



Galaxy Reader Wiring QRS

CONTENTS					
1.0	Wiegand Reader – Cable Specs & Wiring Pin-out	1	7.0	US GOV – VERIDT Stealth Readers (NON-FICAM)	4
2.0	ABA Reader – Cable Specs & Wiring Pin-out	1	8.0	US GOV – BridgePoint Reader (NON-FICAM)	5
3.0	Biometric Reader – Cable Specs & Wiring Pin-out	1	9.0	US GOV – SCM Reader (NON-FICAM)	6
4.0	IDEMIA (Morpho) SIGMA BIO 5G	2	10.0	US GOV – FICAM APL #	6
5.0	Invixium (IXM) Biometric Reader	2	11.0	635-DRM Section Pinout for Reader & Relays	7
6.0	US GOV – VERIDT (FICAM Solution for TI)	3	12.0	DOOR WIRING BLOCK DIAGRAM	8

1.0 Wiegand Reader - Cable Specs & Wiring Pinout

- 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 Board (PN 20-0235-10)

635-DRM Terminals (Function)	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 Pinout

- 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 Board (PN 20-0235-10)

635-DRM Terminals (Function)	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 (Clock Data)	CLOCK

3.0 Biometric Reader - Cable Specs & Wiring Pinout

- 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)
- 635-DRM Board (Dual Reader Module) – PN 20-0235-10
- *See next section for information on IDEMIA Morpho Sigma Readers.*

635-DRM Terminals (Function)	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

4.0 IDEMIA (Morpho) SIGMA Reader - Cable Specs & Wiring Pinout

- 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). Must common 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 Terminals (Function)	SIGMA Reader
LED (LED control line)	
D 1 (Data 1)	WIEG DATA 1
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.

5.0 Invixium (IXM) Biometric Reader - Cable Specs & Wiring Pinout

- 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 Terminals (Function)	Invixium Reader
LED (LED control line)	ACP LED1 (used to control Voice Command)
D 1 (Data 1)	W DATA_OUT1
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.

6.0 Veridt Stealth Series Readers 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.

7.0 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

READER MODES/FACTORS

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

635-DRM Terminals (Function)		Veridt Wiegand Reader
LED	(LED control line)	LED Control * required for correct operation
D 1	(Data 1)	DATA 1
VDC	(use separate p.s. 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 Terminals / Function		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.

8.0 BridgePoint (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).
- Separate Power Supply required (reader draws 300 mA at +12VDC). Must common reader's 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 Terminals (Function)	BridgePoint Wiegand Reader
LED (LED control line)	LED1
D 1 (Data 1)	WEG 1
VDC (use separate p.s. 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	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.

9.0 SCM Readers (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).
- Separate Power Supply required (reader draws 300 mA at +12VDC). 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 Terminals (Function)		SCM Reader
LED	(LED control line)	LED Control
D 1	(Data 1)	D 1
VDC	(use separate p.s. 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, the
- Place a schedule on Relay-2 in System Galaxy Reader Properties to alternate Mode/Factor.

10.0 US GOV FICAM APL

Contact Galaxy Control Systems for additional information.

Product	APL#	SUPPLIER
BridgePoint	10060	Galaxy Control Systems – PACS infrastructure
Veridt	10083	Galaxy Control Systems – PACS infrastructure
	10084	Galaxy Control Systems – Validation System
HID	10097	Galaxy Control Systems – PACS infrastructure
	10098	Galaxy Control Systems – Validation System

11.0 635-DRM (PN 20-0235-10) – READER PINOUT FULL SECTION

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).

	PINS	635-DRM Terminals (Function)	Wiegand	ABA
Reader Connector	9	LED (LED control line)	LED Control	LED Control
	8	D 1 (Data 1)	DATA 1	DATA
	7	VDC +12 VDC (For +5VDC use Regulator PN 92-3001-05)	VDC	VDC
	6	GND (Power Supply Ground)	GND	GND
	5	D 0 (Data 0)	DATA 0	CLOCK
	4	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).

	PINS	635-DRM Terminals (Function)	Device State
Reader Connector	3	COM (Common)	LED Control
	2	CNT (Door Contact)	NC Normally Closed Contact = Door Closed/Contact Closed
	1	REX Request to Exit (motion sensor)	NO Normally Closed 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 NC = Normally Closed NO = Normally Open	Land the lock wiring according to the 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

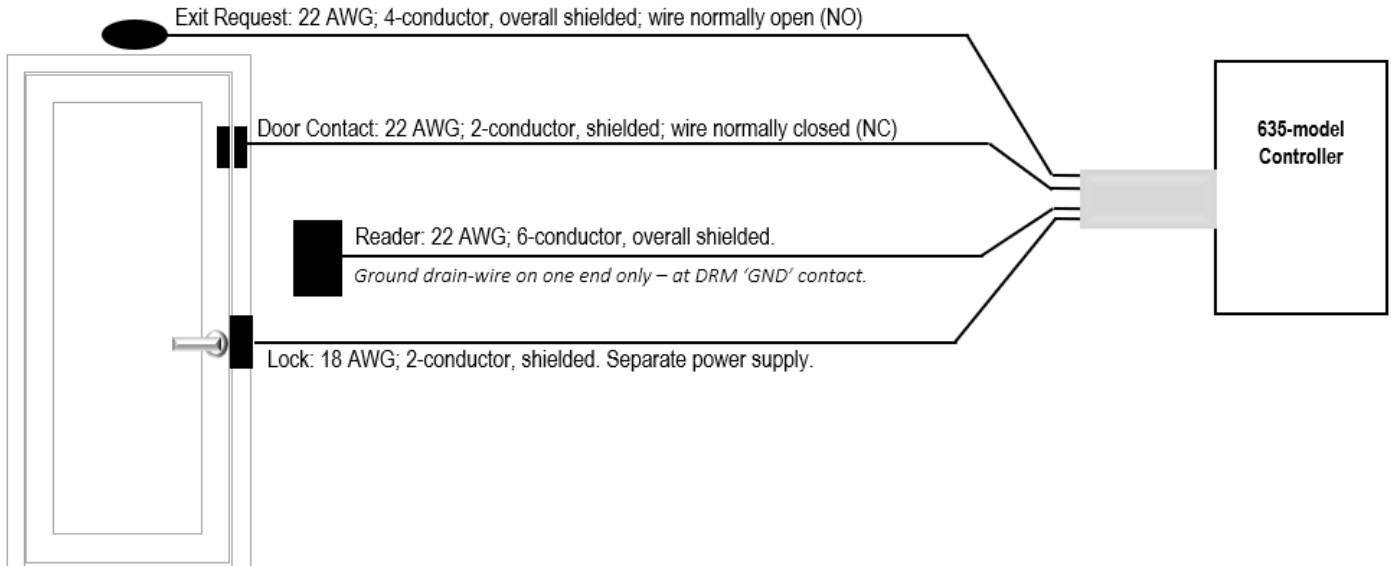
635 DRM RELAY-2	DEVICE	MODES*	Available Events (vary by Mode selected)
COM NC = Normally Closed NO = Normally Open	Land wiring according to Manufacturer's instructions	<ul style="list-style-type: none"> • FOLLOWS • TIMED • SCHEDULED • LATCHED 	<input type="checkbox"/> Door Forced Open <input type="checkbox"/> Valid Unlock <input type="checkbox"/> Door Open Too Long <input type="checkbox"/> Duress <input type="checkbox"/> Invalid Access Attempt <input type="checkbox"/> Passback
* set timers appropriately for desired behavior			

12.0 DOOR WIRING BLOCK 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.