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1.0 Wiegand Reader - Cable Specs & Wiring

- 5-conductor, 22 AWG, overall shielded; max cable distance is 500 feet.
- Reader will require separate power supply if the current draw is over 150 mA.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy specs).

635-DRM Terminal Functions (PN 20-0235-10)	Wiegand Reader
LED (LED control line)	LED Control
D 1 (Data 1)	DATA 1
VDC (+12 VDC) (for +5 VDC use Regulator PN 92-3001-05)	VDC
GND (Power Supply Ground)	GND
D 0 (Data 0)	DATA 0

2.0 ABA Reader - Cable Specs & Wiring

- 5-conductor, 22 AWG, overall shielded; max cable distance is 500 feet.
- Reader will require separate power supply if the current draw is over 150 mA.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy specs).

635-DRM Terminal Functions (PN 20-0235-10)	ABA Reader
LED (LED control line)	LED Control
D 1 (Data 1)	DATA 1
VDC (+12 VDC) (for +5 VDC use Regulator PN 92-3001-05)	VDC
GND (Power Supply Ground)	GND
D 0 (Data 0)	CLOCK

3.0 Biometric Reader - Cable Specs & Wiring

- 5-conductor, 22 AWG, overall shielded; max cable distance is 500 feet.
- Cat-5e Ethernet cable for TCP/IP communication back to the server; max cable distance 300 feet.
- Reader will require separate power supply if the current draw is over 150 mA.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy specs)
- *See next section for information on IDEMIA Morpho Sigma Readers.*

635-DRM Terminal Functions (PN 20-0235-10)	Wiegand Reader
LED (LED control line)	LED Control
D 1 (Data 1)	DATA 1
VDC (+12 VDC) (Do not use for reader power!)	VDC
GND (Power Supply Ground)	GND
D 0 (Data 0)	DATA 0

4.0 BridgePoint Reader (NON-FICAM)

- 5-conductor, 22 AWG, overall shielded max distance 200 feet (or 500 feet if using 18 AWG).
- 2-conductor- twisted pair, 22 AWG max cable distance 500 feet (for Mode/Factor Control).
- Reader will require separate power supply if the current draw is over 150 mA.
- You must common reader P.S. ground to controller ground.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy recommendations).
- Min. Board Requirement: 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- DRM Relay-2 must be use for Mode/Factor Control.

MODES/FACTORS:

- Mode 1 Card Only (high)
- Mode 2 Card + Pin (low)

635-DRM Terminal Functions (PN 20-0235-10)

635-DRM Terminal Functions (PN 20-0235-10)	BridgePoint Wiegand Reader
LED (LED control line)	LED1
D 1 (Data 1)	WEG 1
VDC (+12 VDC) (Do not use for reader power!)	VDC (to separate power supply)
GND (common the Reader's p.s. ground to the Controller ground)	GND (common to controller ground)
D 0 (Data 0)	WEG 0

635-DRM RELAY-2

635-DRM RELAY-2	BridgePoint Mode/Factor
COM (must tie to the reader's power supply ground)	- -
NO (to mode control line)	LED2

NOTES:

- Mode signal line High (unconnected) for 1-Factor Card Only.
- Mode signal line Low (connected to ground) for 2-Factor Card + Pin.
- Place a schedule on Relay-2 in System Galaxy Reader Properties - to alternate Mode/Factor.

5.0 IDEMIA (Morpho) SIGMA Biometric Reader - Cable Specs & Wiring

- 3-conductor, 20 - 24 AWG, overall shielded; non-stranded; max cable distance is 500 feet.
- 2-conductor, 16 AWG for at +12vdc (18 AWG for +24vdc) for 500 feet distance. Reader draws 1A at 12v (0.5A at 24v).
- Cat-5e Ethernet cable for TCP/IP communication back to the server; max cable distance 300 feet.
- Separate power supply required (current draw is 1A). You must common the reader's power supply ground to controller ground.
- Ground the drain-wire at one end only - land drain wire at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy specs).
- 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- DRM Relay-2 is used to control Sigma "Wait for Panel Decision" for Voice/Prompt synchronization.

635-DRM Terminal Functions (PN 20-0235-10)		Wiegand Reader
LED	(LED control line)	
D 1	(Data 1)	WIEG DATA 1
VDC	(+12 VDC) (Do not use for reader power!)	VDC (to separate power supply.)
GND	(common the reader p.s. ground to controller p.s. ground)	GND (common to controller ground)
D 0	(Data 0)	WIEG DATA 0

635-DRM RELAY-2		SIGMA "Wait for Panel Decision"
COM	(must tie to ground of the reader's power supply)	- -
NO	(for voice/prompt control line)	LED1

NOTES:

- "Wait for Panel Decision": connect Sigma LED1 to the 'NO' leg of Relay-2. The 'COM' leg of Relay-2 must be tied to DRM GND.
- Set Relay-2 for Timed Mode (1 to 2 secs) and "Valid Unlock" checkbox must be "checked" in System Galaxy Reader Properties.

6.0 Invixium (IXM) Biometric Reader - Cable Specs & Wiring

- 3-conductor, 22 AWG, overall shielded; non-stranded; max cable distance is 500 feet.
- 2-conductor, 18 AWG for at +12vdc for 500 feet distance. Reader draws 1A at 12v .
- Cat-5e Ethernet cable for TCP/IP communication back to the server; max cable distance 300 feet.
- Separate power supply required (current draw is 1A). Must common reader's p.s. ground to controller ground.
- Ground the drain-wire at one end only - land drain wire at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy specs).
- 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- 635-DRM LED is used to control reader's for Voice Command when configured for "Wait for Panel Decision".

635-DRM Terminal Functions (PN 20-0235-10)		Invixium Reader	
LED	(LED control line)	ACP LED1	(used to control Voice Command)
D 1	(Data 1)	W DATA_OUT1	
VDC	(+12 VDC) (Do not use for reader power!)		
GND	(common ground; drain wire)	VIN – (GND)	(bond to controller GND)
D 0	(Data 0)	W DATA_OUT0	
		VIN + (VDC)	to separate power supply
		VIN – (GND)	to separate power supply

NOTES:

- The IXM Reader must be configured to "follow panel decision" in the IXM-WEB software in reader configuration screen.
- Galaxy controller must be set for Door Lock = Steady-High; Door Unlock = Steady-Low in the **LED Options tab** of the **Loop/Cluster Properties** screen.

7.0 SCM Reader (NON-FICAM)

- 5-conductor, 22 AWG, overall shielded max cable distance 500 feet.
- 2-conductor- twisted pair, 22 AWG, max cable distance 500 feet (for Mode/Factor Control).
- Reader will require separate power supply if the current draw is over 150 mA.
- You must common reader P.S. ground to controller ground.
- Ground the Drain-wire at one end only (at the DRM Board “GND”).
- Refer to reader manufacturer’s instructions for wiring (manufacturer’s specs may supersede Galaxy specs)
- Min. Board Requirement: 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- DRM Relay-2 must be use for Mode/Factor Control.

MODES/FACTORS

- Mode 1 Card Only
- Mode 2 Card + Pin

635-DRM Terminal Functions (PN 20-0235-10)		SCM Reader
LED	(LED control line)	LED Control
D 1	(Data 1)	D 1
VDC	(+12 VDC) (Do not use for reader power!)	VDC (to separate p.s.)
GND	(common Reader’s p.s. ground to Controller ground)	GND (common to controller ground)
D 0	(Data 0)	D 0

635-DRM’s RELAY-2 Terminals		SCM Mode/Factor
COM	(must tie to the reader’s power supply ground)	REL 2
NO	(to mode control line)	RELGRN

NOTES:

- Mode signal line = High (unconnected) for 2-Factor Card + Pin.
- Mode signal line = Low (connected to ground) for 1-Factor Card Only
- Place a schedule on Relay-2 in System Galaxy Reader Properties to alternate Mode/Factor.

8.0 STid Easyline Reader

- 5-conductor, 22 AWG, overall shielded max cable distance 500 feet.
- 2-conductor- twisted pair, 22 AWG, max cable distance 500 feet.
- Reader will require separate power supply if the current draw is over 150 mA.
- You must common reader P.S. ground to controller ground.
- Ground the Drain-wire at one end only (at the DRM Board “GND”).
- Min. Board Requirement: 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- Refer to the reader manufacturer’s instructions for wiring (manufacturer’s specs may supersede Galaxy specs).

IMPORTANT NOTICES

- Easyline PC2 Readers are configured to only read *STid PC2 encoded smart cards*.
No other smart cards can be read by this reader.
- The STid Reader with Proximity Module (acts as pass-through data) can read 125KHz cards (EM/ HID PROX/ AWID/ IOPROX/ INDALA), in addition to the 13.56 MHz STid PC2 Smart Cards.
- Do not mix non-mobile STid Readers with mobile-enabled (Blue) STid Readers in the same system.
- The mobile-enabled (Blue) STid Readers can only use the free Green Mobile ID (Mobile app).
- Before power is applied, you must connect all accessory and field wiring, and firmly mount the reader to the wall.
- The tamper switch is an accelerometer and is calibrated upon power up. If the reader is moved after being powered up, the reader will be in a ‘tamper’ state and will not send the correct 26 -bit Wiegand data but will send 30-bit data to indicate tamper state.

635-DRM Terminal Functions (PN 20-0235-10)

LED (LED control line)

D 1 (Data 1)

VDC (+12 VDC)

GND (common Reader’s p.s. ground to Controller ground)

D 0 (Data 0)

STid Easyline Reader

LED1 Control

D 1

VDC

GND (common to controller ground)

D 0

9.0 STid Reader with Galaxy Configuration

- 5-conductor, 22 AWG, overall shielded max cable distance 500 feet.
- 2-conductor- twisted pair, 22 AWG, max cable distance 500 feet.
- Reader will require separate power supply if the current draw is over 150 mA.
- You must common reader P.S. ground to controller ground.
- Ground the Drain-wire at one end only (at the DRM Board “GND”).
- Min. Board Requirement: 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- Refer to the reader manufacturer’s instructions for wiring (manufacturer’s specs may supersede Galaxy specs).

IMPORTANT NOTICES

- STid Readers are configured to only read MIFARE/DESFIRE CSN.
- PC2 Smart Cards: STid Reader can read the CSN from PC2 smart cards but cannot read the secure area.
- The STid Reader with Proximity Module (acts as pass-through data) can read 125KHz cards (EM + HID PROX + AWID + IOPROX + INDALA), in addition to the 13.56 MHz. MIFARE/DESFIRE.
- The mobile-enabled (Blue) STid Readers can use the Green, Yellow, and Blue Mobile ID (Mobile app).
- Before power is applied, you must connect all accessory and field wiring, and firmly mount the reader to the wall.
- The tamper switch is an accelerometer and is calibrated upon power up. If the reader is moved after being powered up, the reader will be in a ‘tamper’ state and will not send the correct 40 -bit Wiegand data but will send 44-bit data to indicate tamper state.

635-DRM Terminal Functions (PN 20-0235-10)		STid Galaxy-Configured Reader
LED	(LED control line)	LED1 Control
D 1	(Data 1)	D 1
VDC	(+12 VDC) (Do not use for reader power!)	VDC (to separate p.s.)
GND	(common Reader’s p.s. ground to Controller ground)	GND (common to controller ground)
D 0	(Data 0)	D 0

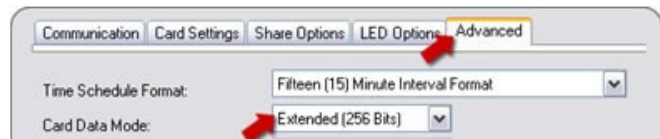
10.0 Veridt Stealth Series Reader (FICAM Solution for Technologies Industry)

- 5-conductor 22 AWG overall shielded; max cable distance 500 feet
- 2-conductor Twist pair, 22 AWG, max line distance 4000 feet (RS-485 Comm. for Mode/Factor Control)
- A separate Power Supply is required (reader draws 400 mA at +12vdc).
- Must common reader's power supply ground to controller ground.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy recommendations).
- Min. Board Requirement: 635-DSI Board (Dual Serial Interface) PN 20-0655-10 – for Mode/Factor Control

READER MODES/FACTORS	EWAC to 635 DRM Wiring Pinout	
	EWAC Module	635 DRM
Mode 1 Card Only	GND	GND
Mode 2 Card + Pin	D0	D0
Mode 3 Card + Pin + Bio	D1	D1
	I/O	LED
	NC	Not Used

1. Install System Galaxy (SG) software according to Galaxy documentation.
2. Validate WEB API by using address: <http://localhost:8000/swagger>.
3. Also verify the GCS DataLoader Service is running on the Galaxy Comm/Event Server.
4. When you add the 635-Series Clusters into the SG Loop/Cluster Properties screen, do the following ...

On the Advanced tab,
set the Card Data Mode droplist to
"Extended Card (256 Bits)".



On the LED Options tab, set LED States:
DOOR Locked = 'Steady High'
DOOR Unlocked = 'Steady Low'



5. In the SG Reader Properties screen, configure the Reader Type field to 'Standard Wiegand'.
6. In the SG Access Group Properties screen, you must create the Access Groups you will need.
7. In the SG Access Profile Properties screen, you must create 1 or more Access Profiles by assigning your access groups to the profile, based on your system needs.
8. Install the Galaxy 635-series Controller hardware according to Galaxy documentation.
 - a) In the controller, be sure to enable *Extended Card Mode* (set to "yes" in lower case).
 - b) Be sure to configure the correct IP Address for the Event Server.
9. Install the Technology Industries (TI) FICAM software per the manufacturer's documentation.
10. from the SG *Cardholder screen* perform a card lookup of the GOV. ID CARD to validate that it is correctly pushed from the *TI FICAM Software* into System Galaxy database.
11. Install Veridt Reader and EWAC Module according to the manufacturer's documentation.
12. Connect the EWAC Module to the Galaxy Model 635 DRM (Dual Reader Module) using the wiring pinout in the table above.

11.0 Veridt Stealth Series Readers (NON-FICAM)

- 5-conductor 22 AWG overall shielded; max cable distance 500 feet.
- 2-conductor Twist pair, 22 AWG, max line distance 4000 feet (RS-485 Comm. for Mode/Factor Control)
- Separate Power Supply required (reader draws 400 mA at +12vdc). Common reader's power supply ground to controller ground.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer's instructions for wiring (manufacturer's specs may supersede Galaxy recommendations).
- Min. Board Requirement: 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- Min. Board Requirement: 635-DSI Board (Dual Serial Interface) – PN 20-0655-10 – for Mode/Factor Control

635-DRM Terminal Functions (PN 20-0235-10)		Veridt Reader
LED	(LED control line)	LED Control * required
D 1	(Data 1)	DATA 1
VDC	(+12 VDC) (Do not use for reader power!)	VDC (to separate p.s.)
GND	(common Reader's p.s. ground to Controller ground)	GND (common to controller ground)
D 0	(Data 0)	DATA 0

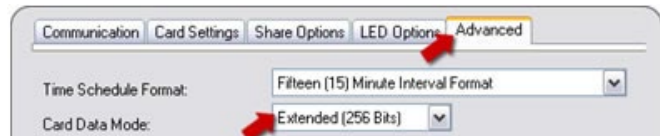
635-DSI Terminal Functions (PN 20-0655-10)		Veridt Reader RS-485 Comm.
A +	RS-485 Data	Yellow Wire
B -	RS-485 Data	Blue Wire

NOTES:

- DSI Section used for Mode/Factor Control must be set to "Veridt CAC Reader" in System Galaxy Serial Channel Properties.
- LED Option must be set for Door Locked "Steady High" and Door Unlocked "Steady Low" in System Galaxy Loop Properties.

1. Install System Galaxy (SG) software according to Galaxy documentation.
2. When you add the 635-Series Clusters into the SG Loop/Cluster Properties screen, do the following ...

On the Advanced tab,
set the Card Data Mode droplist to
"Extended Card (256 Bits)".



On the LED Options tab, set LED States:
DOOR Locked = 'Steady High'
DOOR Unlocked = 'Steady Low'



3. Open the DSI Serial Channels Properties screen from the SG menu Configure > Hardware, Serial Channels as follows:
 - a) Select the appropriate DSI Board Section (Section 1 or 2) that will support the CAC readers.
 - b) Set the Section Use field to the "Veridt CAC Reader".
 - c) Once the Section is set for CAC Readers, set the CAC Mode you want (i.e., Card Only, Card+PIN, or Card+PIN+BIO).
4. In the SG Reader Properties screen, configure the Reader Type field to 'Standard Wiegand'.
5. Install the Galaxy 635-series Controller hardware according to Galaxy documentation.
 - a) In the controller, be sure to enable *Extended Card Mode* (set to "yes" in lower case).
 - b) Be sure to configure the correct IP Address for the Event Server.

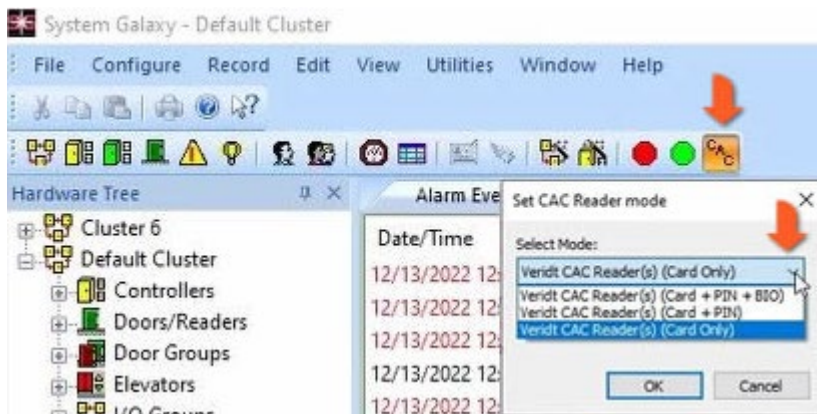
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Veridt Stealth Series Readers (NON-FICAM) - continued from previous page

You can change the **Reader Mode** in the System Galaxy software by clicking the **CAC button** on the System Galaxy toolbar. Then select the desired Reader Mode from the Mode droplist and click the OK in the pop-up dialog window.

READER MODES/FACTORS

- ▶ Mode 1 Card Only
- ▶ Mode 2 Card + Pin
- ▶ Mode 3 Card + Pin + Bio



12.0 635-DRM (PN 20-0235-10) – FULL SECTION TERMINAL PINOUT

Each Reader Section has the following terminals...

READER WIRING (9-PIN CONNECTOR)

- 5-conductor, 22 AWG, overall shielded; max cable distance is 500 feet.
- Reader may require separate power supply if the current draw is over 150 milliamps.
- Ground the Drain-wire at one end only - at the DRM Board (GND).
- Refer to reader manufacturer’s instructions for wiring (manufacturer’s specs may supersede Galaxy specs).

635-DRM (Terminal Functions)		Wiegand	ABA
LED	(LED control line)	LED Control	LED Control
D 1	(Data 1)	DATA 1	DATA
VDC	+12 VDC (For +5VDC use Regulator PN 92-3001-05)	VDC	VDC
GND	(Power Supply Ground)	GND	GND
D 0	(Data 0)	DATA 0	CLOCK
unused			

DOOR CONTACT & REX MOTION DETECT (9-PIN CONNECTOR)

- 2-conductor, 22 AWG, overall shielded (for Door Contact).
- 4-conductor, 22 AWG; overall shielded (for REX/Motion Detector). for Door Contact
- Separate Power Supply for REX/Motion Sensor.
- Ground all Drain-wires at one end only - at the DRM Board (GND).
- Refer to device manufacturer’s instructions for wiring (manufacturer’s specs may supersede Galaxy specs).

635-DRM (Terminal Functions)		Device State
COM	(Common)	LED Control
CNT	(Door Contact)	NC Normally Closed Contact = Door Closed/Contact Closed
REX	Request to Exit (motion sensor)	NO Normally Open = Momentary Push Button

LOCK RELAY CONNECTOR (RLY-1)

- 2-conductor, Minimum 18 AWG for LOCK (Manufacturer’s specs for wire gauge may supersede Galaxy’s instructions).
- Separate Power Supply required for Lock – follow manufacturer’s requirements for lock power supply.
- Relay is Form-C SPDT Dry, (Rated max. 24v, 1.5 Amps)

635-DRM RELAY-1	LOCK DEVICE
COM	COMMON
NC = Normally Closed >	Land lock wiring according to
NO = Normally Open >	Manufacturer’s instructions.

RELAY-2 CONNECTOR – OPTIONAL OUTPUT

- For optional output (i.e. piezo, bell, buzzer)
- Relay is Form-C SPDT Dry, (Rated max. 24v, 1.5 Amps)
- Relay-2 (mode/timers/event-triggers) must be configured for desired behavior in SG Reader Properties

635 DRM RELAY-2	DEVICE
COM	COMMON
NC = Normally Closed >	Land wiring according to
NO = Normally Open >	Manufacturer’s instructions

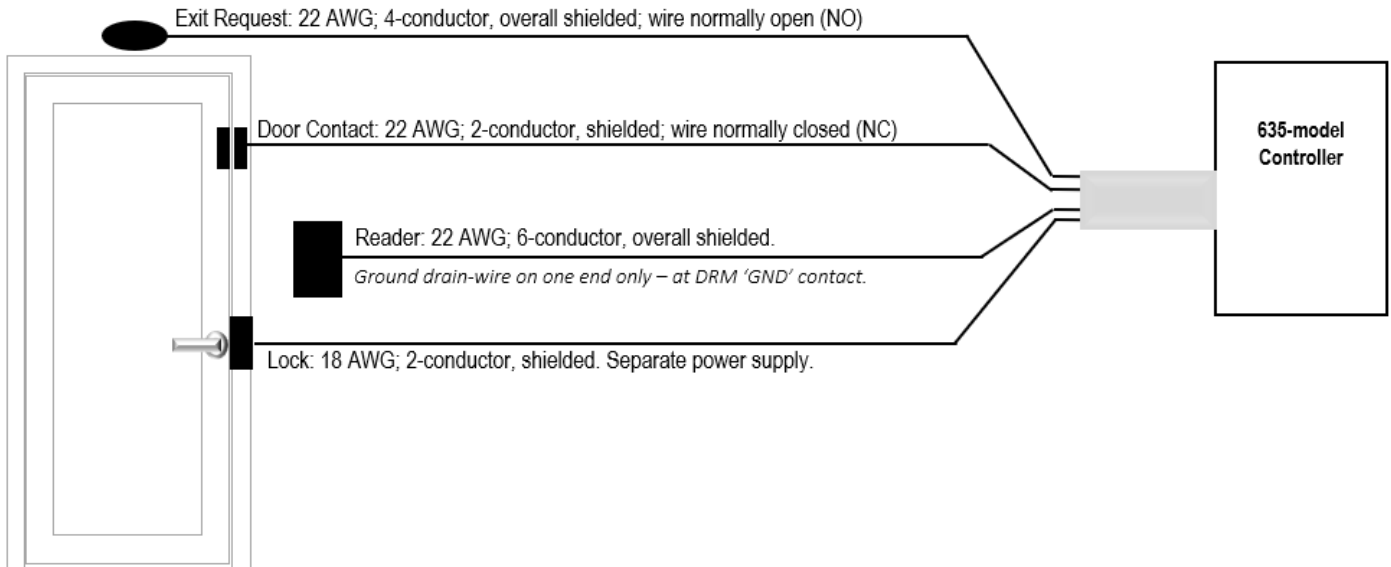
MODES*	Available Events	
<ul style="list-style-type: none"> • FOLLOWS • TIMED • SCHEDULED • LATCHED 	<input type="checkbox"/> Door Forced Open	<input type="checkbox"/> Valid Unlock
	<input type="checkbox"/> Door Open Too Long	<input type="checkbox"/> Duress
	<input type="checkbox"/> Invalid Access Attempt	<input type="checkbox"/> Passback
<i>* Timers affect behavior.</i>		
<i>Note: the events you can select will vary depending on which mode is chosen.</i>		

13.0 DOOR TOPOLOGY DIAGRAM

This diagram shows the Lock, Door Contacts, REX and Reader connected to the controller. -

Connection Type	Max Distance	Wire Gauge & Specifications
Request to Exit	500 ft. from controller	22 AWG; 4-conductor, overall shielded; wired normally open (NO)
Door Contact	500 ft. from controller	22 AWG; 2-conductor, overall shielded; wired normally closed (NC)
Lock Hardware	500 ft. from controller	18 AWG; 2-conductor minimum, shielded; Separate Power Supply.

Refer to manufacturer's instructions for device wiring (manufacturer's specs may supersede Galaxy specs).



Jumper-out the following contacts, only if they are unused ...

- DRM board: If *door contacts* are not installed, you must jumper CNT to GND.
- CPU board: If *Low Battery wiring* is not installed, you must jumper Low Batt to GND.
- CPU board: If *AC Fail wiring* is not installed, you must jumper the AC Fail to GND.