# Dapol OO gauge class 68 locomotive   DCC guide

1. **Overview of functions:** To achieve more prototypical operation we have designed the locomotive with optional independent control of front and rear lamps, cab lights and the unique 'halo' lamps. Full control over these functions is possible from your DCC handset. The model has been designed to operate with a 21 pin MTC decoder. Due to the limitation in the number of functions available on a DCC decoder, the cab lights are operable with the main lamps and are set-up with two easily accessable switches (simply lift the exhaust cover located on the top of the model).
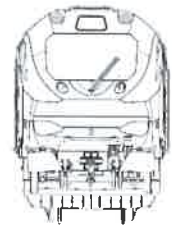
2. **The factory fitted sound decoder** is a 6-function type, pre-configured to operate the model's lighting functions. A full description of its operation is in section 7 below.

3. **Push-Pull operation:** The Class 68 often operates in push-pull or double headed (MU) modes as well as standard hauling. Independent control of front & rear lamps (4 or 6 fnc. decoders) or control of the leading lamps via internal switch (2 function decoders only) permits the loco to display red tail lamps in 'push' mode, whilst having the 'stock facing' lamps switched off or, disabling both front and rear lamps (and cab lamps) in MU mode. Lamps are fully controllable using a minimum of a 4 function DCC decoder. If you have not purchased the factory fitted DCC or DCC sound decoder option, you may need to function map your decoder to operate these features (Refer to your decoder manual).

4. **Fitting DCC to your model:** The Dapol class 68 is designed to accept the fitting of any standard 21 pin NMRA decoder. Best results will result from use of a 6 function decoder. Decoders with fewer functions can be used, but will result in lesser control of the advanced lighting features of this model (refer to table below).

5. **Decoder choice:** The model is set to operate 'conventional' directional lighting, with leading cab light lit, when a 2 function 21-pin decoder is installed. Table 1 below shows which functions are available with each type of decoder. We recommend the use of a 6 function 21-MTC decoder to obtain the full range of features. Decoders must be caperble of direction control of each function output.

Decoder functions	Halo lamps	Main lamps	Cab lights	SW3 position
2 function decoder (and DC)	Not available	Directional, Stock facing switched	Operate directionally, a switch selects front/off/rear	SW3 Position 2. (Cab and lighting controlled by internal switches.)
4 function decoder	Not available	Independent directional, front/rear DCC controllable	Operate directionally, a switch selects front/off/rear	SW3 position 1
6 function decoder (21-MTC only)	Via Aux 3 & 4 outputs	Independent, Directional	Operate directionally, a switch selects front/off/rear	SW3 position 1

Note: 'output functions' refer to the number of physical functions the decoder supports; sound functions are not relevant to this section. Motor operation is not a function for the purpose of this chart.

- **2 Function decoders:** Your model will operate in conventional directional lighting mode. Further control can be obtained by selection switch positions as described in the DC operation guide.
- **4 function decoders:** Control the #1 end and #2 end lighting independently. Cab light operation is controlled by SW1 and SW2.
- **6 function decoders:** As above, plus Halo lamps can also be controlled. (Must be MTC compatible)

Table 1 Decoder types	Output Functions	Details in paragraph
ESU LokSound 21-pin MTC	6	6c
TCS EU621X	6	6c
Gaugemaster DCC27	4	6b
Zimo MX644D	6	6a
ESU LokPilot 21-pin MTC	6	6c
Lenz Silver 21	5	6d
2 Function decoders	2	6a

(This is not an exhaustive list, nor a recommendation of manufacturer; other decoders may operate correctly)

6. **Configuring your own decoder:** Using a 4 or 6 function decoder may require CVs to be set, function mapping the outputs to enable independent lighting operation on the handset keys you require (refer to your decoder manual). Using this method, it is possible to control front lamps with one key, rear lamps with a second and halo lamps with a third.

   We suggest the following:
   a. **2 function decoders** no configuration required, (refer to DC switch operation)
   b. **4 function decoders** will operate front and rear lamps independently
      F0: #1 end white/red lamps (directional) (FOF and FOR)
      F1: #2 end white/red lamps (directional) (Aux 1 and Aux 2)
   c. **6 function decoders operate Front, Rear and Halo lamps.**
      F0: #1 end white/red lamps (directional) (FOF and FOR)
      F1: #2 end white/red lamps (directional) (Aux 1 and Aux 2)
      F2: Halo Lamps (Directional) (Aux 3 and Aux 4)
   d. **5 function decoders as above,** but rear Halo lamps are not operable (front halo lamps will operate).
   Please note: *if you are function mapping a sound decoder, then please consider that sound functions may already be assigned to a key, these sound functions may also require re-mapping.*

7. **Factory fitted sound decoder operation**
   a. A separate user guide is enclosed with models having factory fitted speakers and sound.