

Technical Guide

EDX/DMX-512 Wiring Guide

This wiring guide is applicable to **both** EDX and DMX-512 wiring.

In the following content, "EDX" represents both EDX and DMX-512.

Please note that there are only D+, D-, G in the spec of DMX-512.

1 Cable

1.1 EDX port normally has four pins: 12V+ , D+, D-, GND.

Sometimes, the pin of 12V+ is skipped if the devices have no DC supplier.

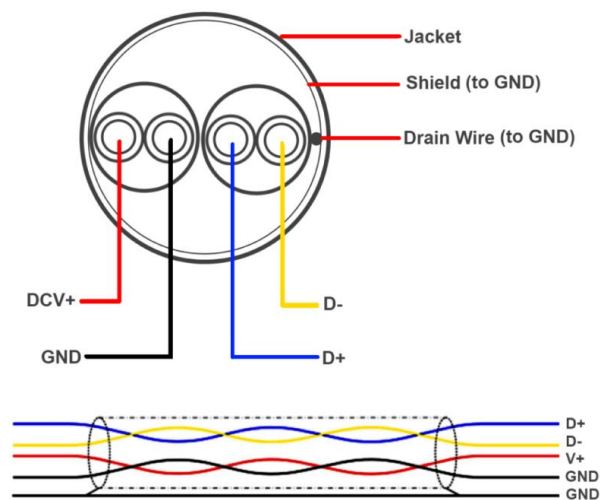
1.2 If the EDX devices itself have DC power, it is not necessary to connect 12V+. However, GND is required to be connected to avoid the interference.

1.3 Shielded twin twisted cable is required.

The wire gauge should be at least AWG 24.

(DO NOT use non-twisted cable. Non-twisted cable could make the system unstable)

Figure: Shielded Twin Twisted Cable



1.4 If the length of the cable is longer than 30M, we recommend as least use AWG 22 cable to avoid the issue of voltage drop. Otherwise, all devices powered by EDX port should be at least get 10V.

AWG 24: 0.205 mm²

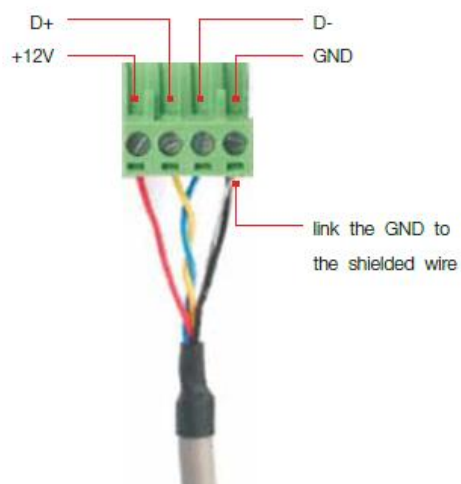
AWG 22: 0.326 mm²

Example:

** AWG 22 cable: At 12V DC 0.5A · voltage drops to 10.37V in the length of 30M.*

** AWG 24 cable: At 12V DC 0.5A, voltage drops to 9.4V in the length of 30M. 9.4V is smaller than the minimum voltage requirement (10V).*

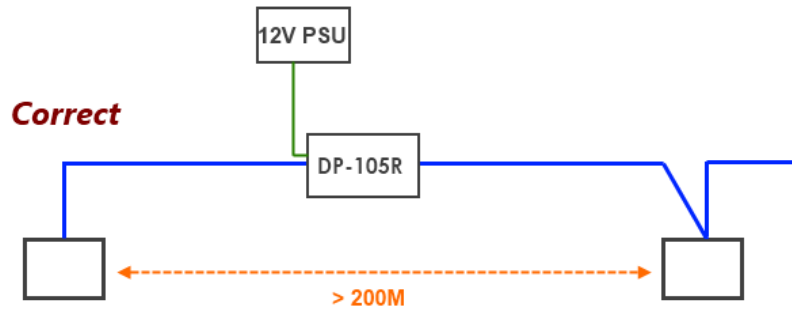
1.5 The shield of the cable should be connected to GND pin of the cable to minimize the interference.



2 Wiring

2.1 All devices powered by EDX port should be at least get 10V. Otherwise, additional power supply unit should be added to the system.

2.2 The length between to EDX devices should be shorter than 200M. If the length is longer than 200M, a repeater/isolator (DP-105R) should be added to the system.



2.3 In the end of the EDX cable, it is recommended to add a 120ohm resistor (at least 0.5W).

2.4 If the number of devices in the system is more than 64, it is required to add a repeater/isolator (DP-105R).

2.5 The connection should be daisy chain. Star topology should be avoided.

Figure: Bus/Daisy chain

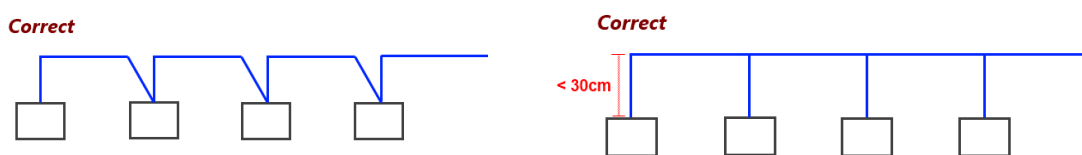
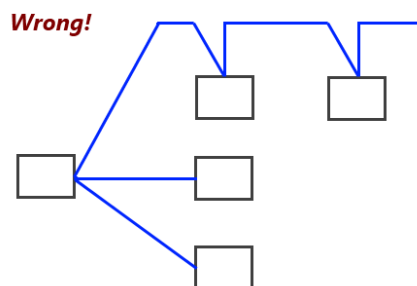


Figure: Star Topology (Wrong)



* If star topology is necessary, isolators/repeaters should be applied in the system.

Figure: Use isolators/repeaters to solve the issue of star topology

Bus Topology + Isolators

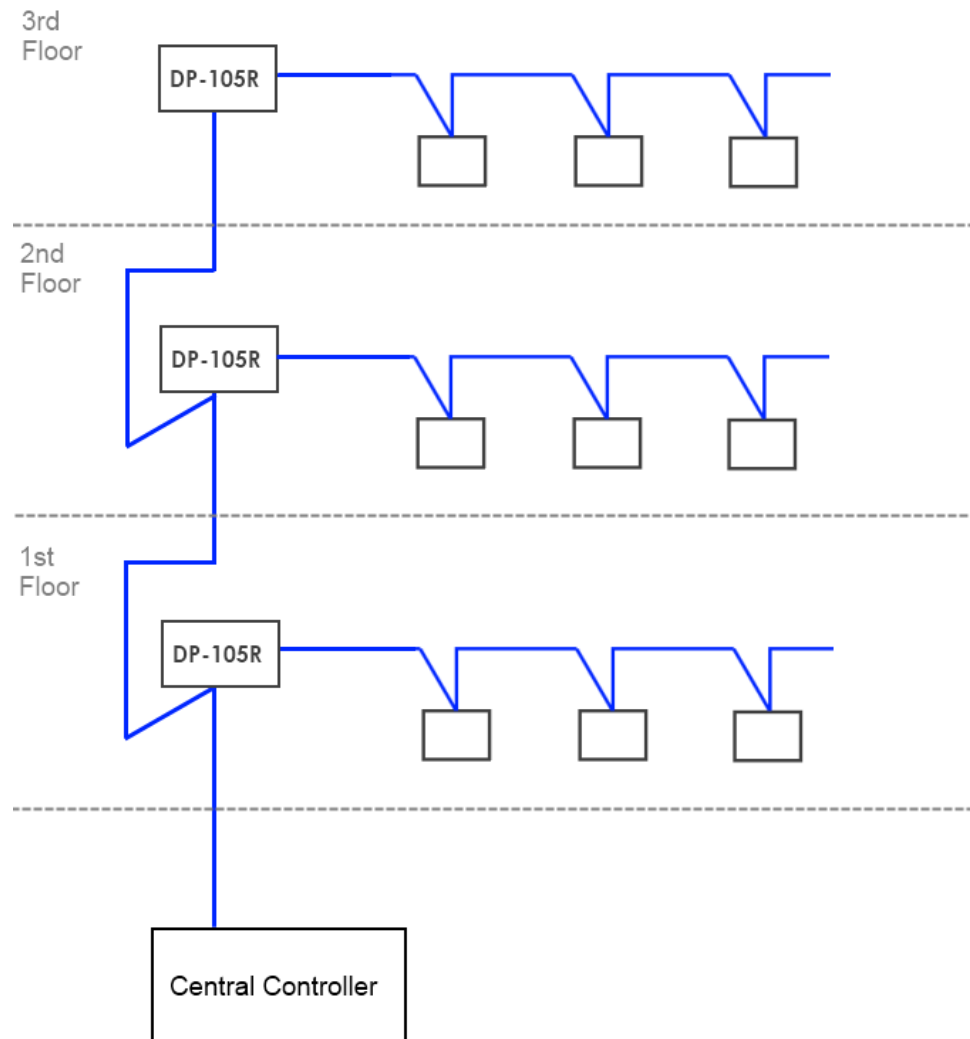


Figure: If the distance is too far (>200M) in star topology, one more DP-105R is required to extend the signal.

Bus Topology + Isolators

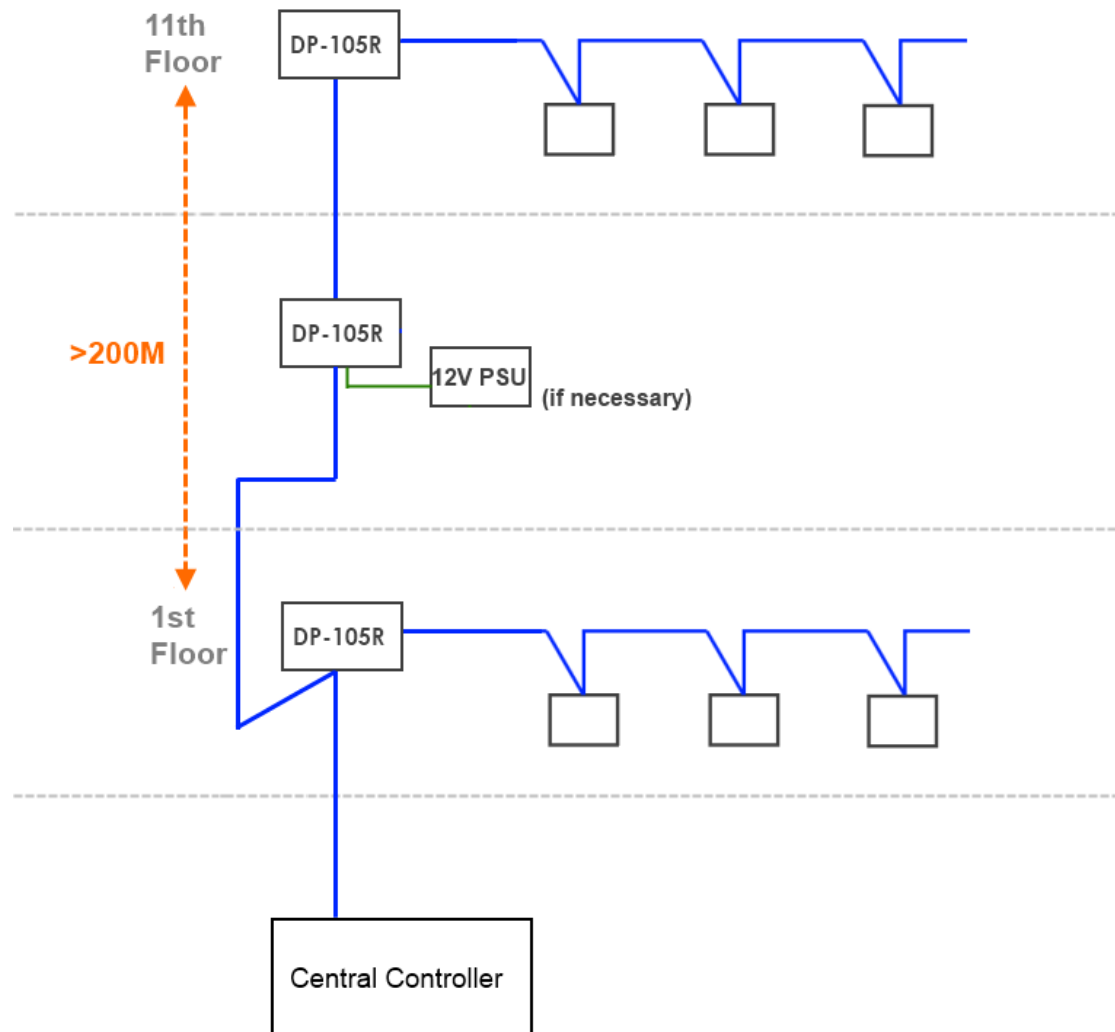
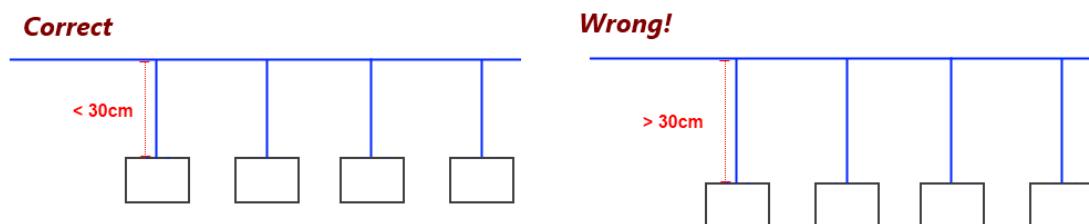


Figure: If the branch of the cable is larger than 30cm, it will be star topology.

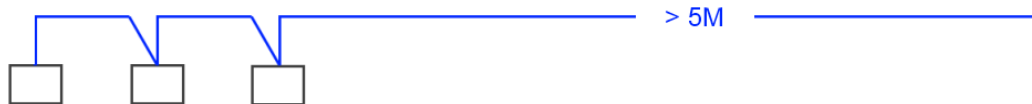


2.6 In a large system, if there are multiple power supply units powered by different AC power, it might cause the issue of ground loop. Therefore, it is recommended to add a isolator/repeater (DP-105R) if a external power supplier is added to the system.

2.7 Please note the power supply on DP-105R should be sufficient. DP-105R drain 50mA, 12V power. The voltage supplied to DP-105R should be at least 10V.

2.8 Never leave a cable longer than 5M without connecting to any device.

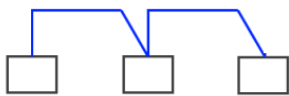
Wrong!



This wiring might cause signal interference on the bus.

Please cut the unnecessary cable in the end of the bus.

Correct

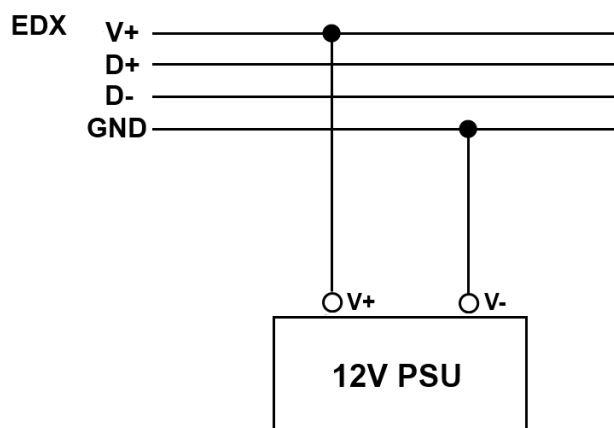


3 EDX DC Power Consumptions

If the DC power is not sufficient to power all devices on an EDX system, the system will be vulnerable. It is required to install additional power supply unit in the system.

Please refer the power capacity and power consumption reference in appendix 1 and 2.

Figure: Connection of external PSU to EDX



Appendix 1: Power Supply Capacities Reference

DP Series	Capacity (12V)
DP-6B	500mA
DP-NE100	500mA
DP-NEX1D	500mA
DP-E6B	500mA

EDX Series	Capacity (12V)
EDX-F04	200mA
EDX-F04R	200mA
EDX-607	200mA
EDX-610	500mA
EDX-1212	500mA
EDX-1205	500mA
EDX-A01D	200mA
EDX-B01/EDX-B01D	200mA

EPX Series	Capacity (12V)
EPX-810/EPX-820	200mA
EPX-420/EPX-430	200mA
EPX-810D/EPX-820D/EPX-830D	200mA
EPX-410D/EPX-420D/EPX-430D	200mA

Appendix 2: Power Consumption Reference

ECP Series	Consumption (12V)
ECP-106	50mA
ECP-202	50mA
ECP-110T	100mA
ECP-105T	100mA
ECP-K01T	100mA
ECP-A02T	100mA
ECP-T03	200mA
ECP-T04	200mA
ECP-T05	200mA

DP Series	Consumption (12V)
DP-102E/DP-102D/DP-105E/DP-105D	100mA
DP-E450	200mA
DP-105R	50mA
DP-S8/DP-S8D	100mA
DP-8A	100mA
DP-8DA	100mA
DP-IR04R	100mA
DP-IR03	100mA