

Communication

Robot Signal Light
855PB-B12ME522 shown

RSL Wire 18 AWG Typical
22 AWG Minimum

CAN Bus Wiring
Minimum 28 AWG
Typical 22 AWG

Downstream Power over Ethernet (PoE)
Disabled by default. Please check DIP Switches 1 and 2 to verify unless you want to have them on.
Downstream PoE Devices must support PoE at the supply voltage provided to the radio.
Otherwise damage will occur to them.

Radio Power
Minimum 22 AWG

Ethernet Cable

Connection to the RoboRIO connected to the port labeled "RIO"

Please refer to the latest Game Manual for specific rules on how to power this radio.

RoboRIO

CAN L H
PC
RS-232
DIO
PWM
RADIO
COMM
MODE
RSL
RELAY
ANALOG IN
RESET
USER

18 AWG Typical, must be 22 AWG or larger on a 10A Fuse

USB Camera C270 Shown

Servo Generic shown

PWM

PH/PCM power must be 18 AWG or larger if using a 20A breaker

Check pinout documentation of the specific device you are connecting to the RoboRIO to ensure correct polarity

Limit Switch
Generic Switch shown

IR Break
2168 Sensor shown

Analog Encoder
TTB-0040 shown

Potentiometer
Generic shown

Reciever
Transmitter

Analog In
Minimum 28 AWG
Typical 22 AWG

Digital Input/Output

Analog Input

On-board Compressor
Refer to latest Game Manual for specific rules

Compressor wires must be 18 AWG or larger

Pneumatic Hub

REX PNEUMATIC HUB

COMPRESSOR
SOLENOID
PRESSURE SENSOR
ANALOG
DIGITAL
VOLTAGE
8-12V
0 1

STATUS
MODE
RS485

Pneumatic Systems

Spark MAX
Brushless/Brushed, CAN/PWM

A B C
MODE
STATUS
V-
V+

Talon SRX
Brushed Only, CAN/PWM

Motor and Motor Controller Wires on 31-40A Breakers must be 12 AWG or larger

Koors 40
Brushed Only, PWM Only

Motor and Motor Controller Wires on 21-30A Breakers must be 14 AWG or larger

Discrete Motor Controllers
(CAN/PWM Controlled)

Power Distribution Hub

REV ROBOTICS

12V40A
12V40A
12V40A
12V40A
12V40A
12V30A
12V40A
12V40A
12V20A

BATTERY VOLTAGE
+ BATTERY INPUT -

STATUS
MODE
ON
OFF
TERM.
RS485

USB-C

H L H L

This CAN Bus is configured to end on the PDH (Term Switch ON)

Power Distribution Hub

Solenoid Valve
SMC SY3240-6LZ shown

Pressure Sensors
Digital (am-2006 shown) or Analog (REV-11-1107 shown)

Signal wires must be 28 AWG or larger

Neo Vortex (Spark FLEX)
Modular Brushless, CAN/PWM

Kraken X44 (Talon FX)
Integrated Brushless, CAN/PWM

Kraken X60 (Talon FX)
Integrated Brushless, CAN/PWM

Integrated/Modular Motor Controllers
(CAN/PWM Controlled)

120A Breaker
CB285-120 shown

42 VOLTS DC MAXIMUM
IGNITION PROTECTED
WATERPROOF
120 AMPERE
THERMAL CIRCUIT BREAKER

Battery lugs must be crimped and properly insulated.

Battery wires must be 6 AWG or larger

12V Battery

Main Power

FRC CONTROL SYSTEM - REV

V.3.20.RV

TEAM 3161



Power

12V DC Main



PWM

26 AWG Minimum



CAN

28 AWG Minimum



Wires

American Wire Gauge (AWG)

Minimum Gauge per connection type shown.



Always practice proper safety precautions and practices when working with electrical systems.

More Information about the FRC Control System can be found at <https://docs.wpilib.org>

KEEP IN MIND