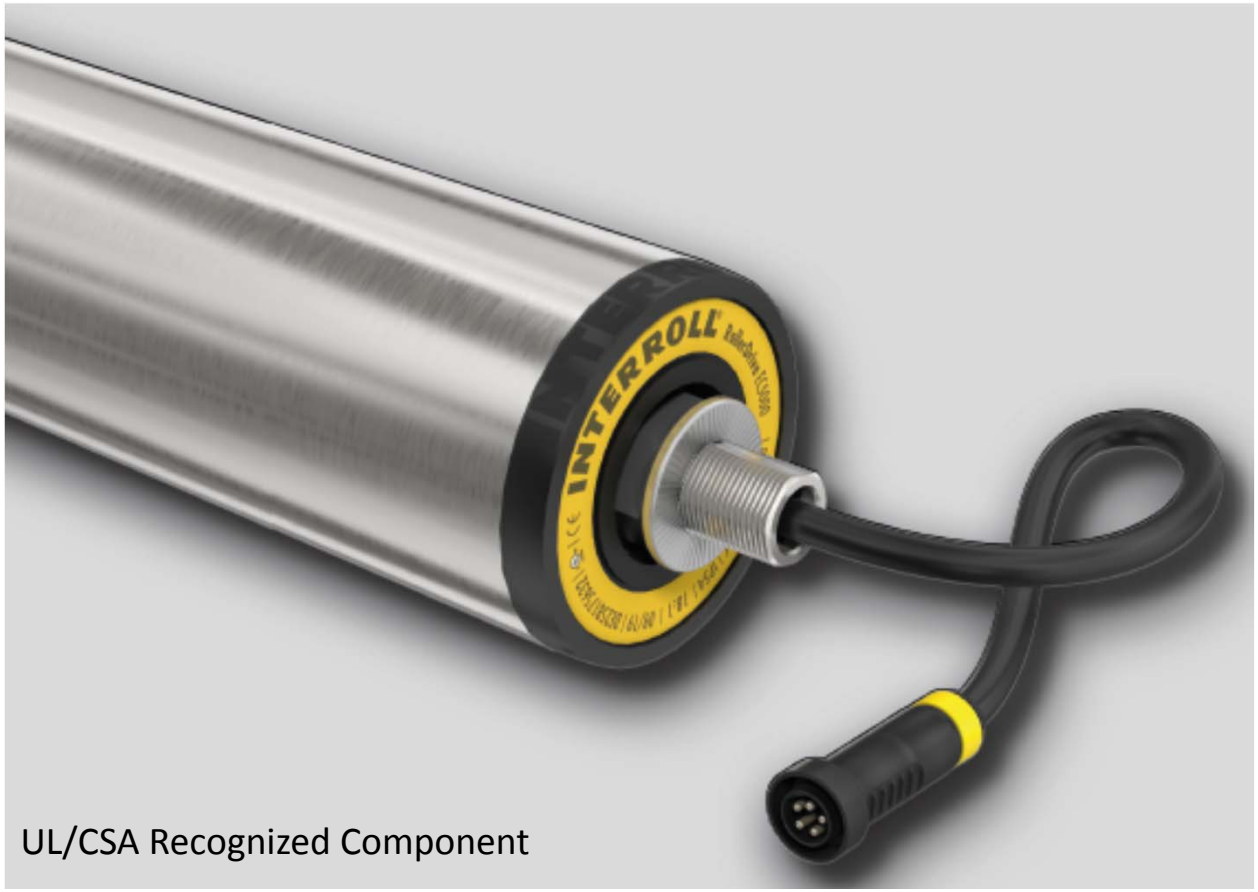
Wiring Information for changing out an EC100/EC110/9006 with an EC5000/ZoneControl Card
March 2020

Wiring Information for changing out an EC100/EC110/9006 with an EC5000/ZoneControl Card

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Quick Information on EC5000



EC5000 Information-Specifications and Minimum/Maximum EL

EC5000 AI/BI RollerDrives						
Mechanical Power (W)	20	35	50	20	35	50
Rated Voltage (PELV) (Vdc)	24	24	24	48	48	48
Voltage Range (Vdc)	17 to 32	17 to 32	17 to 32	30 to 60	30 to 60	30 to 60
Rated Current (A) (2 stage/3 stage)	1.2/1.4	2.2/2.4	3.0/3.4	0.6/0.7	1.1/1.2	1.5/1.7
Maximum Noise Level Mounted (db(A))	55	55	55	55	55	55
UL Rating	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
Ambient Operating Temperature (°F)	32 to 104	32 to 104	-22 to 104	32 to 104	32 to 104	-22 to 104
30:1, 42:1, 49:1		-22 to 104			-22 to 104	
Max Altitude without derating (ft)	3280	3280	3280	3280	3280	3280
Motor Rated Speed (RPM)	6900	6900	6900	6900	6900	6900

INTERROLL

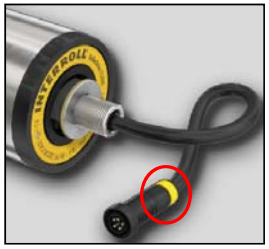
EC5000 MINIMUM EL

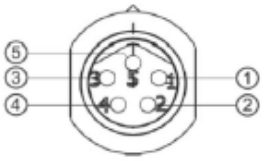
Tube	Idler Bearing	2-stage Gearbox 9:1, 13:1, 18:1, 21:1, 30:1, 42:1, 49:1	3-stage Gearbox 78:1, 108:1
No groove	7/16" hexagonal end drilled and tapped 5/16"-18 or M8	8.86"	9.45"
No groove	7/16" hexagonal spring loaded	10.26"	10.85"
No groove	PolyVee end drilled and tapped M8	10.13"	10.72"
No groove	PolyVee 7/16" hexagonal spring loaded	11.25"	11.80"
No groove	Poly-O end drilled and tapped M8	10.96"	11.51"
No groove	Poly-O 7/16" hexagonal spring loaded	11.65"	12.20"
Groove 1.97" 3.22" (RL)	7/16" hexagonal end drilled and tapped 5/16"-18 or M8	11.59"	12.16"
Groove 1.97" 3.22" (RL)	7/16" hexagonal spring loaded	11.59"	12.16"

Note: Maximum EL is 59" (1500mm)

EC5000 Information

Color Clip	RollerDrive Version
White	24V, AI
Grey	24V, BI
Black	48V, AI
Yellow	48V, BI



EC5000 AI			
Pin	Wire Color	Function	Value
1	Brown	Input Power[1] (+)	24Vdc or 48Vdc
2	White	Rotational Direction Input[2]	Low = CCW, High = CW
3	Blue	Return (-)	GND
4	Black	Error Output	Open Collector, Low=OK, High = Error
5	Grey	Analog Speed In	Range: 0 to 24Vdc Stop (ZMH): 0 to 2.3Vdc Speed: 2.3Vdc (min) - 10Vdc (max)
NOTE:	1) Do not plug a 24V motor into 48V supply Damage will occur		
	2) Rotation as viewed from the cable end of the Roller Drive		

EC5000 Information

Wattage	20W[1]				35W[1]				50W[1]				Max *Speed*[4]		Min *Speed*[4]	
Gear Ratio	Peak Torque		Rated Torque		Peak Torque		Rated Torque		Peak Torque		Rated Torque					
	lb-in[2]	Nm[3]	lb-in[2]	Nm[3]	lb-in[2]	Nm[3]	lb-in[2]	Nm[3]	lb-in[2]	Nm[3]	lb-in[2]	Nm[3]	fpm[2]	m/s[3]	fpm[2]	m/s[3]
9:1	8.94	1.01	2.21	0.25	15.67	1.77	3.89	0.44	22.48	2.54	5.58	0.63	382	2.01	17	0.09
13:1	12.92	1.46	3.19	0.36	22.66	2.56	5.66	0.64	32.39	3.66	8.05	0.91	264	1.39	12	0.06
18:1	17.88	2.02	4.43	0.5	31.42	3.55	7.88	0.89	44.87	5.07	11.24	1.27	190	1	8	0.04
21:1	20.89	2.36	5.22	0.59	36.64	4.14	9.2	1.04	52.4	5.92	13.1	1.48	163	0.86	8	0.04
30:1	30.09	3.4	7.52	0.85	52.93	5.98	13.19	1.49	75.59	8.54	18.85	2.13	114	0.6	6	0.03
42:1	41.69	4.71	10.44	1.18	73.28	8.28	18.32	2.07	104.7	11.83	26.2	2.96	82	0.43	4	0.02
49:1	48.68	5.5	12.13	1.37	85.5	9.66	21.42	2.42	115.06	13	30.54	3.45	70	0.37	4	0.02
78:1	76.82	8.68	17.88	2.02	115.06	13	31.42	3.55	115.06	13	44.87	5.07	42	0.23	2	0.01
108:1	107.27	12.12	24.96	2.82	115.06	13	43.81	4.95	115.06	13	62.57	7.07	32	0.17	2	0.01
Note: (See Manual for detailed information)	1) 48V motors have the same performance as the 24V motors but 1/2 the amps															
	2) Imperial values based on an OD of 1.9"															
	3) Metric vaues based on an OD of 50mm															
	4) After run-in, speed values may vary ±10%															
	5) Information subject to change without notice															

EC5000 Equivalent for EC100, EC110 and EC310

Replacement by EC5000

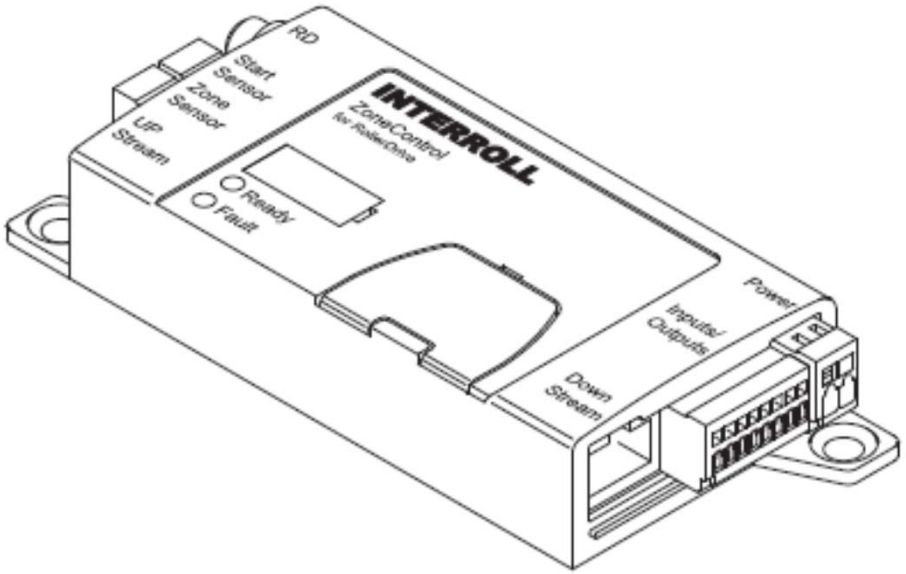
Rev 2

Existing Product:								Equivalent replacement:													
RollerDrive Type	Gear box	Tube Diameter	Maximum Speed [fpm]	Nominal Torque [in-lbs]	Protection rate	Min. Temp. [°C]	Min. Temp. [°F]	RollerDrive Type	Voltage	Interface	Perfor-mance	Gear box	Tube Diameter	Adjusted Speed [fpm]	Nominal Torque [in-lb]	Protection rate	Deep Freeze Version	Comment		Suggested DIP switch settings for ZoneControl		
																				Speed A	Speed B	Speed C
EC100	12:1	1.9"	260	3.30	IP54	0	32	EC5000	24V	Analog	20W	13:1	1.9"	264	3.19	IP54	No		1, 2	on	on	on
	16:1	1.9"	202	4.20	IP54	0	32	EC5000	24V	Analog	35W	13:1	1.9"	193	5.66	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	off	on
	24:1	1.9"	135	6.60	IP54	0	32	EC5000	24V	Analog	35W	21:1	1.9"	140	9.20	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	on	off
	36:1	1.9"	88	10.40	IP54	0	32	EC5000	24V	Analog	35W	30:1	1.9"	83	13.19	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	off	on
	48:1	1.9"	68	11.00	IP54	0	32	EC5000	24V	Analog	20W	49:1	1.9"	70	12.13	IP54	No		1, 2	on	on	on
	64:1	1.9"	50	16.10	IP54	0	32	EC5000	24V	Analog	35W	49:1	1.9"	51	21.42	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	off	on
	96:1	1.9"	34	26.60	IP54	0	32	EC5000	24V	Analog	35W	108:1	1.9"	32	43.81	IP54	No		1, 2	on	on	on
EC110	9:1	1.9"	211	6.60	IP54	0	32	EC5000	24V	Analog	35W	13:1	1.9"	227	5.66	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	on	off
	12:1	1.9"	158	8.80	IP54	0	32	EC5000	24V	Analog	35W	21:1	1.9"	169	9.20	IP54	No		1, 2	on	on	on
	16:1	1.9"	119	13.00	IP54	0	32	EC5000	24V	Analog	35W	30:1	1.9"	118	13.19	IP54	No		1, 2	on	on	on
	24:1	1.9"	79	19.50	IP54	0	32	EC5000	24V	Analog	35W	42:1	1.9"	85	18.32	IP54	No		1, 2	on	on	on
	36:1	1.9"	53	25.70	IP54	0	32	EC5000	24V	Analog	35W	49:1	1.9"	51	21.42	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	off	on
	48:1	1.9"	40	30.00	IP54	0	32	EC5000	24V	Analog	35W	78:1	1.9"	42	31.42	IP54	No		1, 2	on	on	on
	64:1	1.9"	30	37.60	IP54	0	32	EC5000	24V	Analog	35W	108:1	1.9"	32	43.81	IP54	No		1, 2	on	on	on
EC310	9:1	1.9"	332	3.98	IP54	0	32	EC5000	24V	Analog	35W	9:1	1.9"	329	3.89	IP54	No	Speed of EC5000 needs to be reduced on site	1, 2	on	on	off
	12:1	1.9"	261	5.40	IP54	0	32	EC5000	24V	Analog	35W	13:1	1.9"	264	5.66	IP54	No		1, 2	on	on	on
	16:1	1.9"	186	7.17	IP54	0	32	EC5000	24V	Analog	35W	18:1	1.9"	197	7.87	IP54	No		1, 2	on	on	on
	20:1	1.9"	149	8.94	IP54	0	32	EC5000	24V	Analog	35W	21:1	1.9"	159	9.20	IP54	No		1, 2	on	on	on
	24:1	1.9"	124	10.71	IP54	0	32	EC5000	24V	Analog	35W	30:1	1.9"	118	13.19	IP54	No		1, 2	on	on	on
	36:1	1.9"	84	16.11	IP54	0	32	EC5000	24V	Analog	35W	42:1	1.9"	85	18.32	IP54	No		1, 2	on	on	on
	48:1	1.9"	63	21.42	IP54	0	32	EC5000	24V	Analog	35W	49:1	1.9"	69	21.42	IP54	No		1, 2	on	on	on
	64:1	1.9"	47	28.59	IP54	0	32	EC5000	24V	Analog	35W	78:1	1.9"	45	31.42	IP54	No		1, 2	on	on	on
	96:1	1.9"	30	42.84	IP54	0	32	EC5000	24V	Analog	35W	108:1	1.9"	33	43.81	IP54	No		1, 2	on	on	on

NOTES:

1	The RollerDrive EC5000 is not compatible with the existing control. If a 9000 or 9006 control is used for EC100 and EC110. The U.S. version of the Zone Control (Part number: 1101459) will replace the 9006. Permission and Request signals can be used to communicate between the 9006 and the US ZoneControl card
2	For ordering, additional data like tube material, length, etc., is required. Please supply the serial number which allows proper identification of the current RollerDrive. The Serial Number can be found on the label.
	Speed is not the fastest speed and needs to be adjusted
Adjusted speed	The adjusted speed for the EC5000 is shown to get as close as possible to the former RollerDrive's maximum speed. If a US version of the ZoneControl card is used to control the EC5000 the speed DIP switches need to be set as indicated to obtain the indicated adjusted speed. The fastest speed of this gear ratio may be higher.
3	Subject to change without notice

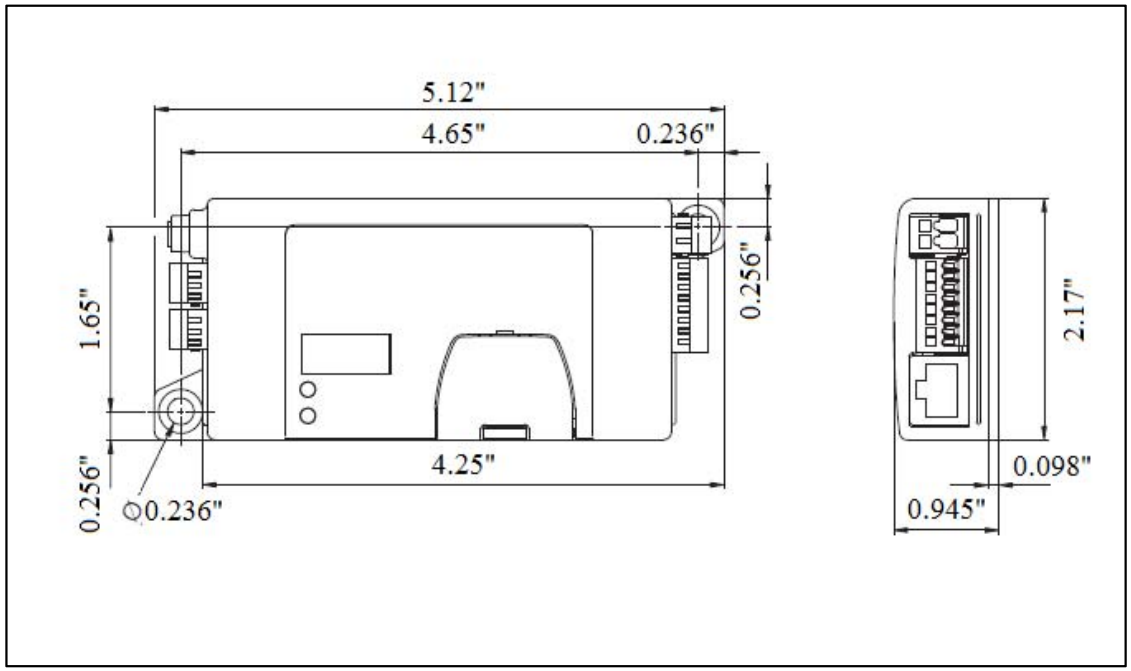
Quick Information on ZoneControl



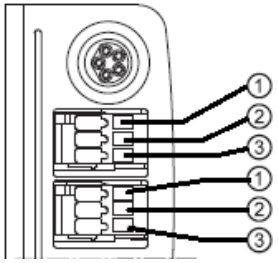
Supports 24Vdc, EC5000, 20W and 35W RollerDrives

UL/CSA Recognized Component

ZoneControl- Dimensions



ZoneControl- Connection and Dipswitch Settings

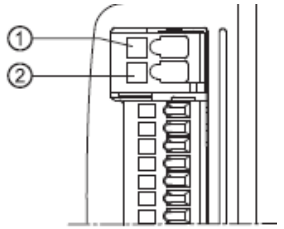


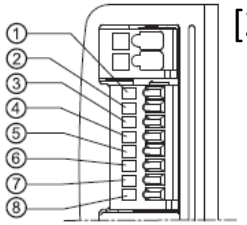
Sensor Connections
1) +24V
2) Sensor Signal In
3) Ground

[28 to 20 AWG]

Power Connections
1) Ground
2) +24V

[28 to 14 AWG]



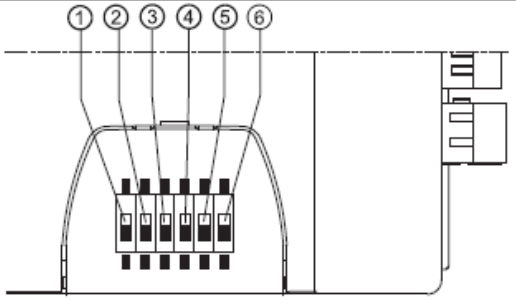


[28 to 20 AWG]

Inputs/outputs connector: WAGO 733-108 mating plug

WAGO 733-368/105-604

① EXT_ON (Output for additional start signal)
② CLEAR (Input for clear signal)
③ SPEED (Input for speed setting)
④ DIR_RET (Input for change of transport direction and only effective when there is an active signal at CLEAR).
⑤ ERROR (Output for error signal)
⑥ ZONE_STATUS (Output for zone status signal)
⑦ ZONE_START (Input for start signal)
⑧ ZONE_STOP (Input for stop signal)



DIP switches on the ZoneControl

① SPEED A
② SPEED B
③ SPEED C
④ EPA/BA
⑤ DIR
⑥ PNP/NPN

Standard Singulation (EPA)/Train Release (BA)
Direction of rotation as viewed from the cable end

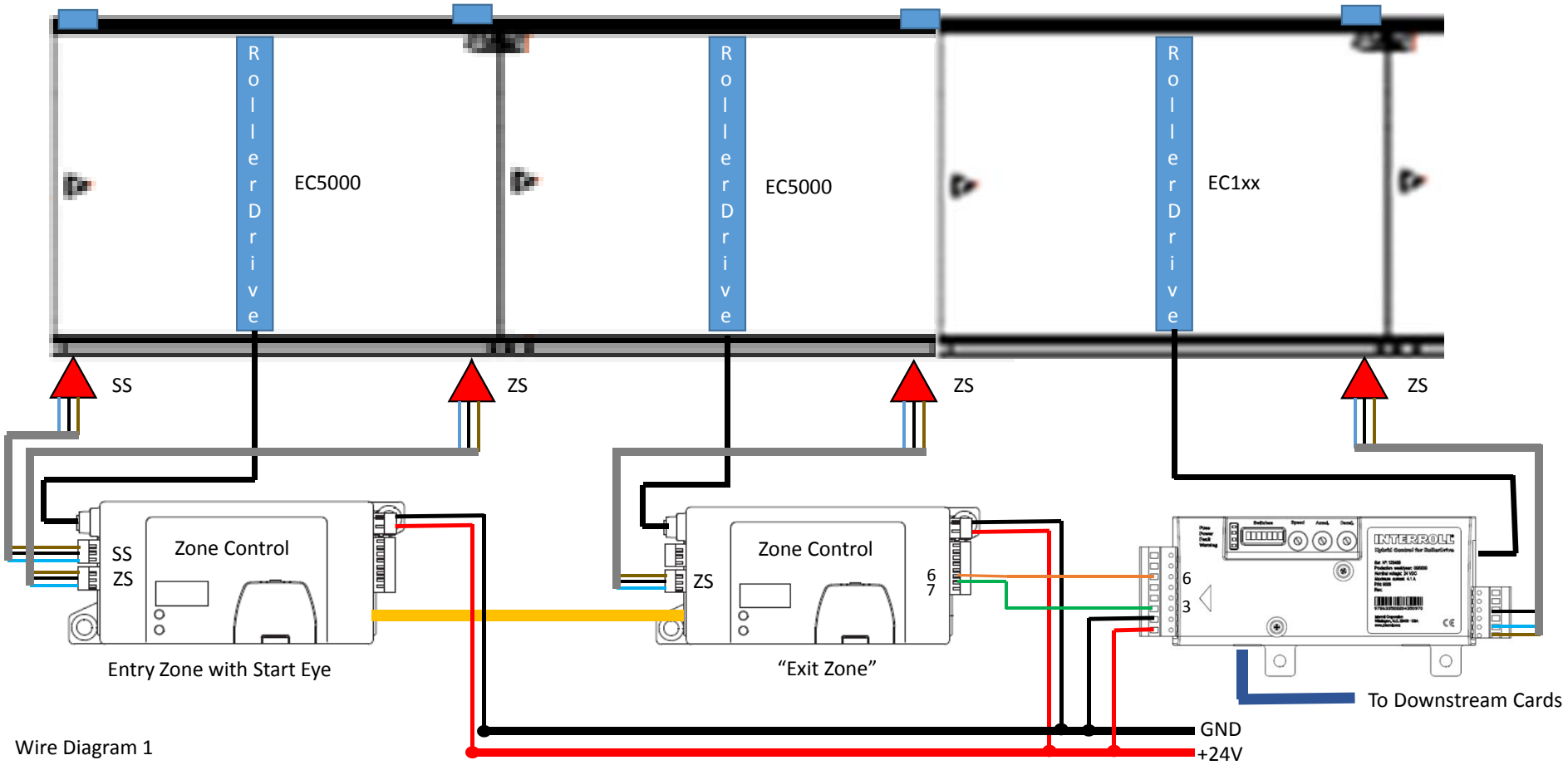
Wiring Information for changing out an EC100/EC110/9006 with an EC5000/ZoneControl Card

Control Connections for an Entry Zone

(Wiring Diagram 1)

1) Locate the appropriate EC5000 motor to replace the failed EC100 or EC110 motor
2) The ZoneControl card needs at least one additional card connected to run ZPA logic, so replace in twos, save the good parts
3) Turn off power to the system
4) Remove the 9006 cards and EC100 or EC110 roller drives
5) Install the EC5000s
6) Install the ZoneControl cards
7) Connect the EC5000 to the ZoneControl card
8) Connect the Start Sensor and Zone Sensor from the 9006 card being removed and connect them to the Zone Control card
   Note: if handshake signals are used ZONE_STATUS (Permission) and ZONE_START (Request) can be used
9) Set the speed, Standard Singulation(EPA)/Train Release(BA), Direction, and NPN/PNP as needed to match the 9006
10) Connect the EC5000
11) Connect the Zone Sensor from the 9006 card being removed and connect it to the Zone Control card
12) Set the speed, Standard Singulation(EPA)/Train Release(BA), direction, and NPN/PNP as needed to match the 9006
13) Connect the Peer to Peer communication cable between the ZoneControl cards
14) Connect power to the ZoneControl cards
15) Connect the ZONE_STATUS output (pin 6) of the ZoneControl card to the Smart 1 IN (pin 6) of the 9006 card
16) Connect the ZONE_START input (pin 7) of the ZoneControl card to the SMART 1 OUT (pin 3) of the 9006 card
17) Turn the power back on to the system

Control Connections for an Entry Zone



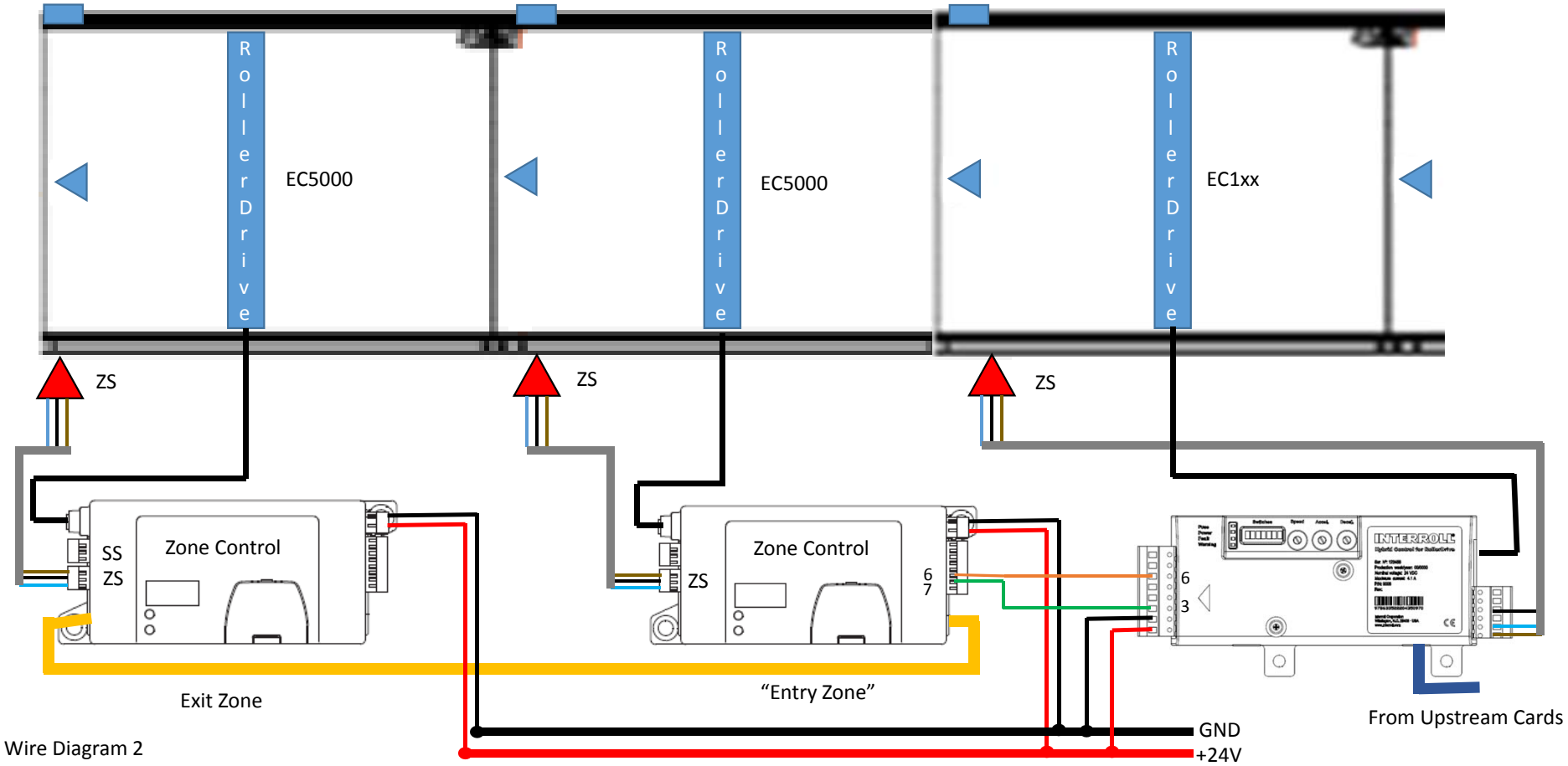
Wire Diagram 1

Control Connections for an Exit Zone

(Wiring Diagram 2)

1) Locate the appropriate EC5000 motor to replace the failed EC100 or EC110 motor
2) The ZoneControl card needs at least one additional card connected to run ZPA logic, so replace in twos, save the good parts
3) Turn off power to the system
4) Remove the 9006 cards and EC100 or EC110 roller drives
5) Install the EC5000s
6) Install the ZoneControl cards
7) Connect the EC5000 to the ZoneControl card
8) Connect the Zone Sensor from the 9006 card being removed and connect it to the Zone Control card
9) Set the speed, Standard Singulation(EPA)/Train Release(BA), Direction, and NPN/PNP as needed to match the 9006
10) Connect the EC5000
11) Connect the Zone Sensor from the 9006 card being removed and connect it to the Zone Control card
12) Set the speed, Standard Singulation(EPA)/Train Release(BA), direction, and NPN/PNP as needed to match the 9006
13) Connect the Peer to Peer communication cable between the ZoneControl cards
14) Connect power to the ZoneControl cards
15) Connect the ZONE_STATUS output (pin 6) of the ZoneControl card to the Smart 1 IN (pin 6) of the 9006 card
16) Connect the ZONE_START input (pin 7) of the ZoneControl card to the SMART 1 OUT (pin 3) of the 9006 card
    NOTE: If handshake signals are used ZONE_STATUS (Permission) and ZONE_START (Request) can be used
17) Turn the power back on to the system

Control Connections for an Exit Zone



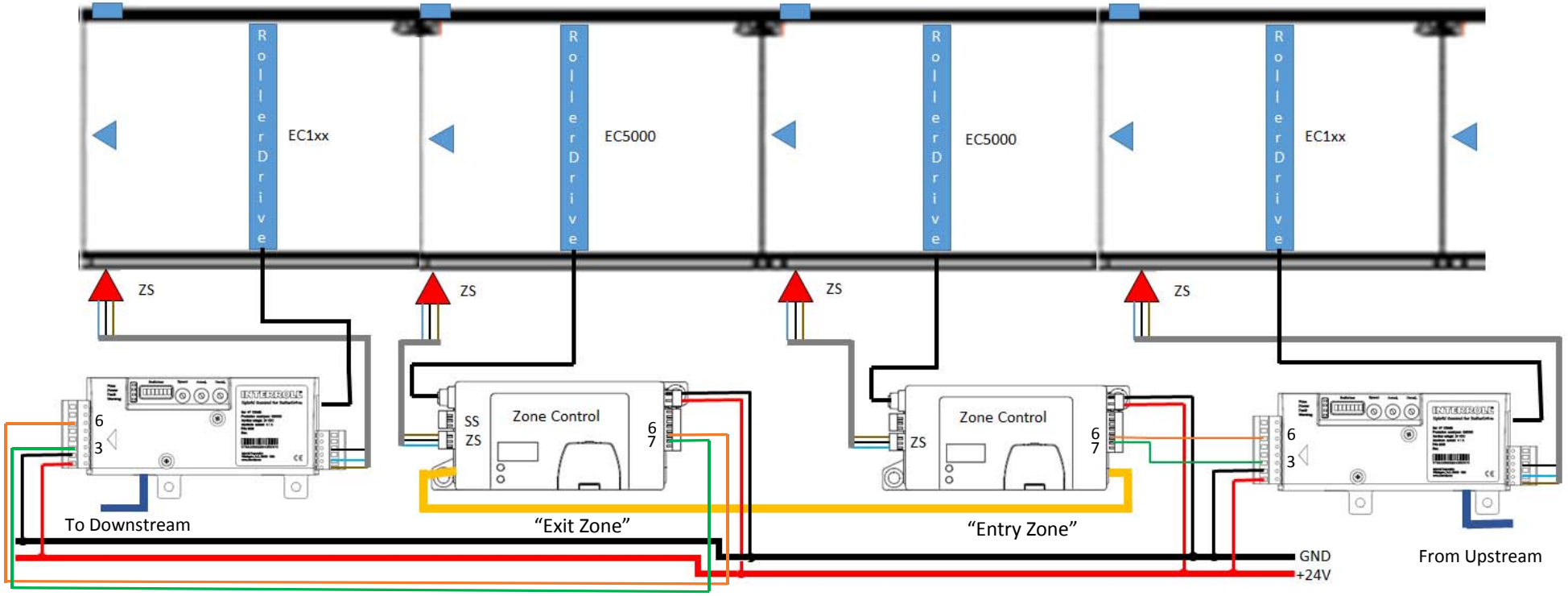
Wire Diagram 2

Control Connections for a Transport Zone

(Wiring Diagram 3)

1) Locate the appropriate EC5000 motor to replace the failed EC100 or EC110 motor
2) The ZoneControl card needs at least one additional card connected to run ZPA logic, so replace in twos, save the good parts
3) Turn off power to the system
4) Remove the 9006 cards and EC100 or EC110 roller drives
5) Install the EC5000s
6) Install the ZoneControl cards
7) Connect the EC5000 to the ZoneControl card
8) Connect the Zone Sensor from the 9006 card being removed and connect it to the Zone Control card
9) Set the speed, Standard Singulation(EPA)/Train Release(BA), Direction, and NPN/PNP as needed to match the 9006
10) Connect the EC5000
11) Connect the Zone Sensor from the 9006 card being removed and connect it to the Zone Control card
12) Set the speed, Standard Singulation(EPA)/Train Release(BA), direction, and NPN/PNP as needed to match the 9006
13) Connect the Peer to Peer communication cable between the ZoneControl cards
14) Connect power to the ZoneControl cards
15) Connect the ZONE_STATUS output (pin 6) of the ZoneControl card to the Smart 1 IN (pin 6) of the 9006 card
16) Connect the ZONE_START input (pin 7) of the ZoneControl card to the SMART 1 OUT (pin 3) of the 9006 card
17) Connect the ZONE_STATUS output (pin 6) of the ZoneControl card to the Smart 1 IN (pin 6) of the 9006 card
18) Connect the ZONE_START input (pin 7) of the ZoneControl card to the SMART 1 OUT (pin 3) of the 9006 card
19) Turn the power back on to the system

Control Connections for a Transport Zone



Wire Diagram 3

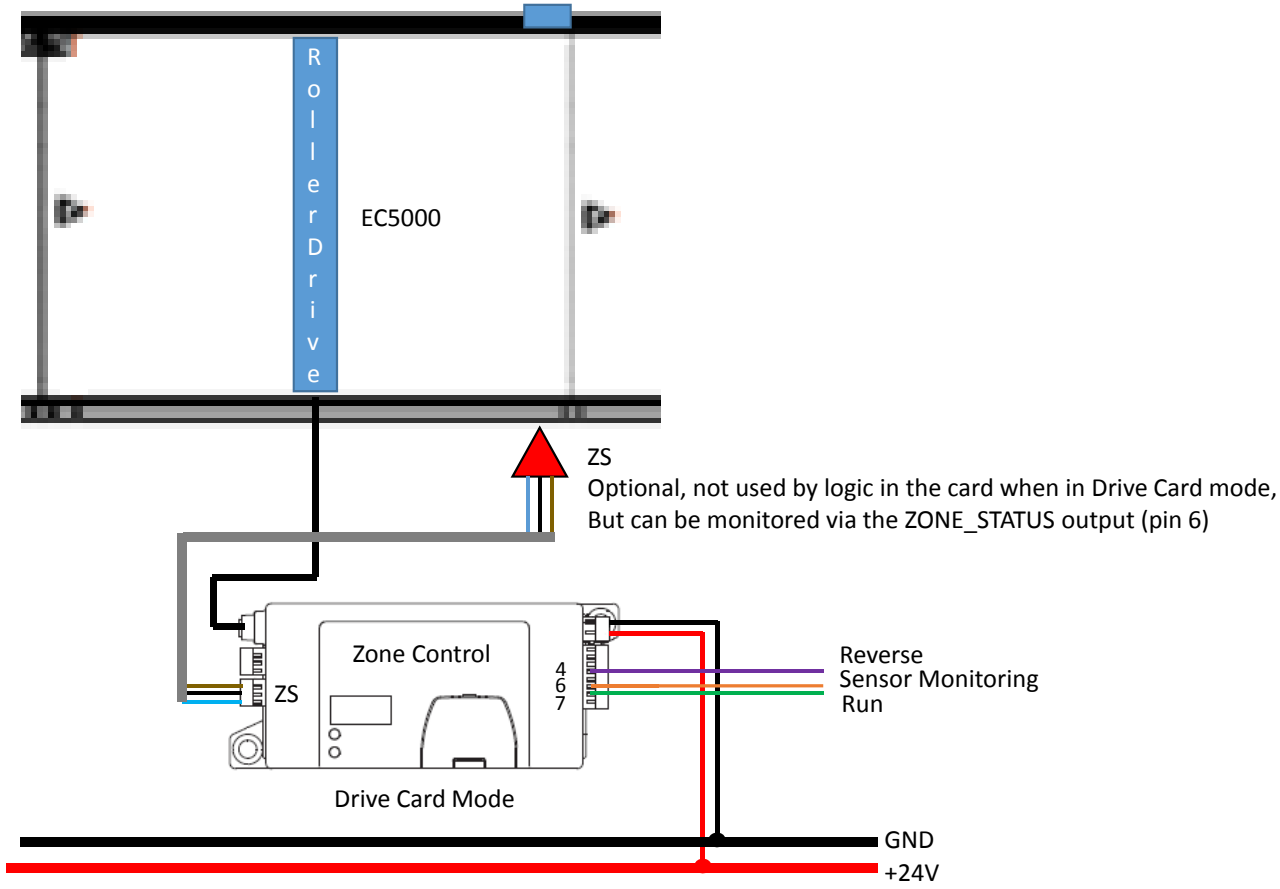
Control Connections for Drive Card Mode

(Wiring Diagram 4)

1) Locate the appropriate EC5000 motor to replace the failed EC100 or EC110 motor
2) The ZoneControl card will not have Peer to Peer cables attached
3) Turn off power to the system
4) Remove the 9006 card and EC100 or EC110 roller drive
5) Install the EC5000
6) Install the ZoneControl card
7) Connect the Zone Sensor from the 9006 card being removed, if there is one, and connect it to the Zone Control card.
   Note: The status of the sensor can be monitored via the ZONE_STATUS output
8) Set the speed, Direction, and NPN/PNP as needed to match the 9006
9) Connect the EC5000
10) An Active Level signal at the ZONE_START input (pin 7) of the ZoneControl card will make the motor run per the direction set by the DIR dipswitch setting
11) An Active Level signal at the RET_DIR input (pin 4) of the ZoneControl card will make the motor run in the opposite direction set by the DIR dipswitch setting.
    Note: An Active Level signal must be applied to the ZONE_START input in order for the roller drive to turn.
12) Turn the power back on to the system

Note: The device applying the Active Level signal must be referenced to the same ground as the 24Vdc supply to the ZoneControl Card

Control Connections for Drive Card Mode



Wire Diagram 4

Replacing a 9007 Installation

The 9007 Card is a Light Operated version of the 9006, it was installed in only a few application.

The only option to replace this would be to use a MultiControl card.

If this situation should arise, contact US10 Engineering for more case by case discussion