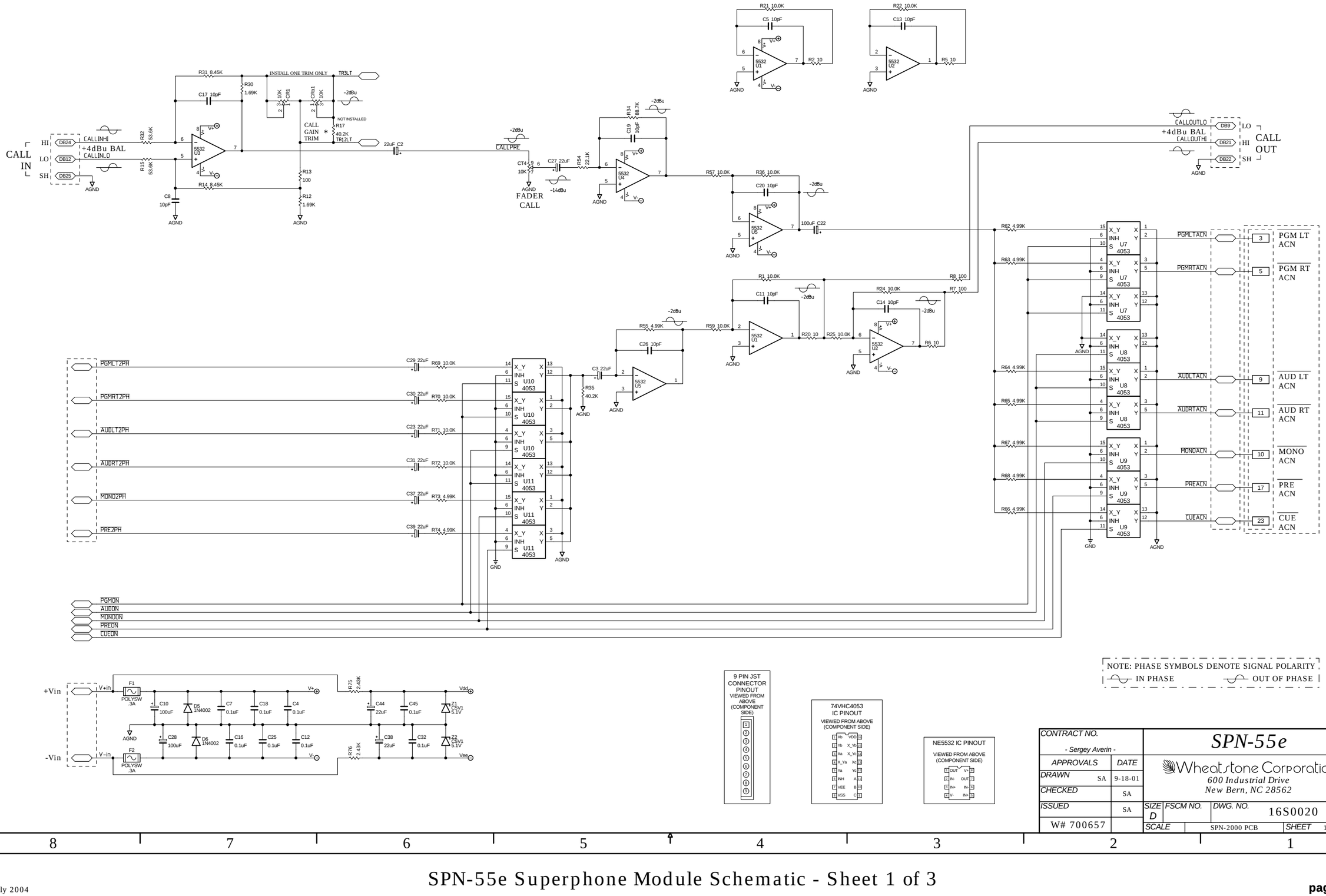
Right DB-25 CONNECTOR

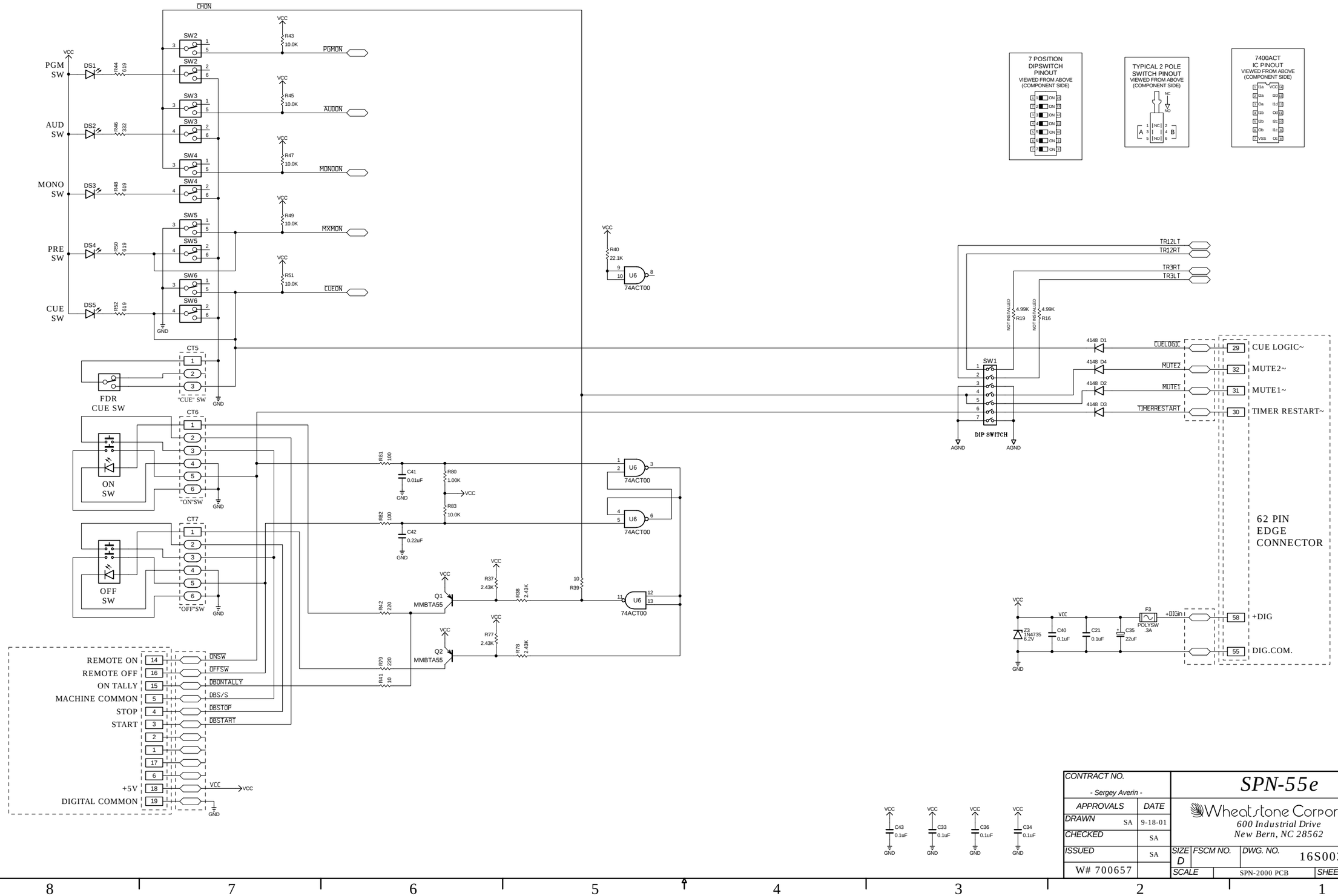


CONTRACT NO.		*CRS-55e (SS-55e)*	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-8-02		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0013	REV -
W# 700649		SCALE / CR-2000A PCB / SHEET 3 OF 3	


SS-55E
EXTERNAL
1
2
MONITOR SOURCE
PGM
AUD
MONO
PRE
STUDIO 2
HDPN 2
HDPN 3
TB 2
CRS-55E
STUDIO
HDPN
CR
TB


Wheatstone
CT1
CT2
CR1
TALK BACK
CT5 STUDIO
CT6 HDPN
CR
TB SW

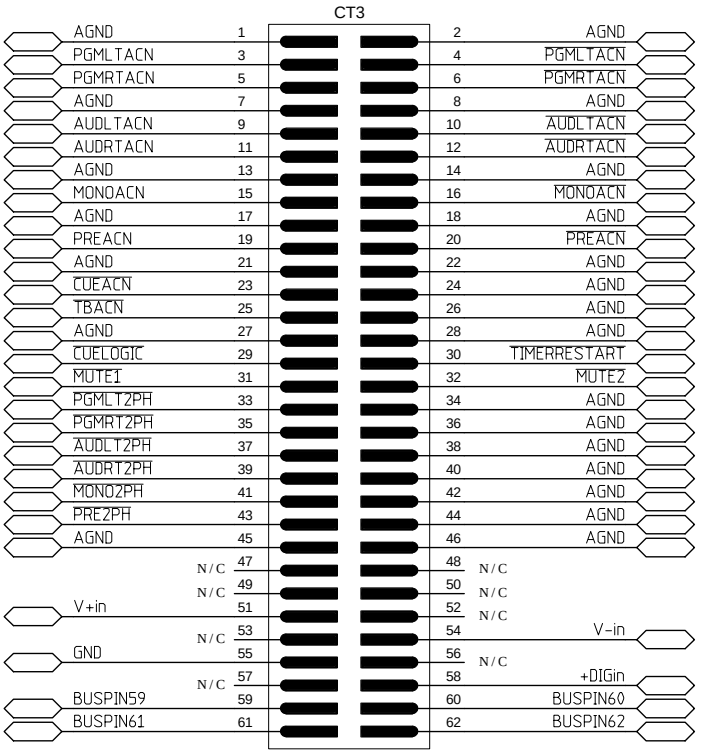

CALL IN
HI
LO
SH
DB24
DB12
DB25
CALLINHI
CALLINLO
+4dBu BAL
AGND
R2 53.6K
R15 53.6K
R31 8.45K
R30 1.69K
C17 10pF
INSTALL ONE TRIM ONLY
TR3LT
CR1
CRa1
-2dBu
NOT INSTALLED
CALL GAIN TRIM
R17 40.2K
TR12LT
22uF C2
R13 100
R12 1.69K
R14 8.45K
C8 10pF
U3 5532
V+
V-
CALLPRE
C27 22uF
-14dBu
FADER CALL
R54 22.1K
R34 88.7K
C19 10pF
U4 5532
R57 10.0K
R36 10.0K
C20 10pF
U5 5532
100uF C22
R21 10.0K
C5 10pF
U1 5532
R2 10
R22 10.0K
C13 10pF
U2 5532
R5 10
CALLOUTLO
CALLOUTHI
DB9
DB21
DB22
LO
HI
SH
CALL OUT
R1 10.0K
C11 10pF
R24 10.0K
C14 10pF
R8 100
R7 100
R55 4.99K
C26 10pF
R59 10.0K
R20 10
R25 10.0K
R6 10
C3 22uF
R35 40.2K
PGMLT2PH
PGMRT2PH
AUDLT2PH
AUDRT2PH
MONO2PH
PRE2PH
C29 22uF
R69 10.0K
C30 22uF
R70 10.0K
C23 22uF
R71 10.0K
C31 22uF
R72 10.0K
C37 22uF
R73 4.99K
C39 22uF
R74 4.99K
X_Y
INH
S
U10 4053
U11 4053
R62 4.99K
R63 4.99K
R64 4.99K
R65 4.99K
R67 4.99K
R68 4.99K
R66 4.99K
U7 4053
U8 4053
U9 4053
PGMLTACN
PGMRTACN
AUDLTACN
AUDRTACN
MONOACN
PREACN
CUEACN
PGM LT ACN
PGM RT ACN
AUD LT ACN
AUD RT ACN
MONO ACN
PRE ACN
CUE ACN
3
5
9
11
10
17
23
PGMON
AUDON
MONDON
PREON
CUEON
+Vin
-Vin
V+in
V-in
F1
F2
POLYSW .3A
C10 100uF
C28 100uF
D5 1N4002
D6 1N4002
C7 0.1uF
C16 0.1uF
C18 0.1uF
C25 0.1uF
C4 0.1uF
C12 0.1uF
R75 2.43K
R76 2.43K
C44 22uF
C38 22uF
C45 0.1uF
C32 0.1uF
Z1 C5V1 5.1V
Z2 C5V1 5.1V
Vdd
Vee
9 PIN JST CONNECTOR PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)
74VHC4053 IC PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)
NE5532 IC PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)
NOTE: PHASE SYMBOLS DENOTE SIGNAL POLARITY
IN PHASE
OUT OF PHASE
CONTRACT NO.
- Sergey Averin -
APPROVALS
DATE
DRAWN SA 9-18-01
CHECKED SA
ISSUED SA
W# 700657
SPN-55e
Wheatstone Corporation
600 Industrial Drive
New Bern, NC 28562
SIZE D
FSCM NO.
DWG. NO. 16S0020
REV –
SCALE
SPN-2000 PCB
SHEET 1 OF 3



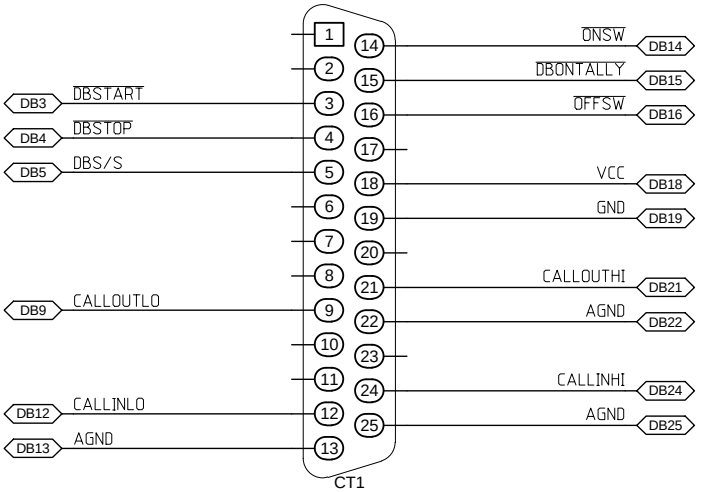
CONTRACT NO.		SPN-55e	
- Sergey Averin -			
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	9-18-01	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0021 / REV —	
W# 700657		SCALE SPN-2000 PCB / SHEET 2 OF 3	

SPN-55e Superphone Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART



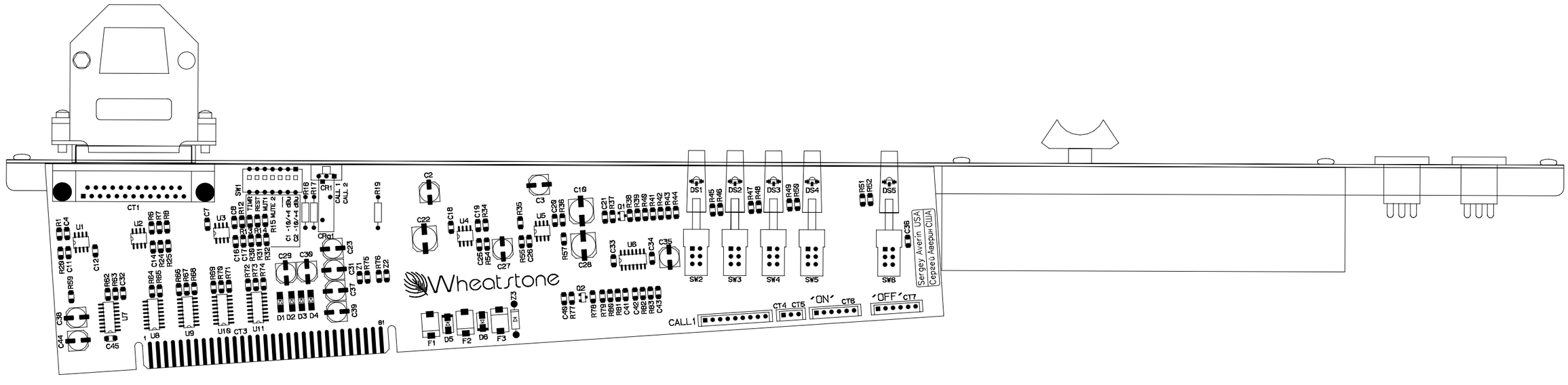
DB-25 CONNECTOR

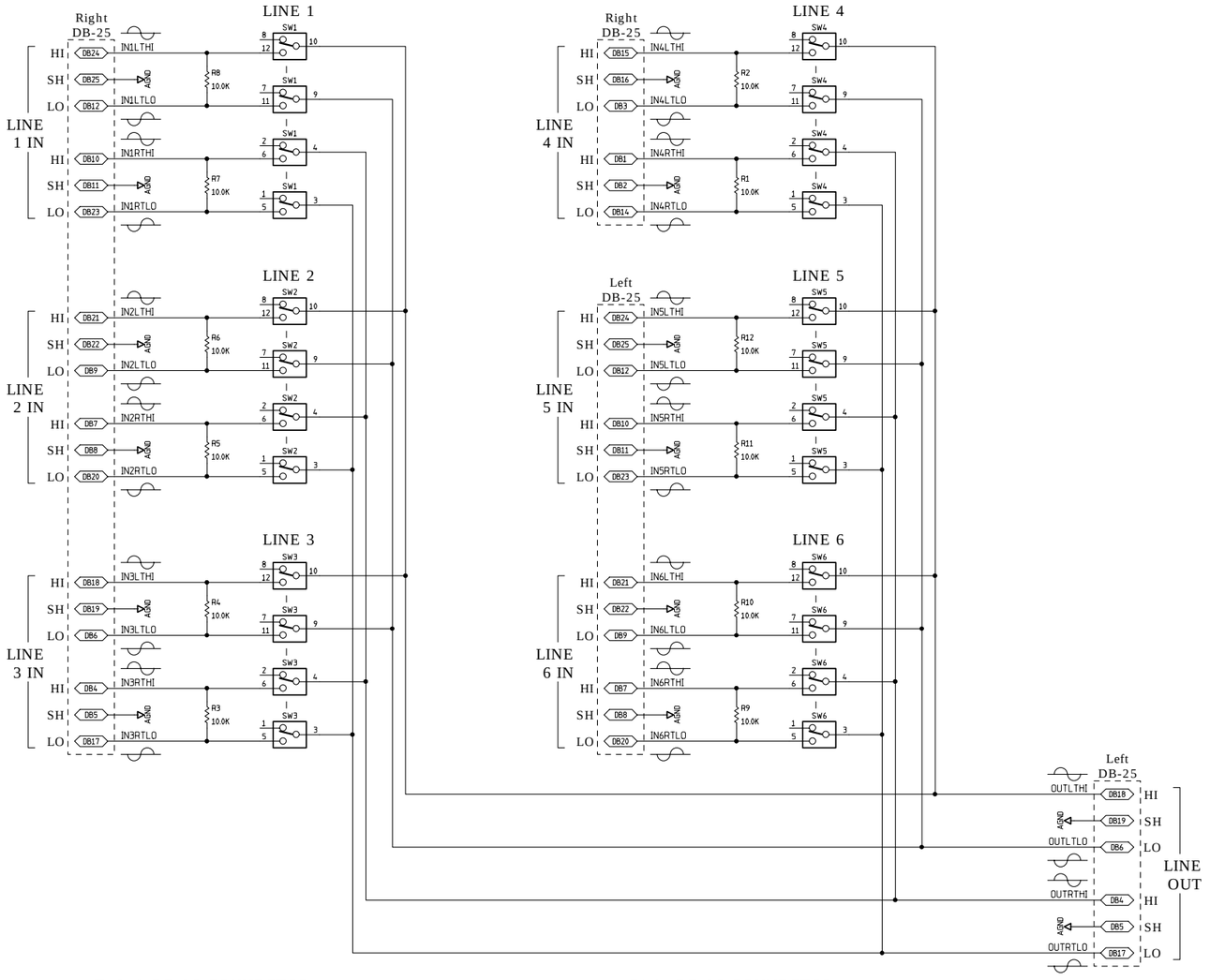


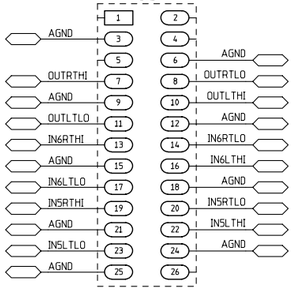
CONTRACT NO. - Sergey Averin -		SPN-55e	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-18-01		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0021x / REV –	
W# 700657		SCALE / SPN-2000 PCB / SHEET 3 OF 3	

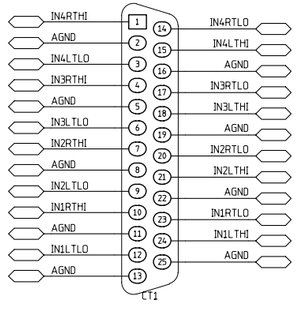
SPN-55e Superphone Module Schematic - Sheet 3 of 3


I/O
CALLER
SPN-55E
ASSIGN
FDM
AUD
MONO
PRE
DIE
CALLER
0
5
10
15
20
30
40
50
60


Wheatstone
Sergey Averin USA
Сергей Аверин США
CALL1
ON
OFF

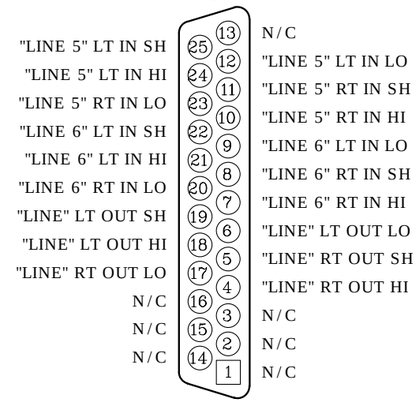




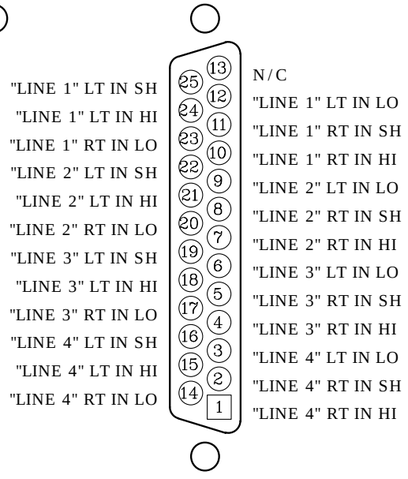


LS-55e Line Selector

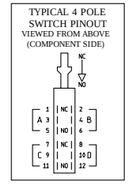
DB Connector Pinouts



I/O PORTS
(Left DB-25)



I/O PORTS
(Right DB-25)

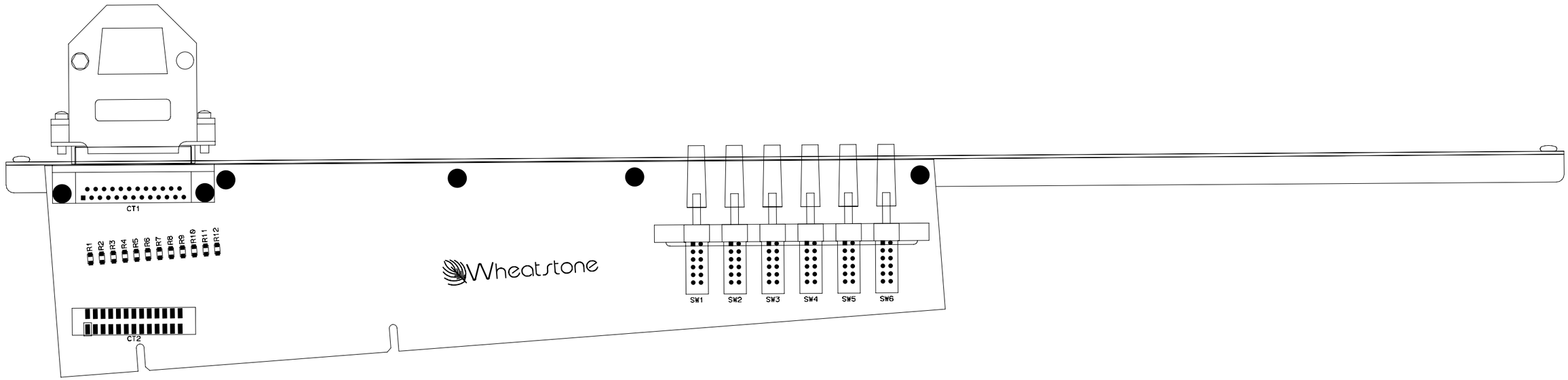


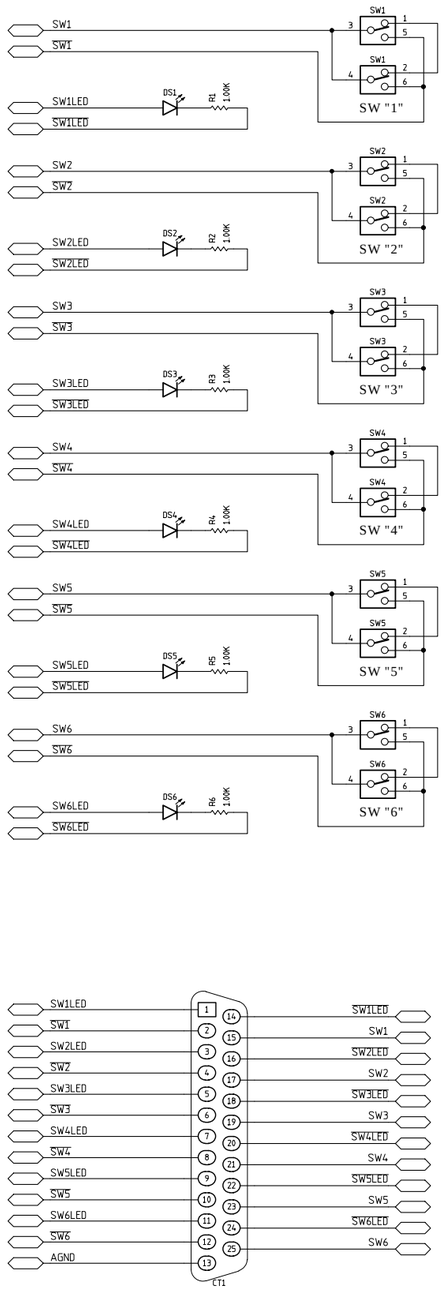
NOTE: PHASE SYMBOLS DENOTE SIGNAL POLARITY
IN PHASE — OUT OF PHASE

CONTRACT NO.		*LS-55e*			
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562			
DRAWN SA	6-6-01				
CHECKED	SA				
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0025	REV -
W# 700679		SCALE	LS-2600 PCB	SHEET 1 OF 1	

LS-55e Line Select Module Schematic - Sheet 1 of 1


A I/O B
LS-55E
LINE SELECT
1
2
3
4
5
6

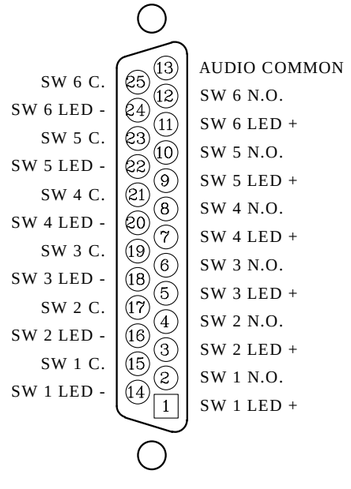

CT1
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
CT2
Wheatstone
SW1
SW2
SW3
SW4
SW5
SW6

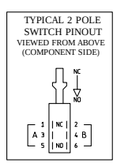


TR-55e I/O

DB Connector Pinouts

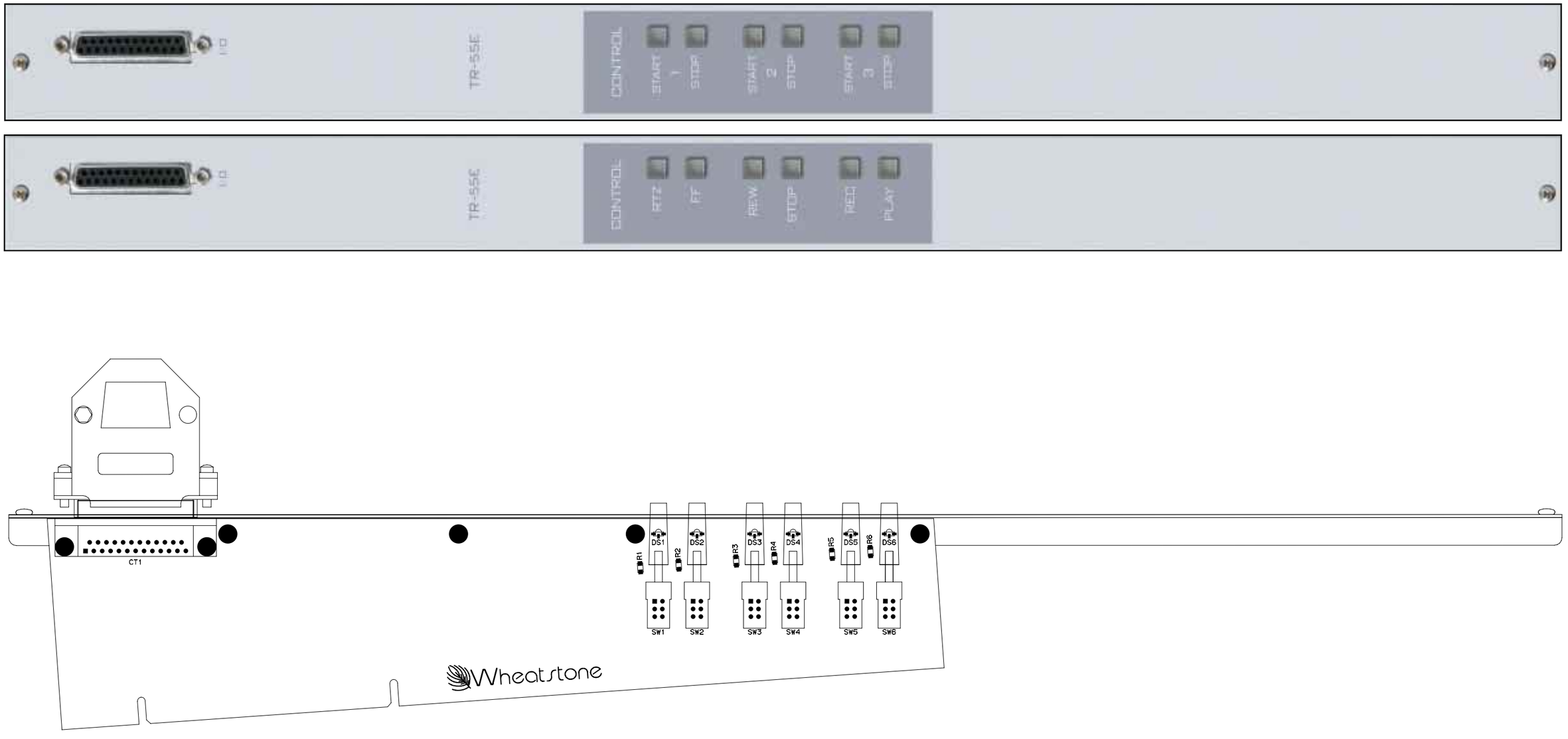
I/O PORTS





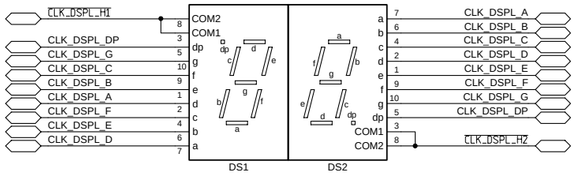
CONTRACT NO.		*TR-55e*	
APPROVALS	DATE	Wheatstone Corporation *600 Industrial Drive* *New Bern, NC 28562*	
DRAWN SA	1-3-01		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0022 / REV -	
W# 700658		SCALE TR-2000 PCB / SHEET 1 OF 1	

TR-55e Tape Remote Module Schematic - Sheet 1 of 1

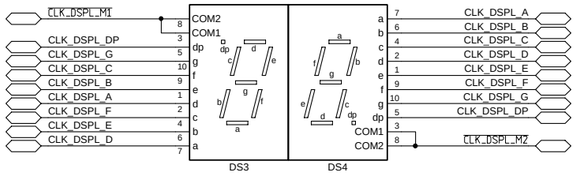

TR-55E
CONTROL
START 1
STOP
START 2
STOP
START 3
STOP
TR-55E
CONTROL
RTZ
FF
REW
STOP
REC
PLAY
CT1
R1
DS1
R2
DS2
R3
DS3
R4
DS4
R5
DS5
R6
DS6
SW1
SW2
SW3
SW4
SW5
SW6
Wheatstone

CLOCK

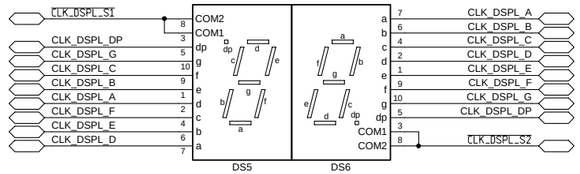
CLOCK: HOURS



CLOCK: MINUTES

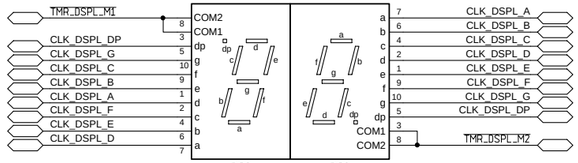


CLOCK: SECONDS

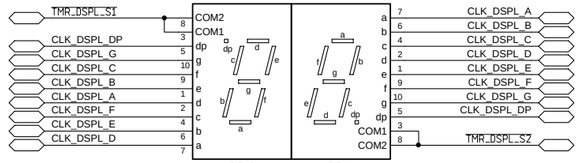


TIMER

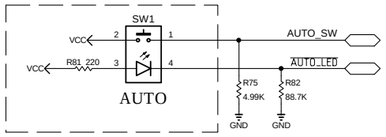
TIMER: MINUTES



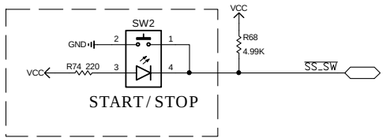
TIMER: SECONDS



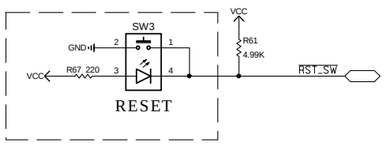
SW1 AUTO



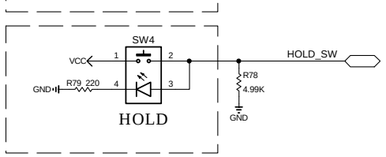
SW2 START/STOP



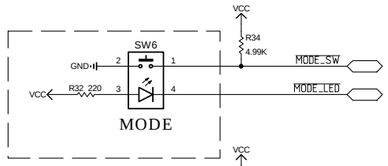
SW3 RESET



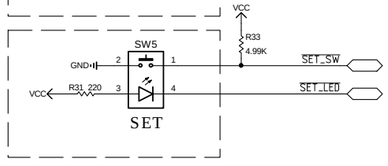
SW4 HOLD



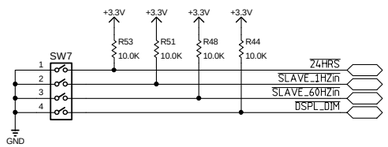
SW6 MODE



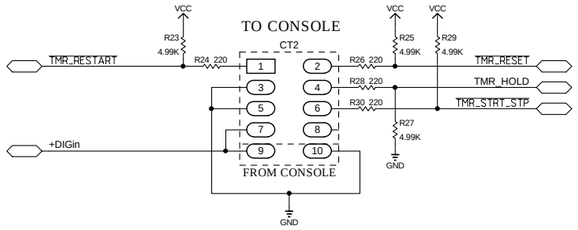
SW5 SET



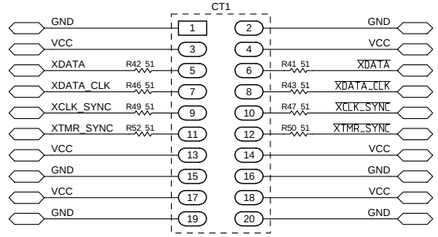
SW7

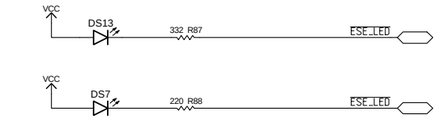


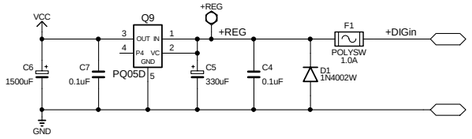
TO CONSOLE

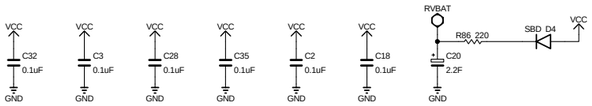


TO CLD-220 PCB (CLOCK/TIMER DISPLAY)



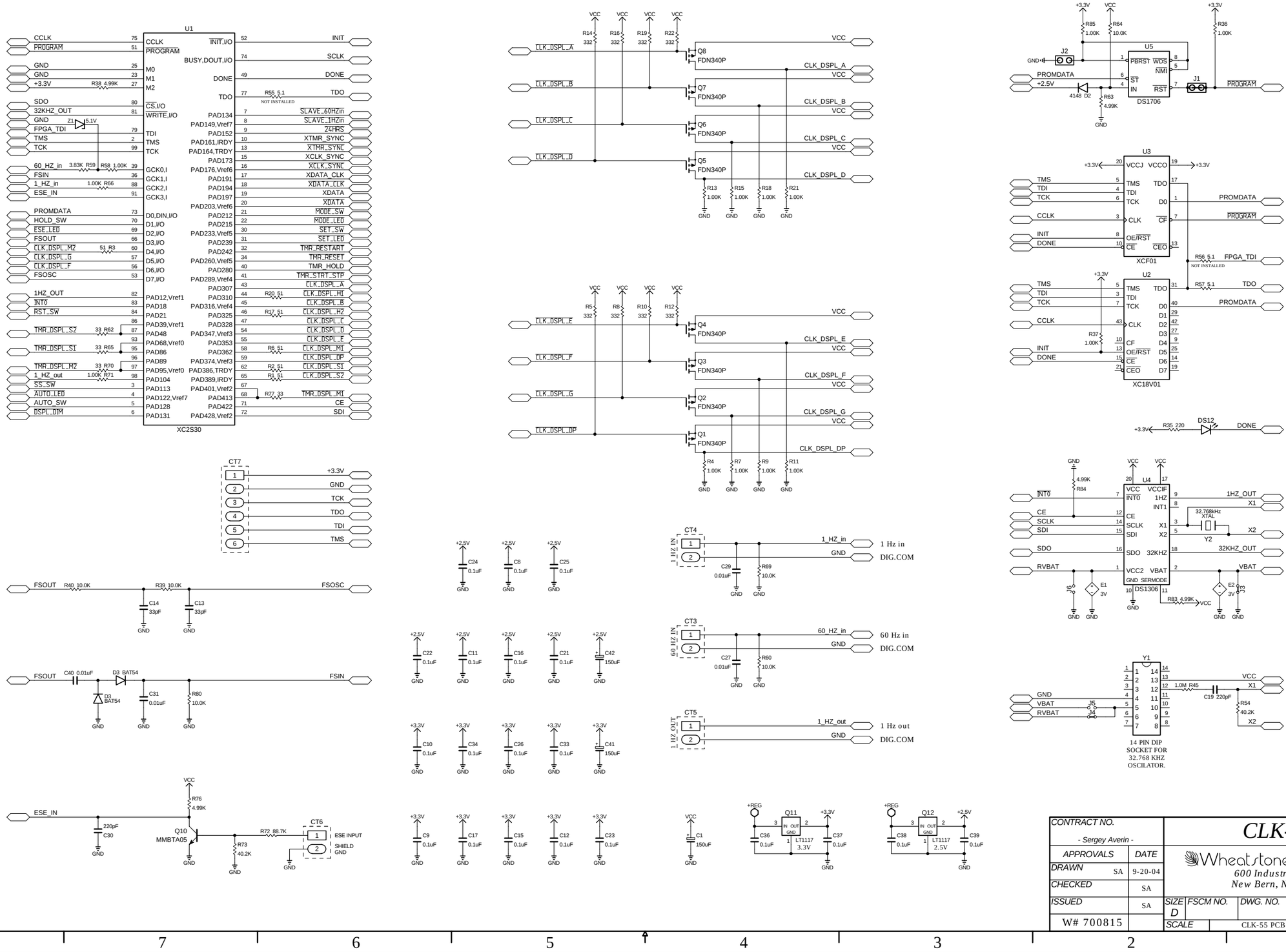






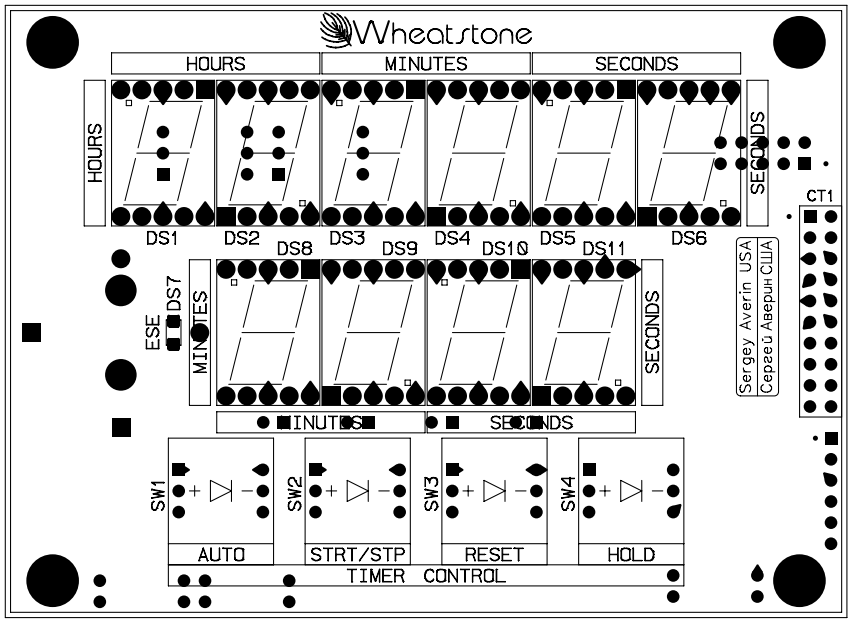
CONTRACT NO. - Sergey Averin -		CLK-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-20-04		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S00xx / REV –	
W# 700815		SCALE / CLK-55 PCB / SHEET 1 OF 2	

CLK-55 Clock/Timer Schematic Sheet 1 of 2

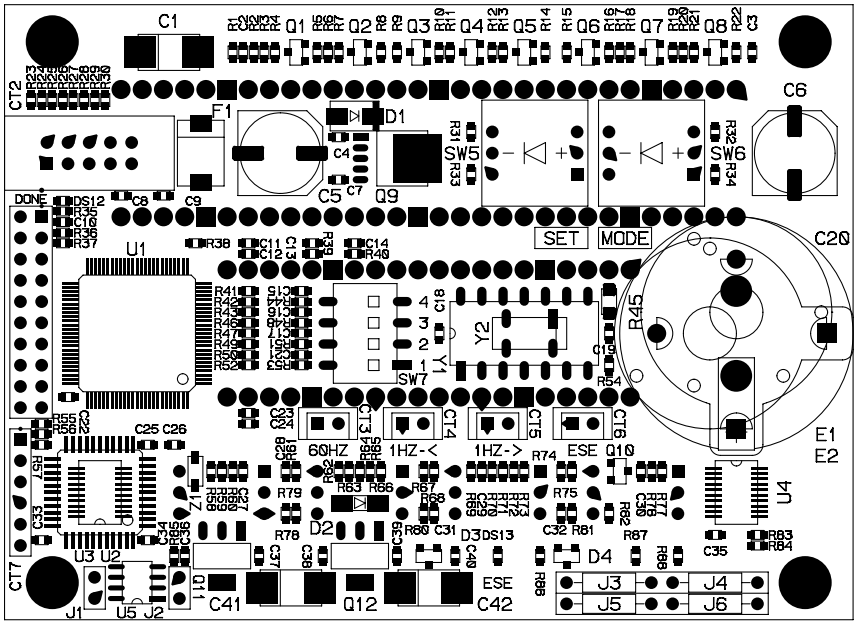


CONTRACT NO. - Sergey Averin -		CLK-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-20-04		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S00xx / REV —	
W# 700815		SCALE / CLK-55 PCB / SHEET 2 OF 2	

CLK-55 Clock/Timer Schematic Sheet 2 of 2



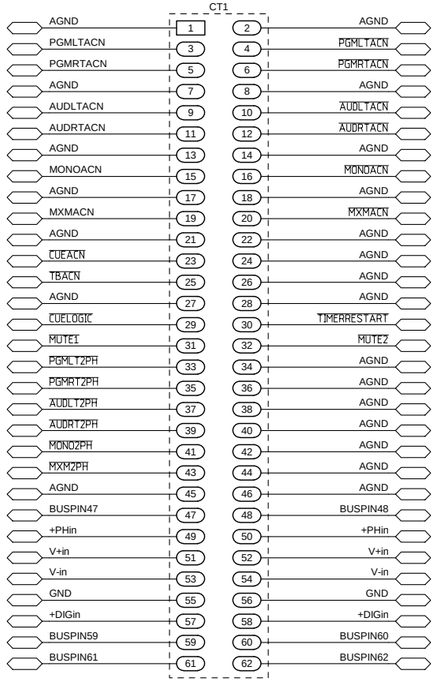
Top

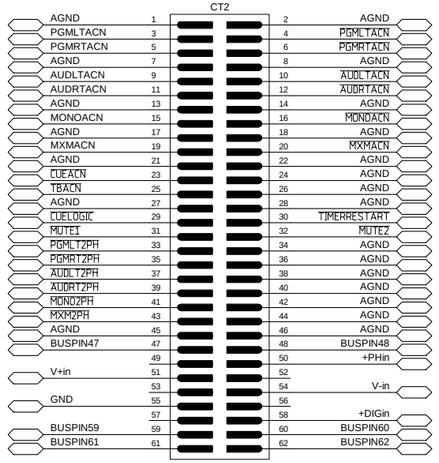


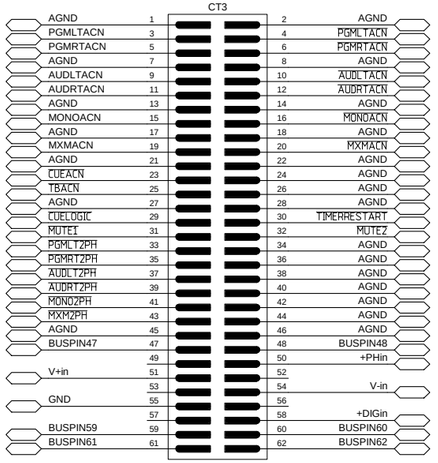
Bottom

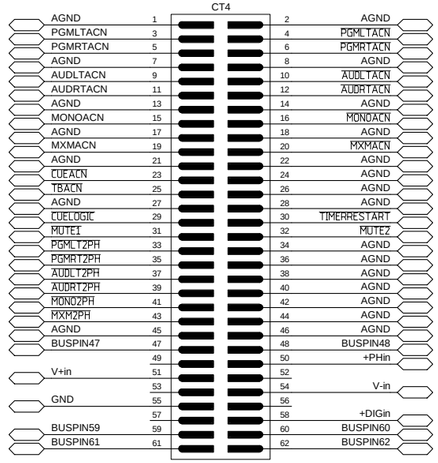
Clock/Timer (CLK-55) - Load Sheet

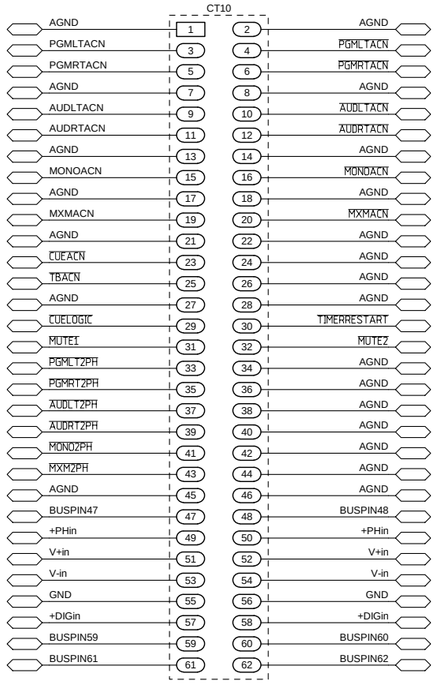
EDGE CONNECTORS BUSS CHART

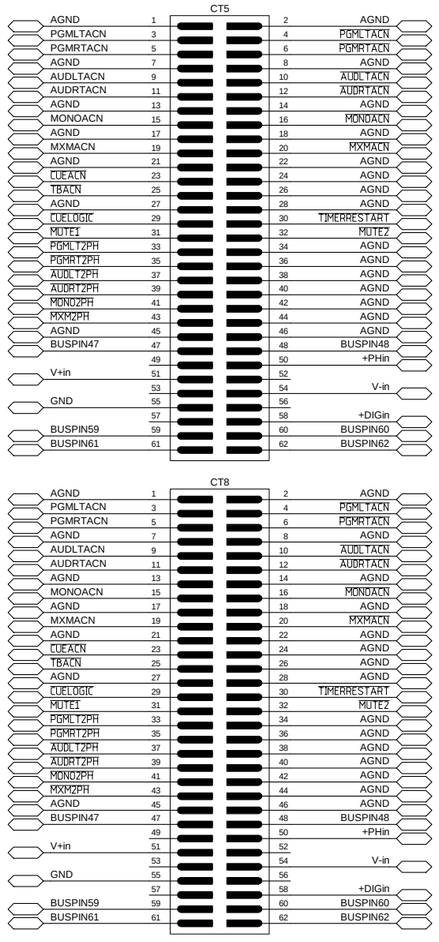


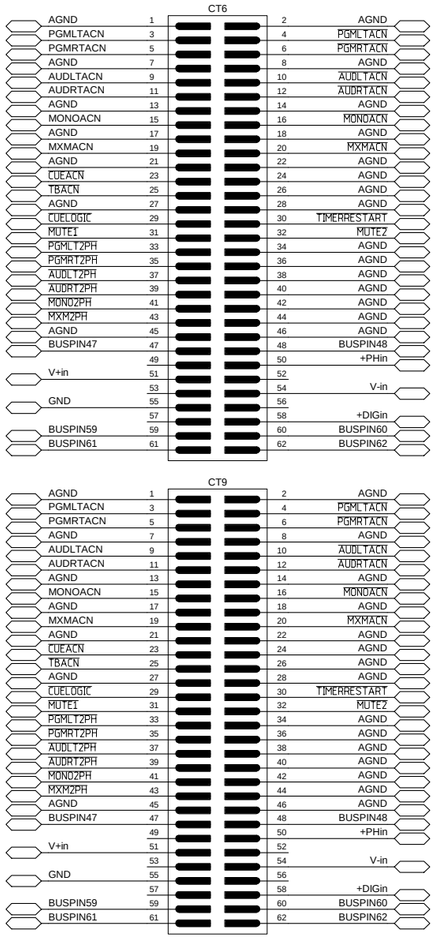


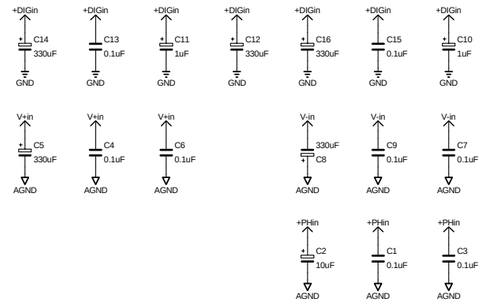






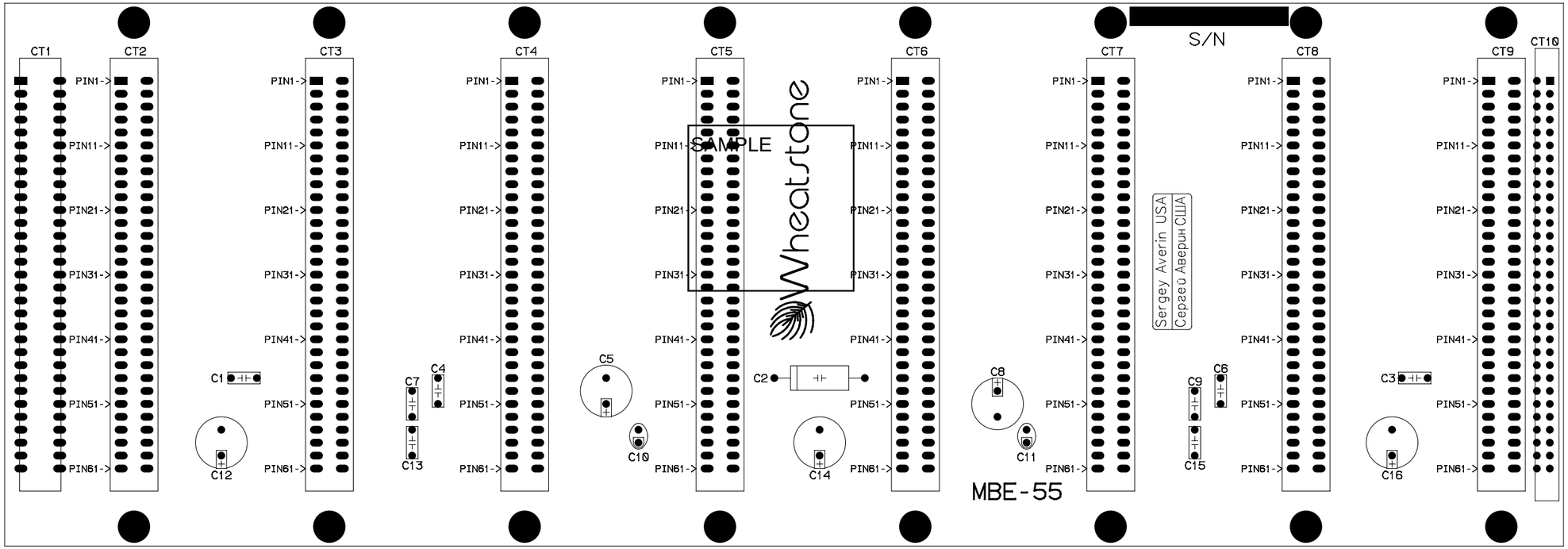






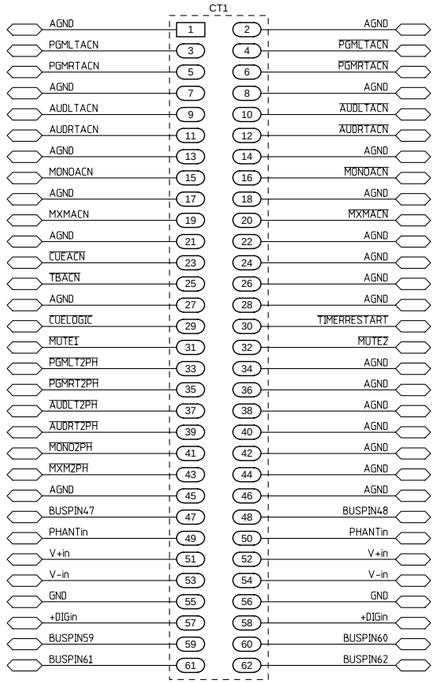
CONTRACT NO. - Sergey Averin -		MBE-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-21-04		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S00xx / REV	
W# 700812		SCALE / MBE-55 PCB / SHEET 1 OF 1	

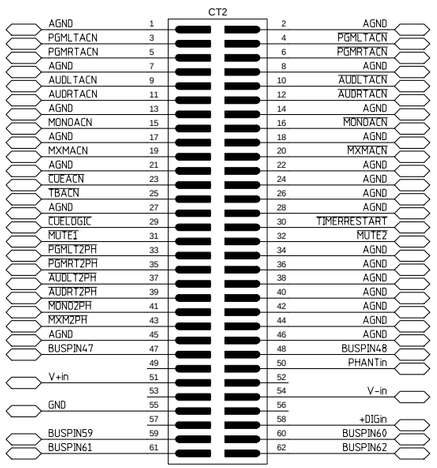
MBE-55 8 Position Mother Board (Extender) Schematic - Sheet 1 of 1


CT1
CT2
CT3
CT4
CT5
CT6
CT7
CT8
CT9
CT10
PIN1->
PIN11->
PIN21->
PIN31->
PIN41->
PIN51->
PIN61->
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
SAMPLE
Wheatstone
S/N
Sergey Averin USA
Сергей Аверин США
MBE-55

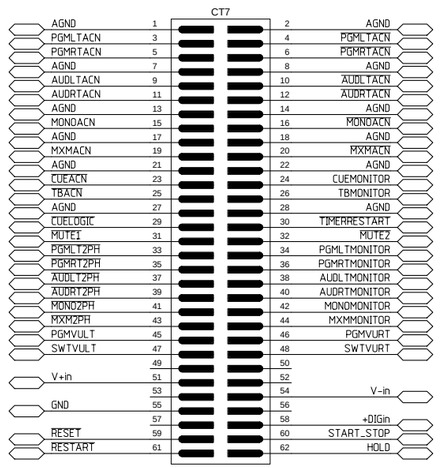
EDGE CONNECTORS BUSS CHART

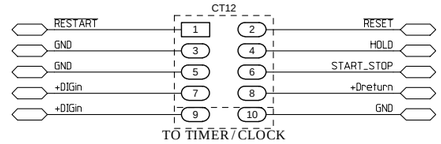
INPUT / SPN MODULE

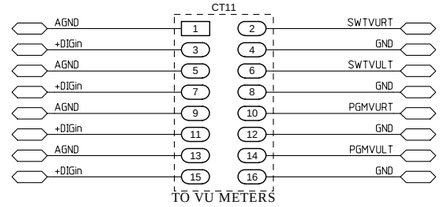




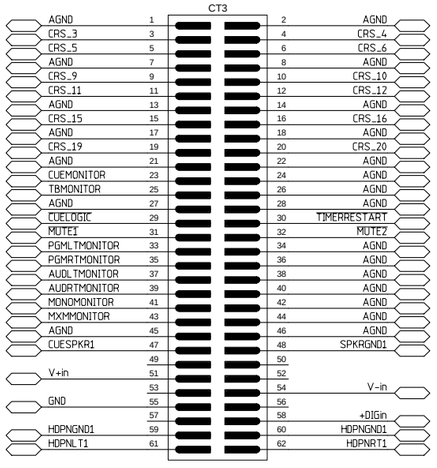
OUTPUT MODULE

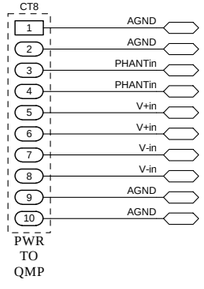


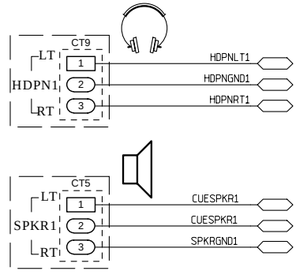




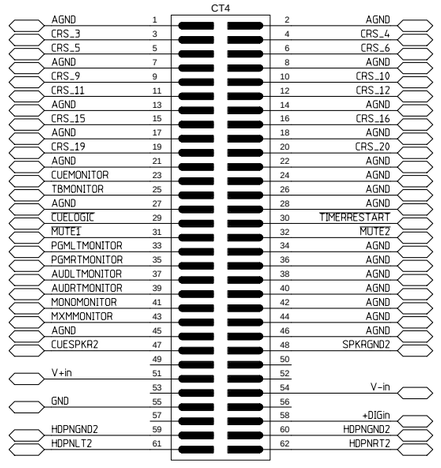
CR MODULE

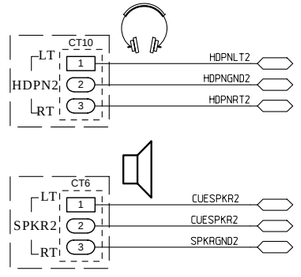






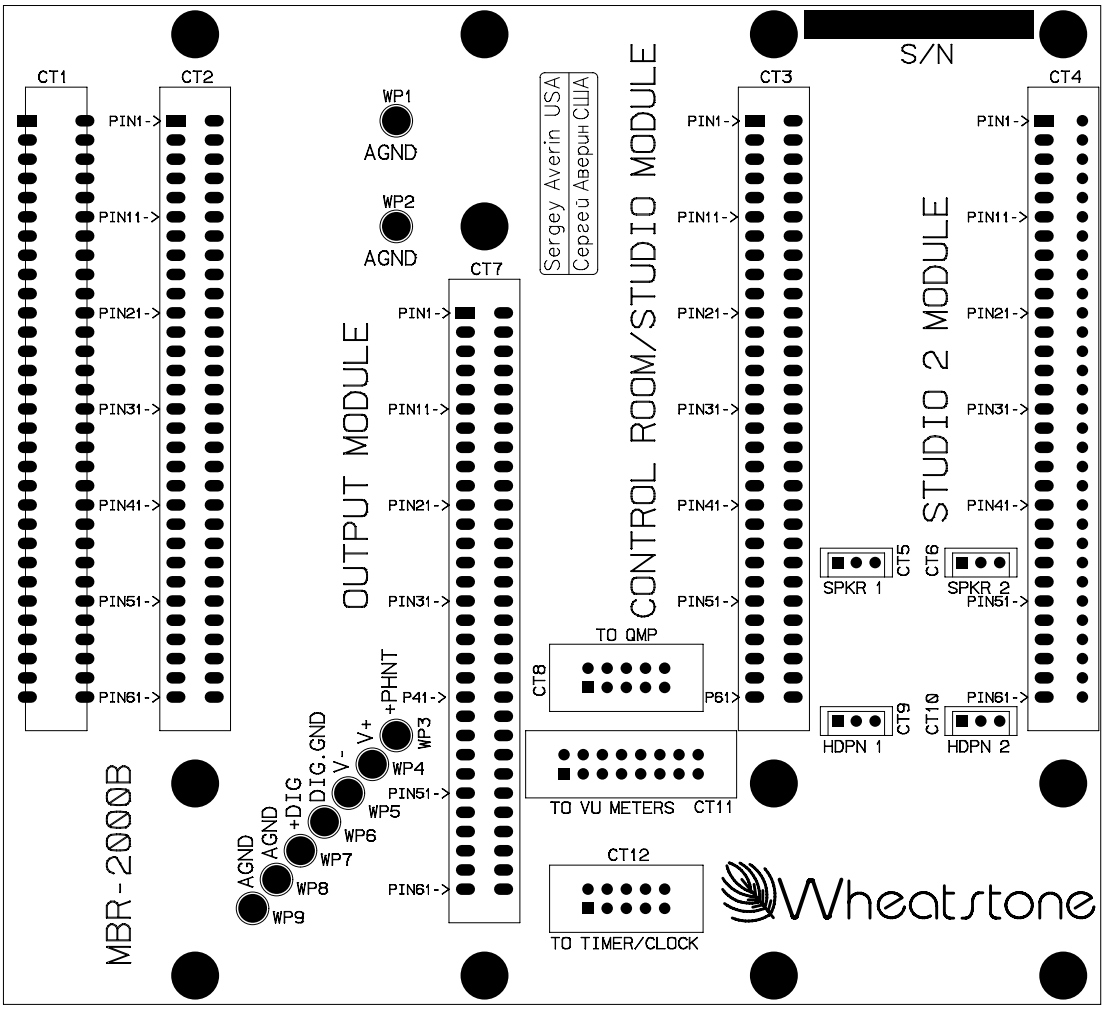
SC2 MODULE





CONTRACT NO. - Sergey Averin -		MBR-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	6-23-03		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0010 / REV B	
W# 700653		SCALE MBR-2000B PCB / SHEET 1 OF 1	

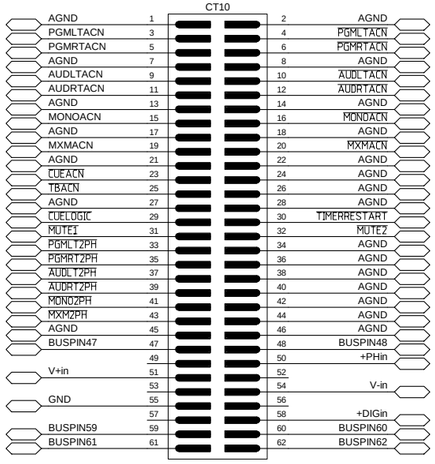
MBR-2000 4 Position Mother Board (Right) Schematic - Sheet 1 of 1



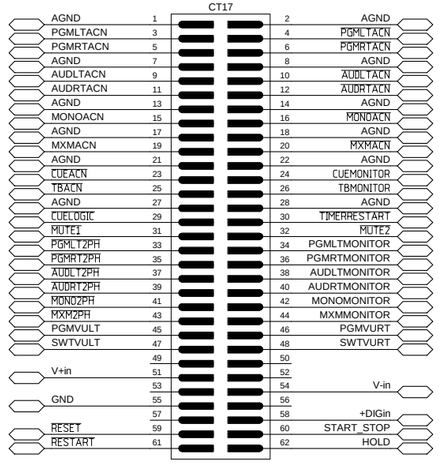
MBR-2000 4 Position Mother Board (Right) - Load Sheet

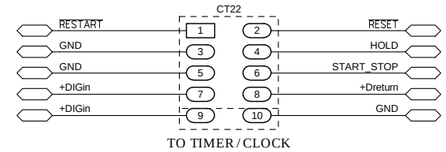
EDGE CONNECTORS BUSS CHART

INPUT / SPN MODULE

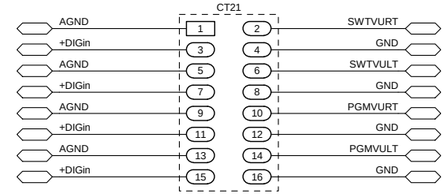


OUTPUT MODULE



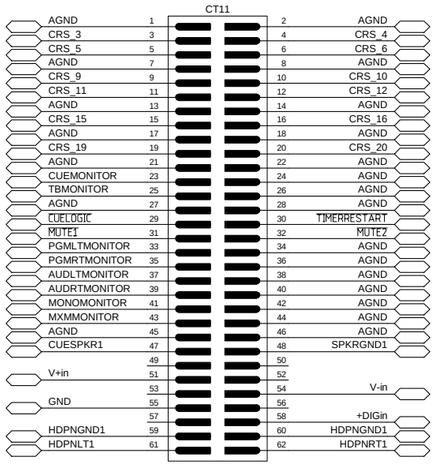


TO TIMER / CLOCK

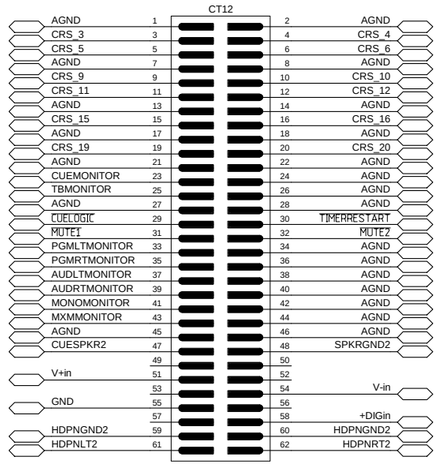


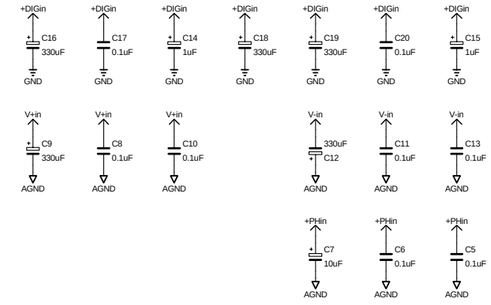
TO VU METERS

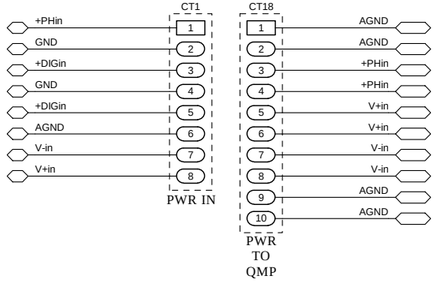
CR / SC MODULE

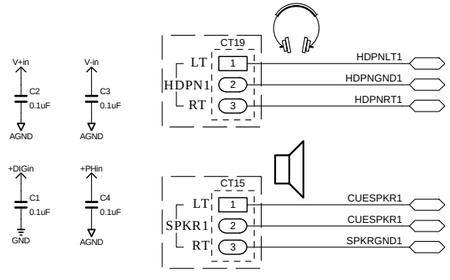


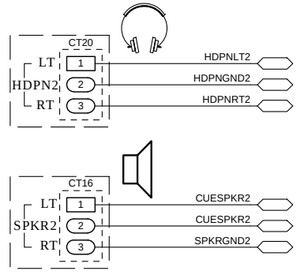
SC2 MODULE







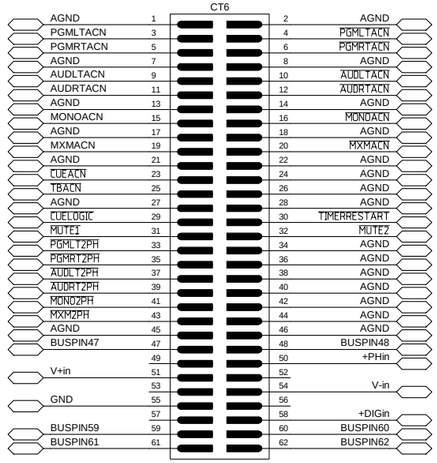




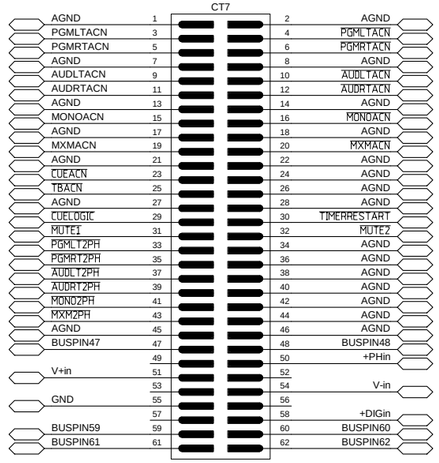
CONTRACT NO. - Sergey Averin -		MBR-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-23-04		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0010 / REV —	
W# 700813		SCALE MBR-55 PCB / SHEET 1 OF 2	

EDGE CONNECTORS BUSS CHART

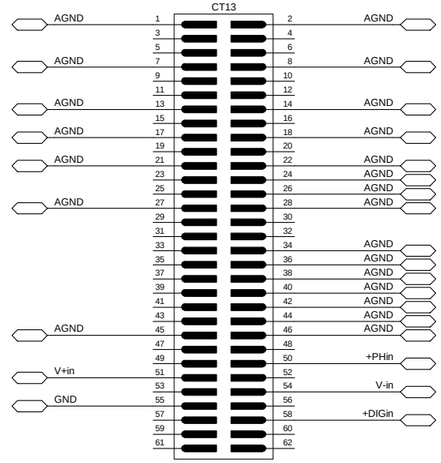
INPUT MODULE



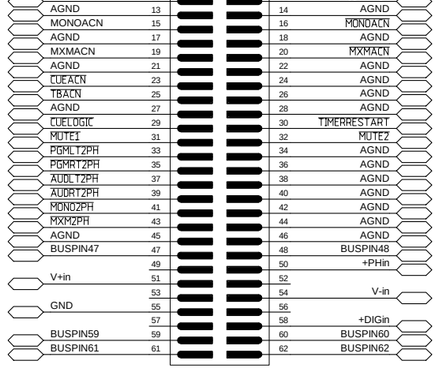
INPUT MODULE



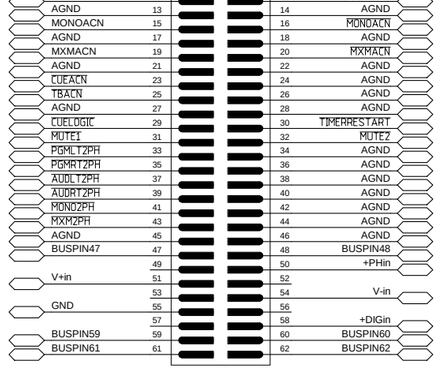
LINE SELECT/ TAPE REMOTE



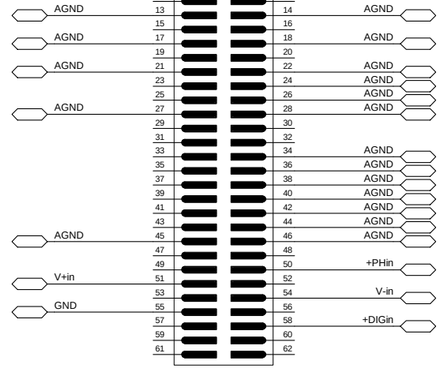
INPUT MODULE

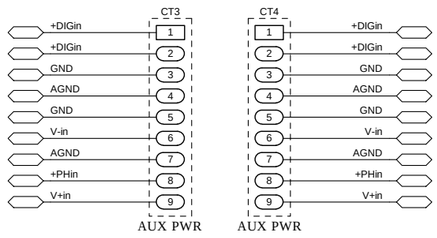


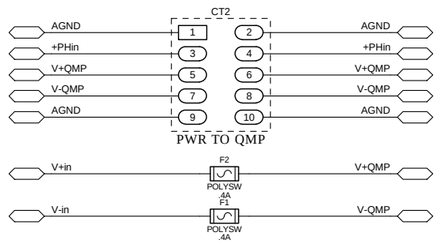
INPUT MODULE



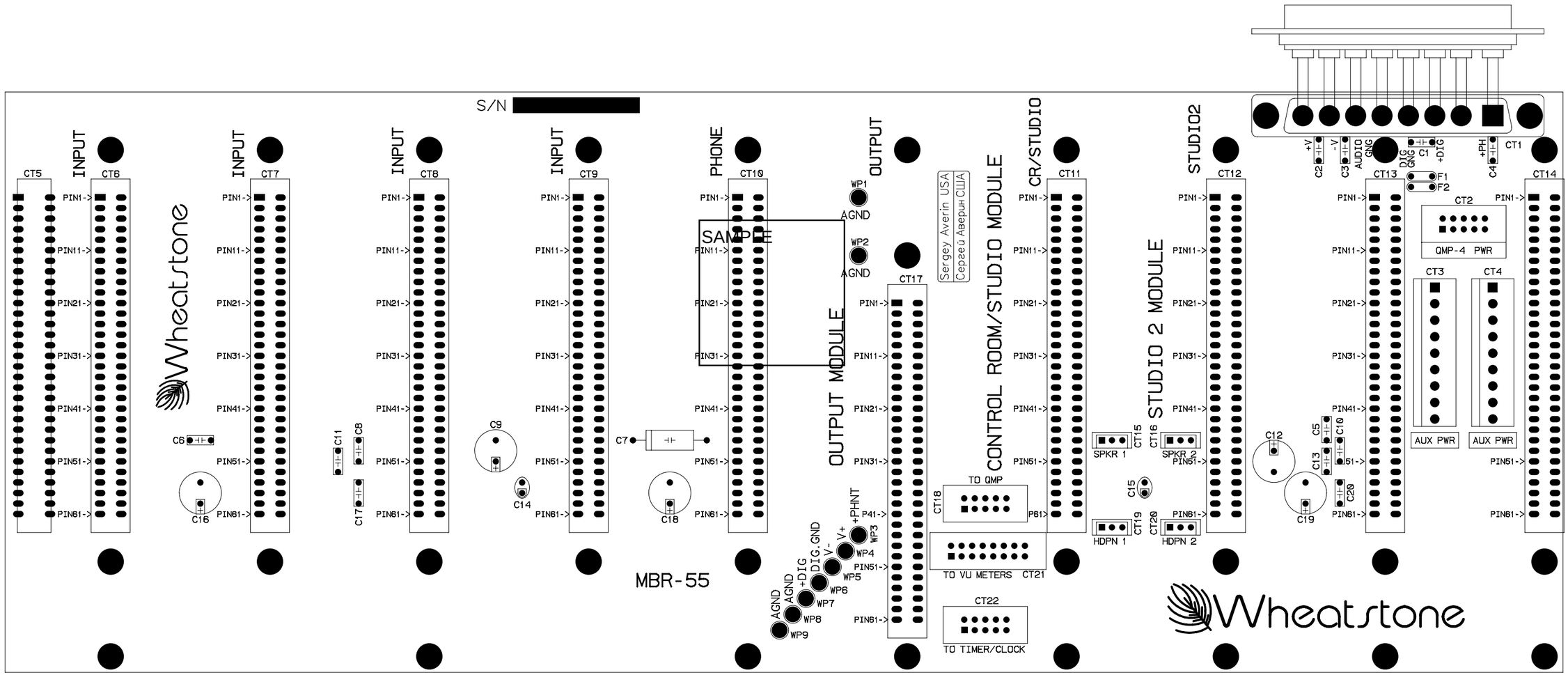
LINE SELECT/ TAPE REMOTE

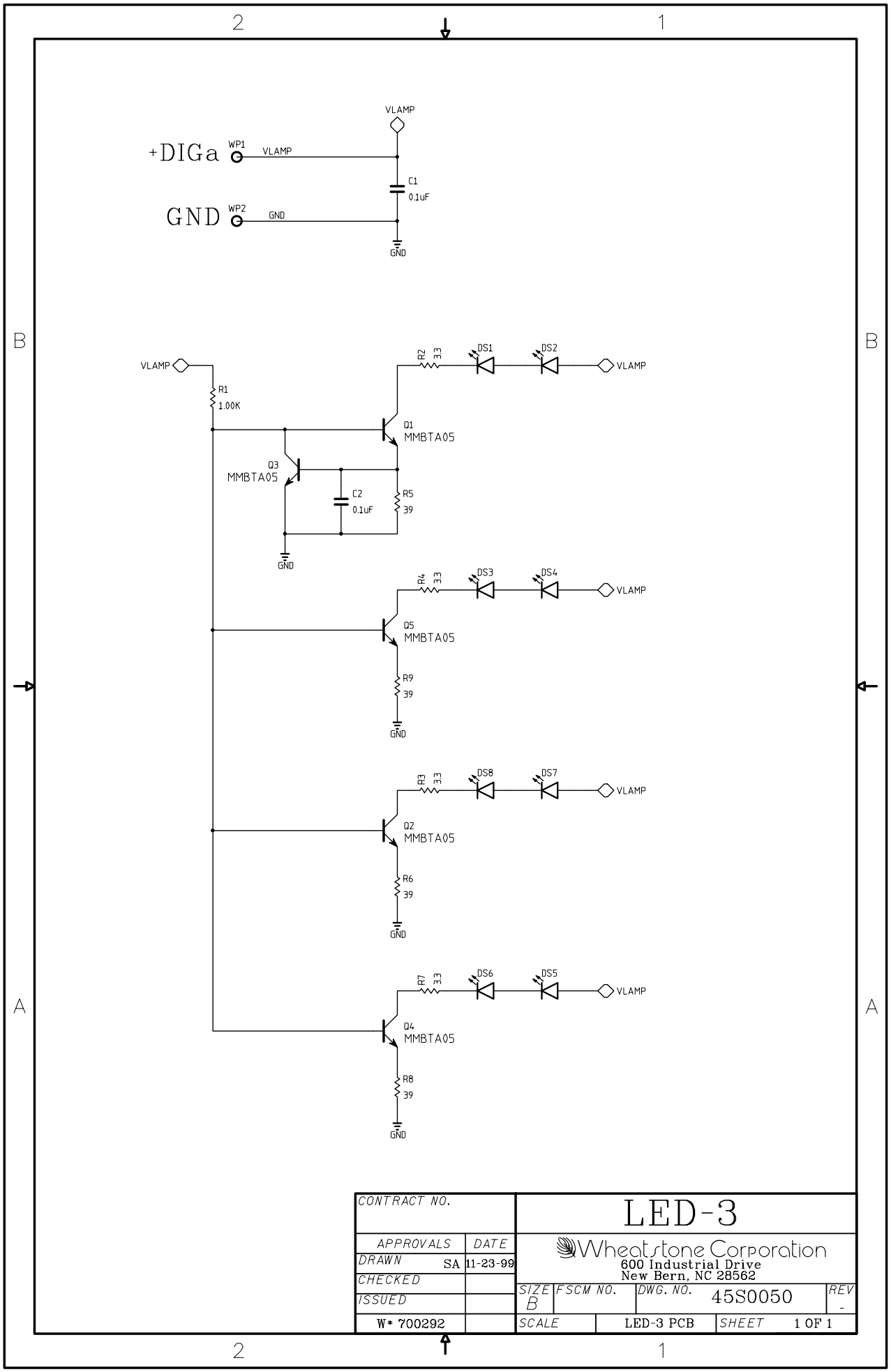




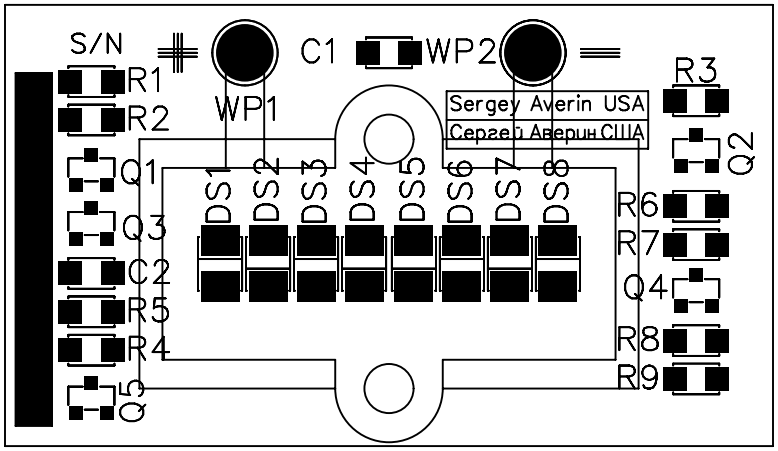


CONTRACT NO. - Sergey Averin -		*MBR-55*
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562
DRAWN SA	9-23-04	
CHECKED	SA	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0010 / REV —
W# 700813		SCALE / MBR-55 PCB / SHEET 2 OF 2

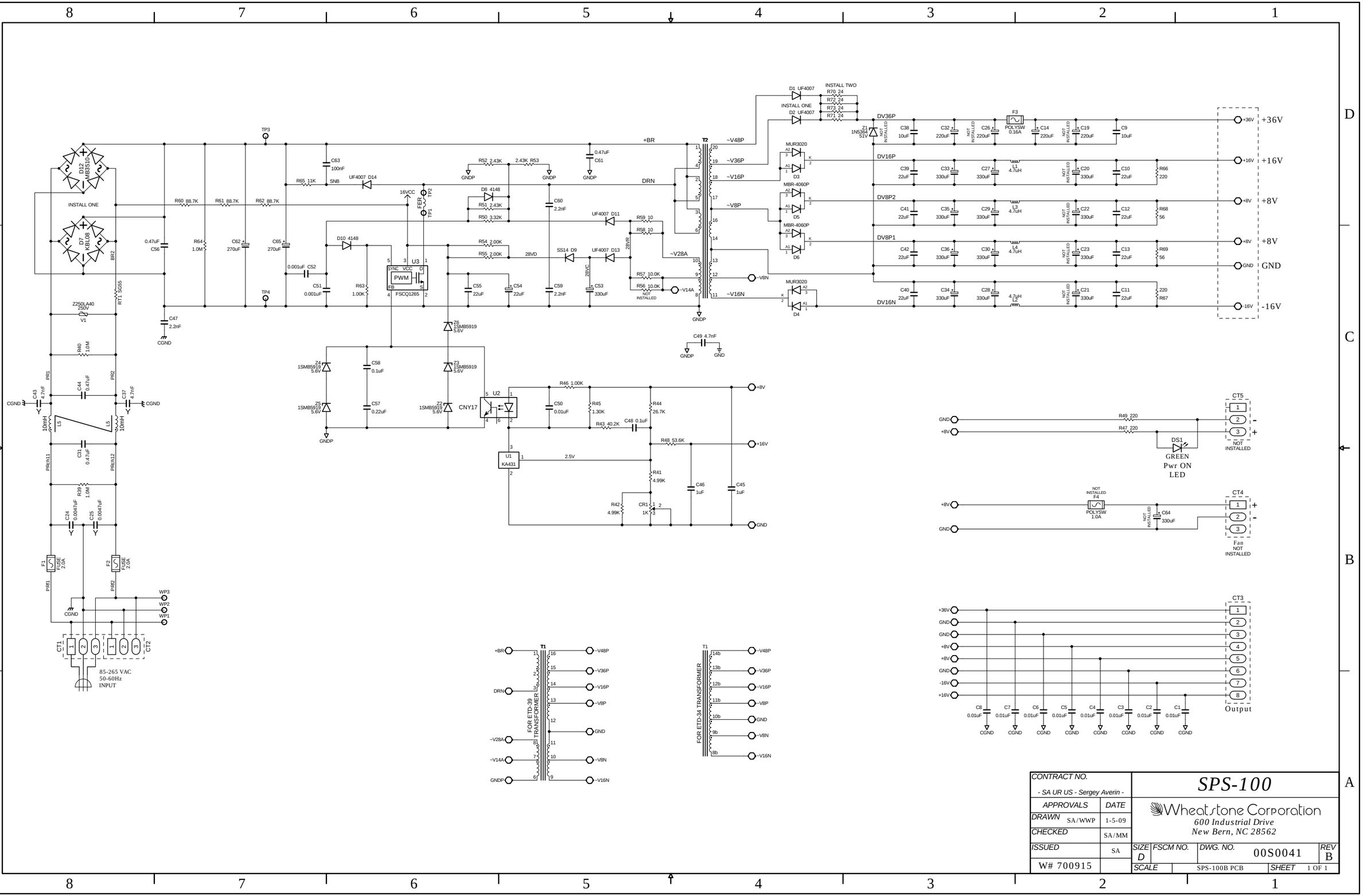

S/N
INPUT
CT5
CT6
CT7
CT8
CT9
PHONE
CT10
OUTPUT
CT17
WP1
AGND
WP2
AGND
SAMPLE
Sergey Averin USA
Сергей Аверин США
OUTPUT MODULE
CR/STUDIO
CT11
CONTROL ROOM/STUDIO MODULE
STUDIO2
CT12
STUDIO 2 MODULE
CT1
+V
-V
AUDIO GND
DIG GND
C1
+DIG
+PH
C2
C3
C4
CT13
CT14
F1
F2
CT2
QMP-4 PWR
CT3
CT4
AUX PWR
AUX PWR
PIN1->
PIN11->
PIN21->
PIN31->
PIN41->
PIN51->
PIN61->
C6
C16
C11
C8
C17
C9
C14
C7
C18
C5
C10
C13
C20
C12
C19
C15
CT15
CT16
SPKR 1
SPKR 2
CT19
CT20
HDPN 1
HDPN 2
CT18
TO QMP
TO VU METERS
CT21
CT22
TO TIMER/CLOCK
+PHNT
WP3
V+
WP4
V-
WP5
DIG.GND
WP6
+DIG
WP7
AGND
WP8
AGND
WP9
MBR-55
Wheatstone



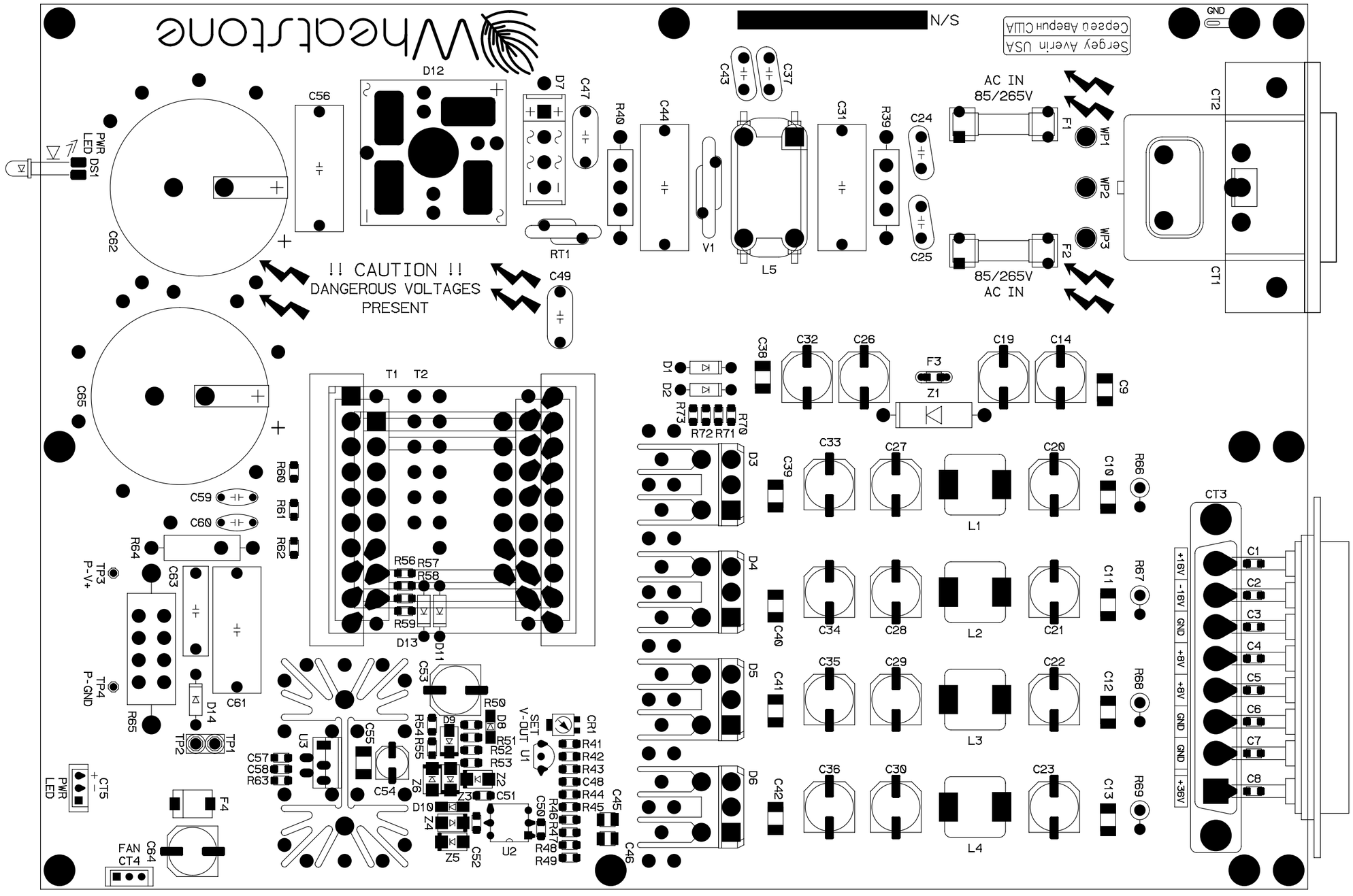
Meter Led Lamp Schematic -
Sheet 1 of 1



LED-3 Meter LED Lamp - Load Sheet



CONTRACT NO.	*SPS-100*
- SA UR US - Sergey Averin -	
APPROVALS / DATE	Wheatstone Corporation
DRAWN SA/WWP 1-5-09	600 Industrial Drive
CHECKED SA/MM	New Bern, NC 28562
ISSUED SA	SIZE D · FSCM NO. · DWG. NO. 00S0041 · REV B
W# 700915	SCALE · SPS-100B PCB · SHEET 1 OF 1


Wheatstone
N/S
Сергей Аверин США
Sergey Averin USA
GND
AC IN
85/265V
F1
WP1
WP2
WP3
F2
85/265V
AC IN
CT2
CT1
!! CAUTION !!
DANGEROUS VOLTAGES
PRESENT
PWR
LED DS1
C62
C56
D12
D7
C47
R40
C44
RT1
V1
L5
C43
C37
C31
R39
C24
C25
C49
C65
T1 T2
C59
C60
R64
C63
TP3
P-V+
TP4
P-GND
D14
C61
TP2
TP1
R65
R60
R61
R62
R56 R57
R58
R59
D13
D11
C53
R50
D8
D9
R54 R55
R51
R52
R53
Z6
Z2
Z3
C51
D10
Z4
Z5
C52
U2
C50
R46 R47
R48
R49
C45
C46
SET
V-OUT U1
CR1
R41
R42
R43
C48
R44
R45
U3
C57
C58
R63
C55
C54
PWR
LED
CT5
F4
FAN
CT4
C64
D1
D2
R73
R72 R71
R70
C38
C32
C26
F3
Z1
C19
C14
C9
C33
C27
C20
C10
R66
C39
C34
C28
C21
C11
R67
C40
C35
C29
C22
C12
R68
C41
C36
C30
C23
C13
R69
C42
D3
D4
D5
D6
L1
L2
L3
L4
CT3
+16V
-16V
GND
+8V
+8V
GND
GND
+36V
C1
C2
C3
C4
C5
C6
C7
C8