Operational Philosophy

DMXDecoders convert DMX, AMX or D54 multiplexed protocols to analog control signals.

Features

- Microprocessor-based electronics
- Rotary address switch selects unit address in one-dimmer increments
- Selectable status quo memory retention feature maintains output levels at last known values for five minutes upon loss of input control signal
- Auto recognition of control protocol on 24 channel models
- User-configuration positive or negative analog outputs on 48 channel models
- LED indicators for control signal detect and microprocessor status.
- Built in output test function allows dimmers to be turned on from front panel switches
- 19 inch rack mount kit available
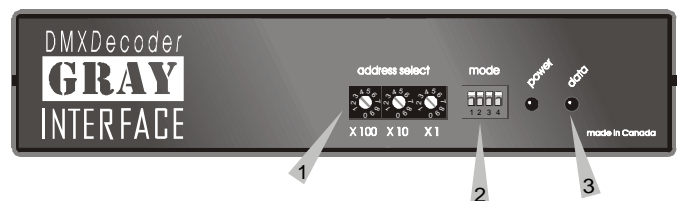
Indicators

Two LEDs are used to indicate, from left to right, power supply and processor run status and data receive detection.

L1 : Glowing solidly indicates power supply and processor OK; off indicates no power, and flashing indicates defective processor hardware.

L2 : Glowing solidly indicates data signal received; off indicates no signal present. Note that an

Address Selection

Three rotary switches select the offset start address for the unit in most configurations. In test mode, the switches set dimmers to full one at a time. From left to right the switches are set as hundreds, tens, and ones.

1. Address select switches
2. Mode select DIP switches
3. LED indicators (power and data)

Setup Instructions

The Gray Interfaces 24 48 channel decoders have been designed to permit easy, economical upgrades to older lighting control systems with analog dimmers. Standard input protocols are USITT DMX-512 or AMX-192, or Strand D54.

A few simple steps are required to prepare your interface unit for operation.

First, assemble your mating cables and ensure that they conform to the connector pinouts as shown on page . Plug the cable from your lighting control board into the input connector on the rear panel of the decoder unit. Note that AMX or DMX input models include "in" and "thru" connectors, whereas AMX and DMX input models only have "in" connectors. The 25-pin output connector(s) of the decoder unit wire directly to the dimmers' analog inputs.
Note: Unless otherwise ordered, all decoder units are shipped with a factory default output configuration of 0 to 10VDC. For other outputs, refer to the configuration instructions on page 4.

Next set the starting address of the first output signal using the three rotary address select switches.

Then, refer to the DIP Switch Settings on page 4. The shaded settings are factory defaults.

Now apply power to the decoder unit by plugging the card from the power supply into the power jack on the rear of the box, and plug the power cube into a 120V outlet (the decoder can be left powered up all the time, current draw is minimal). If the microprocessor is operating properly, the "POWER" LED on the front panel should illuminate. Turn your control board "DATA" LED will illuminate if the decoder unit is receiving a valid data signal. Now run some dimmers up to verify that the decoder is working.

Note that in test mode (DS2 on) dimmers may be turned on individually without the use of a control board. Simply dial up the desired dimmer number on the rotary address switches.
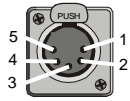
System Layout
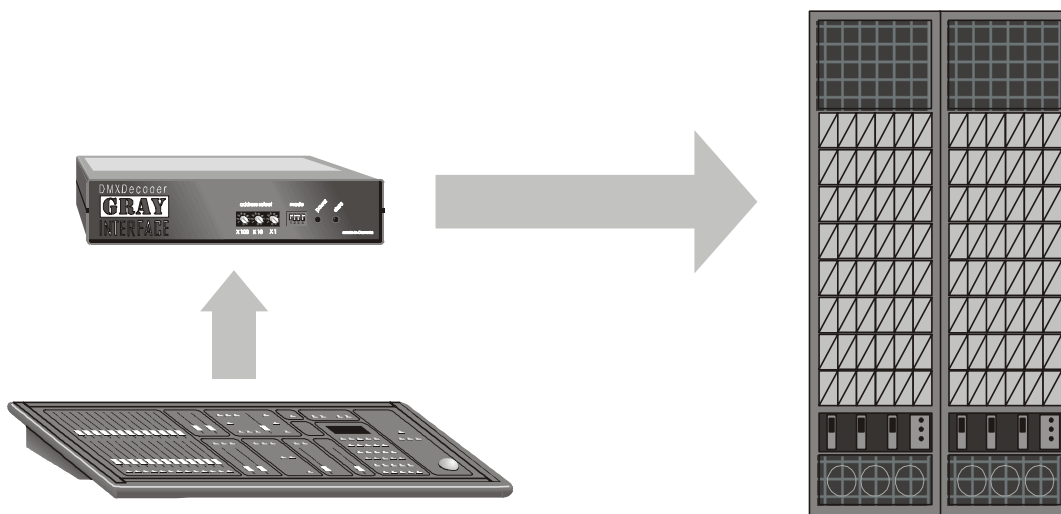
Connector Pinout

DMX - 512

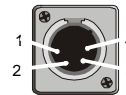DMX PIN ASSIGNMENT

1 - COMMON
2 - DATA-
3 - DATA+
4 - NC
5 - NC

PUSH

5 1
4 2
3

OUT (F)

1 5
2 4
3

IN (M)

AMX - 192

AMX PIN ASSIGNMENT

1 - COMMON
2 - CLOCK+
3 - ANALOG
4 - CLOCK-

PUSH
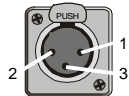
4 1
3 2

IN (F)

1 4
2 3

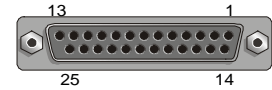OUT (M)

STRAND D54 (384)

D54 PIN ASSIGNMENT

1 - COMMON
2 - NC
3 - ANALOG

PUSH

1
2 3

OUT (F)

1
3 2

IN (M)

Analog

1 – Channel 1 & 25
2 – Channel 2 & 26
3 – Channel 3 & 27
4 – Channel 4 & 28
5 – Channel 5 & 29
6 – Channel 6 & 30
7 – Channel 7 & 31
8 – Channel 8 & 32
9 – Channel 9 & 33
10 – Channel 10 & 34
11 – Channel 11 & 35
12 – Channel 12 & 36
13 – Common
14 – Channel 13 & 37
15 – Channel 14 & 38

16 – Channel 15 & 39
17 – Channel 16 & 40
18 – Channel 17 & 41
19 – Channel 18 & 42
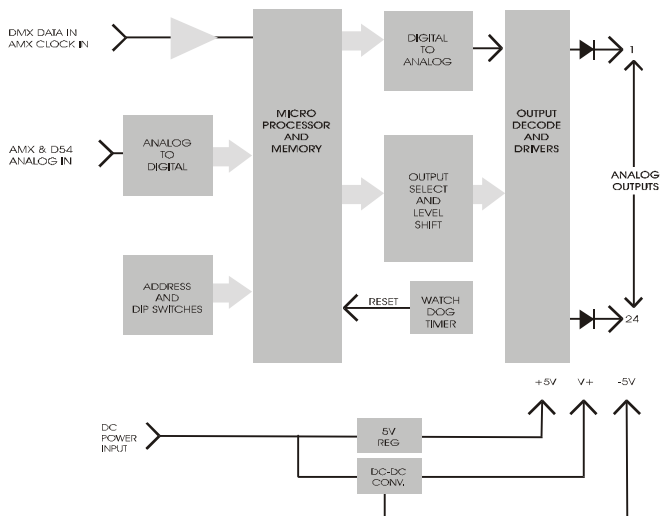20 – Channel 19 & 43
21 – Channel 20 & 44
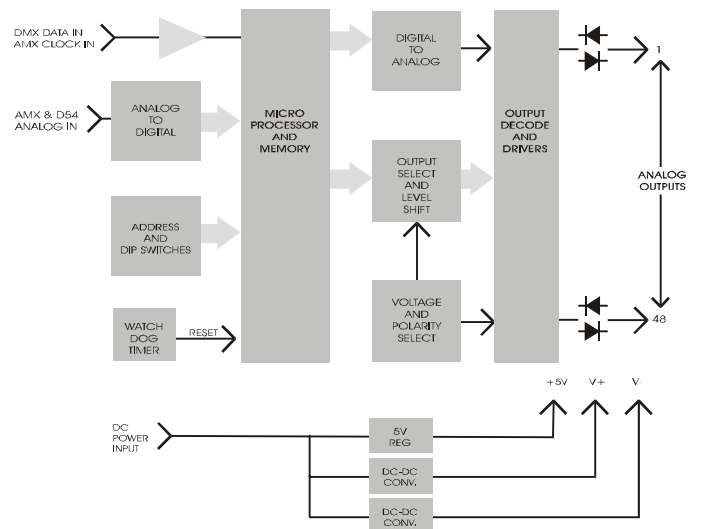22 – Channel 21 & 45
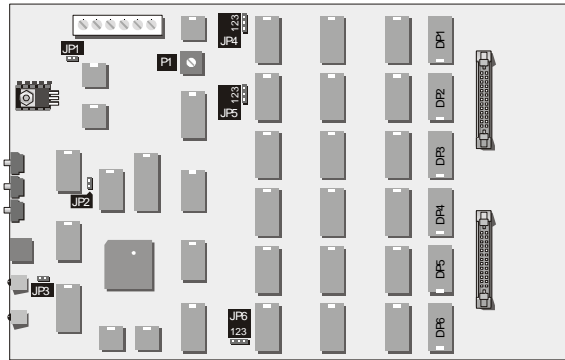23 – Channel 22 & 46
24 – Channel 23 & 47
25 – Channel 24 & 48

13 1

25 14

Block Diagram 24 Channel

DMX DATA IN
AMX CLOCK IN

AMX & D54
ANALOG IN

ANALOG
TO
DIGITAL

ADDRESS
AND
DIP SWITCHES

MICRO
PROCESSOR
AND
MEMORY

DIGITAL
TO
ANALOG

OUTPUT
SELECT
AND
LEVEL
SHIFT

RESET

WATCH
DOG
TIMER

OUTPUT
DECODE
AND
DRIVERS

1

24

ANALOG
OUTPUTS

+5V   V+   -5V

DC
POWER
INPUT

5V
REG

DC-DC
CONV.

Block Diagram 48 Channel

DMX DATA IN
AMX CLOCK IN

AMX & D54
ANALOG IN

ANALOG
TO
DIGITAL

ADDRESS
AND
DIP SWITCHES

WATCH
DOG
TIMER

MICRO
PROCESSOR
AND
MEMORY

RESET

DIGITAL
TO
ANALOG

OUTPUT
SELECT
AND
LEVEL
SHIFT

VOLTAGE
AND
POLARITY
SELECT

OUTPUT
DECODE
AND
DRIVERS

1

48

ANALOG
OUTPUTS

+5V   V+   V-

DC
POWER
INPUT

5V
REG

DC-DC
CONV.

DC-DC
CONV.

DMX*Decoder*   *User Guide*
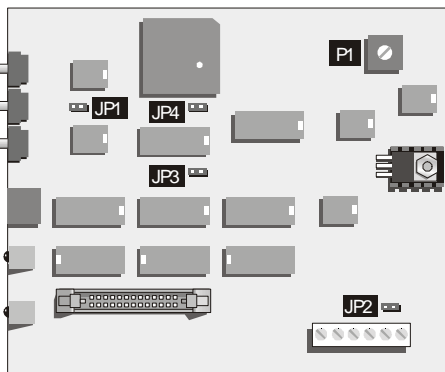
48 Channel Decoder Card

24 Channel Decoder Card

OUTPUT CONFIGURATION (24 CHANNEL MODELS)

For 10V systems, JP2 is installed and JP3 and JP4 are removed. For 15V systems, JP2 is removed and JP3, JP4 are installed.

OUTPUT CONFIGURATION   (48 CHANNEL MODELS)

CAUTION – Disconnect power from the unit before making any changes
For 10V systems, JP1 and JP2 are installed: remove them for 15V systems. For positive outputs, jumper pins 2 and 3 of JP4, 5 and 6 and install diode packs DP1-6 with the notch facing down (left). For negative outputs, jumper pins 1 and 2 of JP4, 5 and 6, and install the diode packs with the notch facing up (right). ***Before powering up, check to make sure all jumpers are installed correctly. Damage will result if the unit is powered up with any of the jumpers in the wrong position.***

OUTPUT VOLTAGE ADJUSTMENT   (ALL MODELS)

Place the unit in test mode (S1-2 on) and set the address switches to 000 or 001. Ensure that the decoder is connected to dimmer no. 1 and connect a DC voltmeter between COM and output terminal no. 1 on the circuit board. Adjust P1 to achieve the desired control voltage.

OUTPUT CONNECTOR ASSIGNMENT (ALL MODELS)

If your decoder uses 25-pin D-type output connectors, you must install JP1 on 24 channel units or JP3 on 48 channel units. This will reassign the output control signals to confirm to the analog pin assignment detail on page 3.

DIP Switch Settings

STATUS QUO HOLD TIME	1
Disabled (2 Sec. Time Out)	OFF
Enabled (5 Min. Time Out)	ON
Maintains last dimmer levels for set time on loss of input data signal	
TEST AND CALIBRATE MODE	2
When enabled allows analog dimmer outputs to be brought to full one at a time as selected by the rotary address switches.	
PROTOCOL SELECT	3
AMX-192 OR D54	OFF
DMX-512	ON
This switch is active only on 48 channel models,	

DMX TERMINATION	4
DMX Line Unterminated	OFF
DMX Line Terminated	ON
This switch connects a 100-ohm resistor across the DMX data pair. The unit should be terminated if it is the last receiving device on the DMX line.	

Model Description

8721	DMX input, 24 analog outputs
8721AC	DMX input, 24 analog outputs with internal 100-240VAC power supply
8741	DMX input, 48 analog outputs
8600	19" rack mount bracket kit

Specifications

Power Supply:	9-12VDC @ 250mA (adaptor included)
Weight:	24 channel: 1.3 kg (2.9 lbs) 48 channel: 1.5 kg (3.3 lbs)
Size:	24 channel: 8 x 1.75 x 6.5" (203 x 44 x 165 mm) 48 channel: 8 x 1.75 x 11" (203 x 44 x 279 mm)