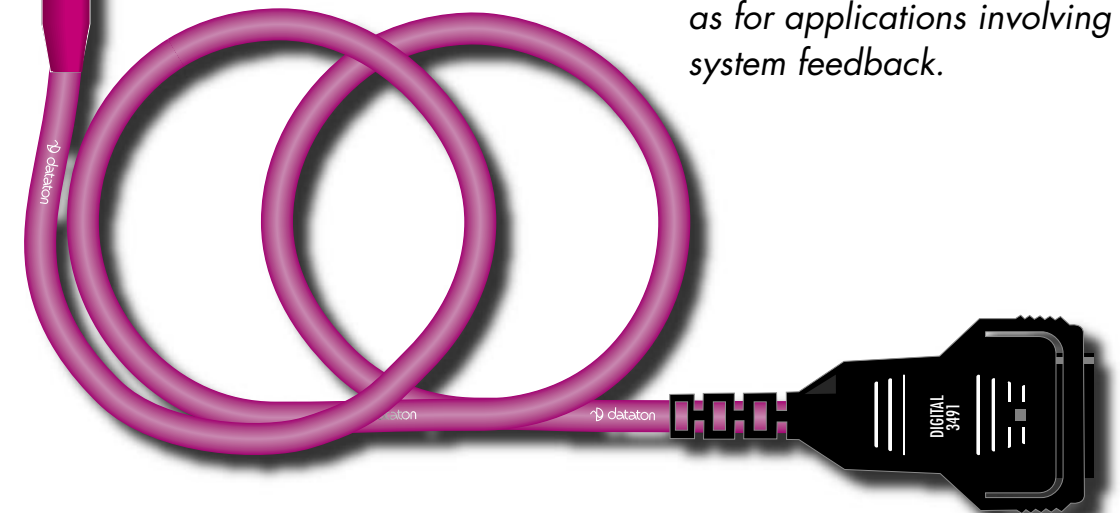




DIGITAL SMARTLINK

DIGITAL SMARTLINK interfaces SMARTPAX with power relays, solenoids, motors, small lamps etc.

It has 32 independent outputs and each withstands 0.5A and 50V. Each output is also capable of sensing the applied voltage for diagnostic purposes as well as for applications involving system feedback.



DIGITAL SMARTLINK applications

DRIVING RELAYS

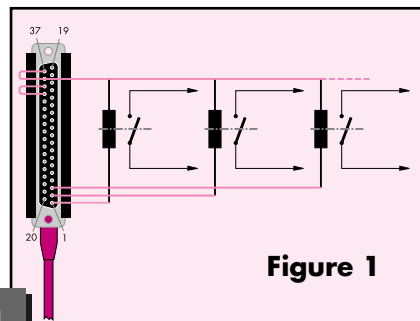


Figure 1

DIGITAL SMARTLINK is designed to interface SMARTPAX to the real world, represented here by power actuators, indicators, motors, bulbs etc. The high number of outputs from each DIGITAL SMARTLINK (32) has created a drastic change in the price/performance ratio, thus opening up new applications calling for high precision control of a huge number of on/off devices.

Figure 1 shows how to drive power relays from DIGITAL SMARTLINK. For the

sake of clarity, only three relays out of a possible 32 are shown. (Pins 1–32 are designated for the control channels.) No external power supply is required for driving the relays, which are powered by a 12V DC supply from the smartlink itself, originating from the SMARTPAX. Note, the maximum DC current supplied from the DIGITAL SMARTLINK for driving

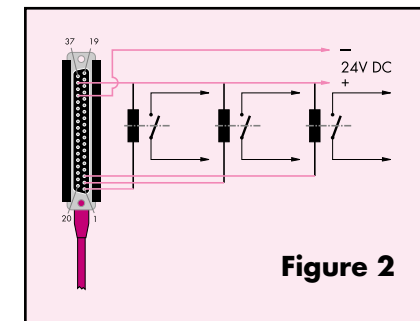


Figure 2

external relays etc, is limited to 500 mA. If more power or higher drive voltage than 12V is required, an external 24V DC source may be used, as indicated in Figure 2. In this case, the 24V source may also power the SMARTPAX if the smartlink in question is plugged into the leftmost (as viewed from front) connector. A simple 24V, full-bridge rectified, filtered power source will suffice.

DRIVING DC OPERATED MOTORS

DC operated motors may be used for moving curtains, screens, mirrors, robotics, etc. A straightforward scheme for controlling small, low voltage DC motors (backward, forward and stop) is shown in Figure 3.

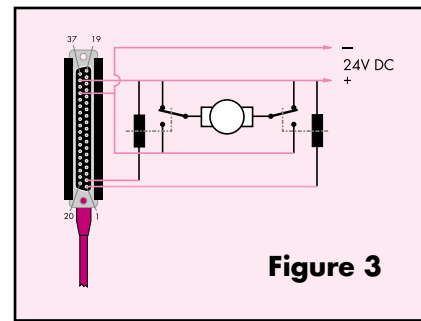


Figure 3

Here, two SPDT relays for the backward/forward control are powered from the same DC source as the motor itself. However, the motor can run on its own power supply. In this case, the relays may be powered by the DIGITAL SMARTLINK as the relays in Figure 1.

If just a simple on/off control is required, the motor can be connected directly to a single port, like the relays in Figure 1 or Figure 2.

DRIVING INCANDESCENT LAMPS

On/off light control using a great number of lamps for programmed illumination of real objects in a show is very effective from the communication point of view, but surprisingly simple from the technical point of view.

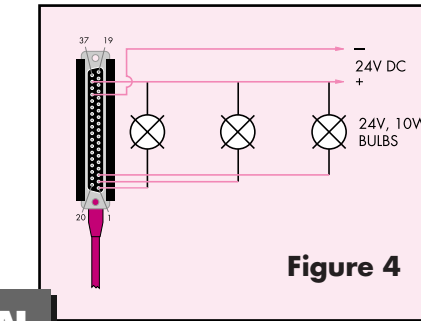


Figure 4

One DIGITAL SMARTLINK can directly control 32 10W bulbs for applications like the one shown in Figure 4.

The smart structure of the electronic circuits inside the DIGITAL SMARTLINK makes the device virtually immune to lamp failures and in-rush current peaks. In future software versions of SMARTPAX and TRAX, it will be possible to get lamp status feedback for diagnostic purposes.

PARALLELING OUTPUTS FOR MORE POWER

Sometimes your applications need more power than 10W bulbs. By running control channels in parallel, the power handling will be increased accordingly. Figure 5 shows how to connect eg, 50W 24V halogen spots.

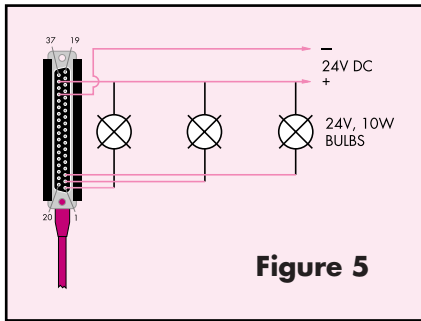


Figure 5

Note, the 24V DC does not have to be stabilized; a full-bridge rectified 24V AC with a filter capacitor large enough to keep the instantaneous voltage within 12–50V will suffice.

DRIVING LEDS AND SENSING SWITCHES

Driving light emitting diodes (LEDs) is clearly a simple task for DIGITAL SMARTLINK. What is not so obvious is its ability to sense the status of its control channels. This feature will be utilized in future software versions of the system.

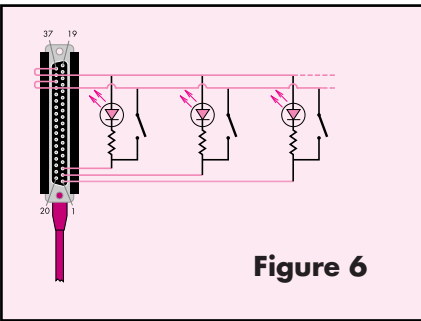


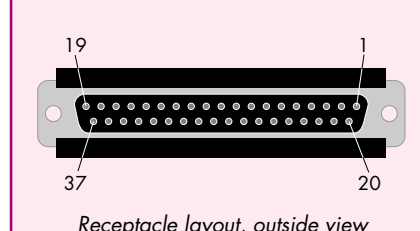
Figure 6

Figure 6 shows how this property will be used—human-operated switches or various on/off sensors may be combined on the same control channels as the LED indicator. In this way, low-cost, custom-made operating panels may be designed.

Technical Description

DIGITAL SMARTLINK connects to the devices to be controlled via its 37 pin female D-sub receptacle. The pins are used in the following manner:

- Pin 1–32 Digital channel 1–32.
- Pin 33 Common pin. All digital channels.
- Pin 34 Power supply in/out. Common. Internally connected to pin 33.
- Pin 35 Power from SMARTPAX. Common.
- Pin 36 +12 – +24V DC in. Used for powering DIGITAL SMARTLINK as well as the SMARTPAX in use (applies for device port \blacksquare --- only).
- Pin 37 Power from SMARTPAX. +12V.



The electronic parts housed in the case of the 37 pin D-sub receptacle require a power supply. This is supplied by SMARTPAX itself, by strapping pin 35–34 and 37–36. Alternatively, power may be taken from an external DC source, 0V to pin 34 and +12 – +24V to pin 36. This external power will also power the SMARTPAX in use if connected to the leftmost SMARTPAX port (as viewed from the front).

USAGE

Although the electronic circuits used for the digital channels are virtually indestructible, do not connect the channels to a negative voltage in respect to the common pin (pin 33,34). The equivalent circuit for one channel looks like this:

The channels can directly drive 24V DC operated power relays, low-power bulbs, or logic inputs on other electronic devices, for example. The channel is pulled low internally, thus ensuring a defined state when floating. Several channels may be used in parallel to achieve higher drive capacity. One channel can sink 0.5A and withstand 50V. Never attempt to connect the channel to a low-impedance voltage source higher than +50V or lower than –0.5V.

For more information on programming this smartlink, please refer to the device information database inside Dataton TRAX® and the TRAX handbook.

The DIGITAL SMARTLINK cable length is 1.6m (63") and may be extended with Dataton EXTENSION CABLE, article number 3451 (1m), 3452 (2m) or 3455 (5m).

The outline of the 37-pin receptacle D-sub housing is 62 × 47 × 17 mm.