Gallagher
Controller 6000

The Gallagher Controller 6000 is a powerful and intelligent modular field controller capable of processing, storing and communicating large amounts of data independently of the Gallagher Command Centre Server in real time.

CONTROLLER 6000

The Gallagher Controller 6000 is a core component of the Gallagher platform for integration. It provides distributed intelligence in the field to manage access control and security functions. In addition, it has the ability to physically enforce business rules, monitor its environment, communicate with other integrated systems and make enriched access decisions based on variables from these systems.

The Gallagher Controller 6000 is one of the key integrated components of a Gallagher security system.

GALLAGHER CONTROLLER 6000 VARIANTS AND READER MODULE HARDWARE:

> Gallagher Controller 6000
> Gallagher Controller 6000 High Spec (HS)
> Gallagher 8H Module
> Gallagher 4H Module
> Gallagher 8R Module
> Gallagher 4R Module

The Gallagher Controller 6000 features straightforward system architecture providing powerful and flexible configuration. Peer to peer relationships can be configured directly between Gallagher Controllers. For example, inputs on one Controller can be monitored and controlled by another Controller.

The modular design of the Gallagher Controller 6000 provides a cost-effective approach to engineering a Gallagher system. Up to ten doors can be controlled with the Controller 6000 when paired with module choices available to cater for a wider range of site requirements. I/O functionality is provided via the Controller Reader Modules. Other expansion options are also available.

The Gallagher Controller 6000 architecture supports the Gallagher Remote Arming Terminal for intruder alarms and the Gallagher Perimeter Security Fence Controller and Keypad for integrated perimeter security.

GALLAGHER HBUS COMPATIBILITY

The Gallagher Controller 6000 supports the following HBUS devices:
> Gallagher T Series Readers (Rev 1)
> Gallagher F22 Fence Controller.

Gallagher 8H and 4H Modules can be connected to the Gallagher Controller 6000 to allow HBUS devices to be star-wired back to a secure Controller Cabinet.

GALLAGHER READER MODULES

The Gallagher 8R Module is capable of supporting up to eight Gallagher readers or four Wiegand readers. The Gallagher 4R Module is capable of supporting up to four Gallagher readers or two Wiegand eaders.

MONITORING INPUTS AND CONTROLLING OUTPUTS

Gallagher H and R Series Modules have on-board inputs and outputs, that can be used for door monitoring and control, or for general I/O functions. Gallagher H and R Series Modules monitor and report the state of balanced inputs, and enforce decisions to switch output relays, if required.

Gallagher 8H and 8R Modules have 24 balanced inputs and eight relay outputs on-board. Gallagher 4H and 4R Modules have 12 balanced inputs and four relay outputs on-board. (Additional I/O expansion options are also available if required).

GALLAGHER

Gallagher
Controller 6000

Four states can be monitored (using the default two 4k7 ohm resistors or optional configurable end-of-line resistances), including:

> Open
> Closed
> Short Circuit (Tamper)
> Open Circuit (Tamper)

The inputs on the Gallagher H and R Series Modules can be used to monitor:
> Access controlled doors
> Intruder detection (i.e. passive infra-red detectors, glass break detectors)
> Monitored doors
> Equipment alarms
> Any other devices providing a clean switch contact.

The on-board relays can be used for:
> Access controlled doors
> Alarm outputs, e.g. to activate sirens
> Control outputs, e.g. to switch on air conditioning
> Time activated outputs, e.g. to switch on lighting.

INPUT/OUTPUT EXPANSION OPTIONS

The on-board number of available inputs and outputs can be increased with the following input-output expansion options:
> Gallagher 8-Input Expansion
> Gallagher I/O Expansion
> Gallagher High Density I/O Expansion
> Gallagher GBUS Universal Reader Interface (Standard or Wiegand variant)
> Gallagher Security Fence Controller

Refer to the GBUS I/O Devices datasheet for more information.

DISTRIBUTED INTELLIGENCE AND DATA STORAGE

Distributed intelligence is a significant feature of the Gallagher system architecture. All Gallagher field devices connecting to Gallagher Controllers can operate independently of the Gallagher Command Centre Server. This ensures that if the site experiences network communications problems, full operation of access control and alarms

management is maintained.

Access decisions are made independently of the server, based on the individual's identity, the area and time they are attempting to access, as well as what competencies (e.g. inductions, training, licenses, security clearances, etc) are required for access to that area and whether or not the person holds these competencies.

The relevant fields of the cardholder database, alarm configuration and security parameters are immediately downloaded to the Controller 6000 automatically to allow for instant access and alarm control decisions.

All events and alarms are date and time stamped before being sent to the Gallagher Command Centre server. Each Gallagher Controller 6000 is capable of buffering events should communications with the Command Centre server fail. The Gallagher Controller 6000 will transfer the buffered events to the Command

Centre server automatically when communications are reestablished. The provided database storage space supports at least 500,000 card records and 80,000 access control events.

COMMUNICATIONS

The Gallagher Controller 6000 has two RS485 connections. Each connection may be individually configured to support HBUS, GBUS, Sensor or Aperio™ communications.

The HBUS protocol runs at speeds up to 1Mb/s, substantially faster than most other RS485 based communications protocols. The communications between the Gallagher Controller 6000 4R or 8R Modules and Gallagher Readers use a proprietary format (Cardax IV) requiring 4-core cable. Third party readers communicating via the Wiegand format use a 6-core cable connection.

The Gallagher Controller 6000 communicates with the Gallagher Command Centre server via TCP/IP over an Ethernet network. Each controller is factory-programmed with a unique network MAC address. The Gallagher Controller 6000 provides a standard 10/100 BaseT connection point. The Gallagher Controller 6000HS has dual 10/100/1000BaseT Ethernet connections, to provide additional network redundancy.

Gallagher Command Centre can be programmed to dial via PSTN to a Gallagher Controller 6000 in response to configuration changes or when an operator initiates a request.

A USB 2.0 port is available to allow local software upgrades. Upgrades are pre-authorized at the reader.

The USB port can also be used to connect to a cellular modem for alarm transmission.

PEER-TO-PEER COMMUNICATIONS

The Gallagher Controller 6000 can communicate directly with other Gallagher Controllers without requiring the Gallagher Command Centre server to be online. The peer-to-peer communications enable the controllers to communicate with each other over a LAN/WAN using TCP/IP for the purposes of monitoring, back-up and control. This significant feature provides extensive flexibility and efficient system configuration. For example, a Gallagher Dialler resident on a Controller 6000 can be configured to transmit events originating from any Gallagher Controller to a remote alarm monitoring station.

Gallagher recommends that installers provide a back-up power supply to the Gallagher Controller 6000 so it can continue to operate for a specified period in the event of a mains supply failure. The back-up power supply can also be monitored by connecting Gallagher power supply alarm outputs to inputs on a

Gallagher Controller 6000 with either an H or R Module or connected field device.

SOFTWARE UPGRADES

The Gallagher Controller 6000 can be enhanced in the future via software upgrades. These software upgrades can be implemented through Gallagher Command Centre. The Gallagher Controller 6000 software upgrade process does not affect door access during the download process. Upon completion of the software download, door access is momentarily affected. All HBUS devices also seamlessly upgrade to new software on a Gallagher Controller 6000 upgrade.

The ability to download software over the network means enhancements can be easily and quickly installed in the future. A full speed USB 2.0 port provides the option of securely loading a controller's software via USB memory stick, even when the controller is not networked.

BULK SOFTWARE UPGRADES

Gallagher Command Centre allows groups of up to 10 Controller 6000s to have their software upgraded via the bulk change process, significantly speeding up the upgrade process for large sites.

DATA SECURITY

All data over the network between the Gallagher Controller 6000s (inter-controller) and the Gallagher Command Centre server uses 256-bit AES symmetric encryption and RSA-1024 bit communication access authentication.

INTRUDER ALARMS

The Gallagher Controller 6000 provides sophisticated intruder alarm management, making separate intruder alarm systems unnecessary. Intruder detectors connect directly to the I/O devices supported by the Controller 6000 so alarms can be raised at the Gallagher Command Centre. Outputs can trigger actions such as switching on lights when an intruder is detected.

Arming (setting) and disarming (unsetting) of alarms can be implemented according to a time schedule, via operator overrides, by authorised cardholders at Gallagher Readers, by keyswitch control, or by the Gallagher Remote Arming Terminal.

The Gallagher Remote Arming Terminal also enables users to monitor alarms in the field. Refer to the Gallagher Remote Arming Terminal datasheet for more information.

Entry and exit delays can be configured to give the cardholder time to enter or leave the premises. Full event details, including the cardholder's name, are recorded for arm/disarm operations at the Command Centre. A relay output may be used to indicate the arm/ disarm status of a particular alarm zone.

GALLAGHER PERIMETER SECURITY FENCE CONTROLLER

The Gallagher Controller 6000 and 6000HS can also manage up to 16 Gallagher Security Fence Controllers per RS485 connection. Fence Controllers provide two high voltage circuit for perimeter protection. Refer to the Gallagher Security Fence Controller datasheet for more information.

APERIO™ DOOR CONTROL

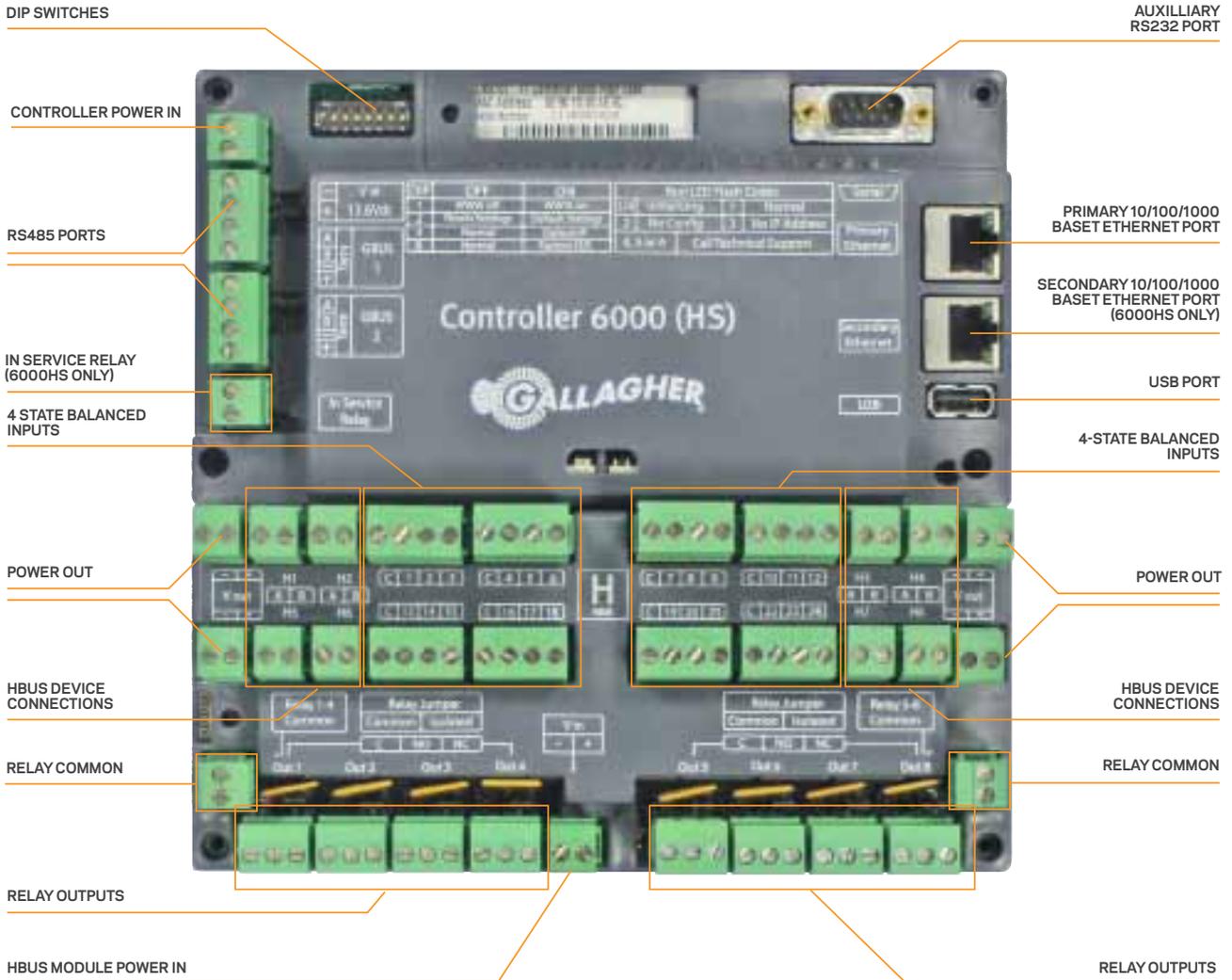The Gallagher Controller 6000 supports up to 16 lower security wireless managed doors per RS485 connection. A maximum of 20 doors per controller is supported. Refer to the Aperio™ datasheets for further information.
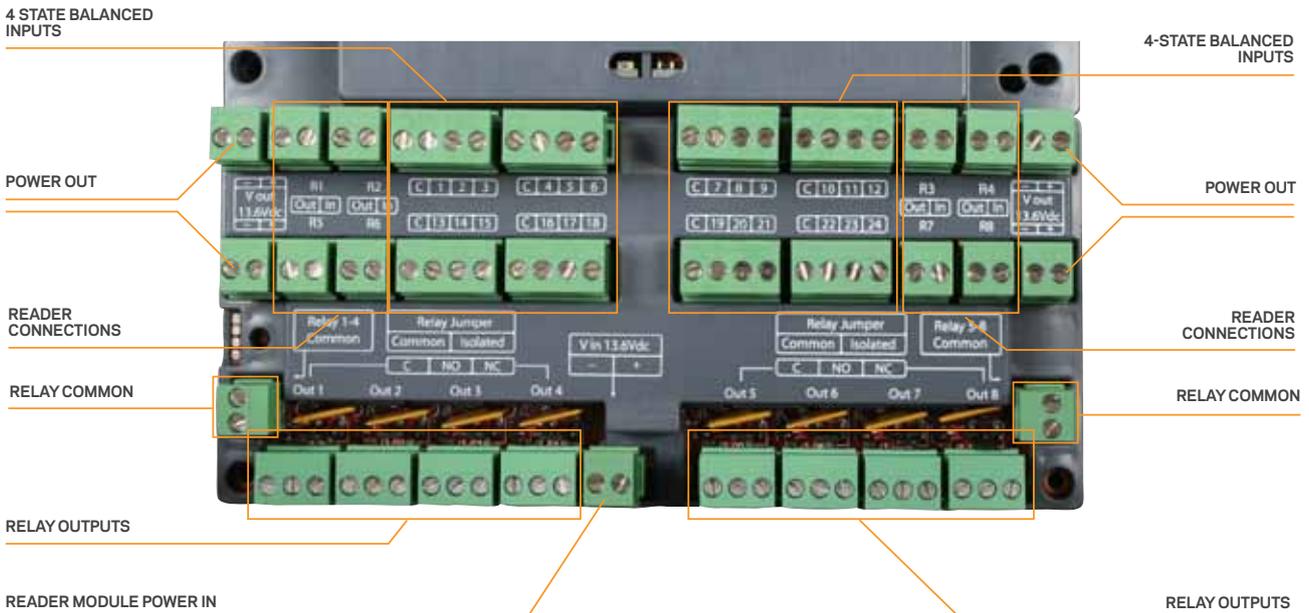
DISTURBANCE SENSOR

The Gallagher Controller 6000 supports up to 32 D21 Disturbance Sensors per RS485 connection. Refer to the D21 Disturbance Sensor datasheet for further information.

KEY FEATURES OF THE GALLAGHER CONTROLLER HIGH SPEC AND 8H MODULE

DIP SWITCHES

CONTROLLER POWER IN

RS485 PORTS

IN SERVICE RELAY (6000HS ONLY)

4 STATE BALANCED INPUTS

POWER OUT

HBUS DEVICE CONNECTIONS

RELAY COMMON

RELAY OUTPUTS

HBUS MODULE POWER IN

AUXILLIARY RS232 PORT

PRIMARY 10/100/1000 BASET ETHERNET PORT

SECONDARY 10/100/1000 BASET ETHERNET PORT (6000HS ONLY)

USB PORT

4-STATE BALANCED INPUTS

POWER OUT

HBUS DEVICE CONNECTIONS

RELAY COMMON

RELAY OUTPUTS

KEY FEATURES OF THE GALLAGHER 8R MODULE

4 STATE BALANCED INPUTS

POWER OUT

READER CONNECTIONS

RELAY COMMON

RELAY OUTPUTS

READER MODULE POWER IN

4-STATE BALANCED INPUTS

POWER OUT

READER CONNECTIONS

RELAY COMMON

RELAY OUTPUTS

ELEVATOR CONTROL

The Gallagher Controller 6000 provides elevator access control. Card readers may be installed in elevator cars to provide restricted access to floors. When a Prox Plus reader is installed, the cardholder can be prompted to enter their PIN before access is granted. Floors may be 'unlocked' (i.e. the elevator floor select button enabled) on a time schedule.

Relay outputs on Gallagher H or R Modules and Expansion Boards can be configured to enable the elevator floor select buttons in an elevator car. Inputs on Gallagher H or R Module or Gallagher I/O Interfaces can be configured to monitor which floor is selected, providing destination reporting and minimising the opportunity of more than one floor being selected.

The flexible design of the Gallagher Controller 6000 enables it to be configured for almost any elevator control situation. Both low level (relay to input individually wired) and high level (data interface) options from the Gallagher Controller 6000 to elevator controllers are supported.

The configuration is limited only by combinations of the following:
> Up to 75 elevator levels per elevator shaft (low level)
> Up to 256 elevator levels per elevator shaft (high level) *
> Up to 2 elevator shafts per Gallagher Controller 6000.

Typically each elevator car requires one card reader and one relay output for each floor select button. If destination reporting is required then one input is required for each floor select button in each elevator car.

GALLAGHER CONTROLLER API

Events can be sent to and received from third party systems within the Gallagher Controller 6000 using the Gallagher Controller Application Programming Interface (API). It is ideal for interfaces to third party systems such as imaging and duress systems. Refer to the Gallagher Controller Application Programming Interfaces datasheet for more information.

MANAGING DIFFERENT TIME ZONES AND DAYLIGHT SAVINGS

When the system is configured, each Gallagher Controller 6000 is assigned a local time zone, relative to co-ordinated Universal Time (UTC). This includes daylight savings settings.

POWER SUPPLY REQUIRED

The Gallagher Controller 6000 runs on 13.6V DC+-15% allowing a standard battery backed 12V power supply to be used. The system monitors the power supply for power low and power high conditions.

GALLAGHER CABINETS
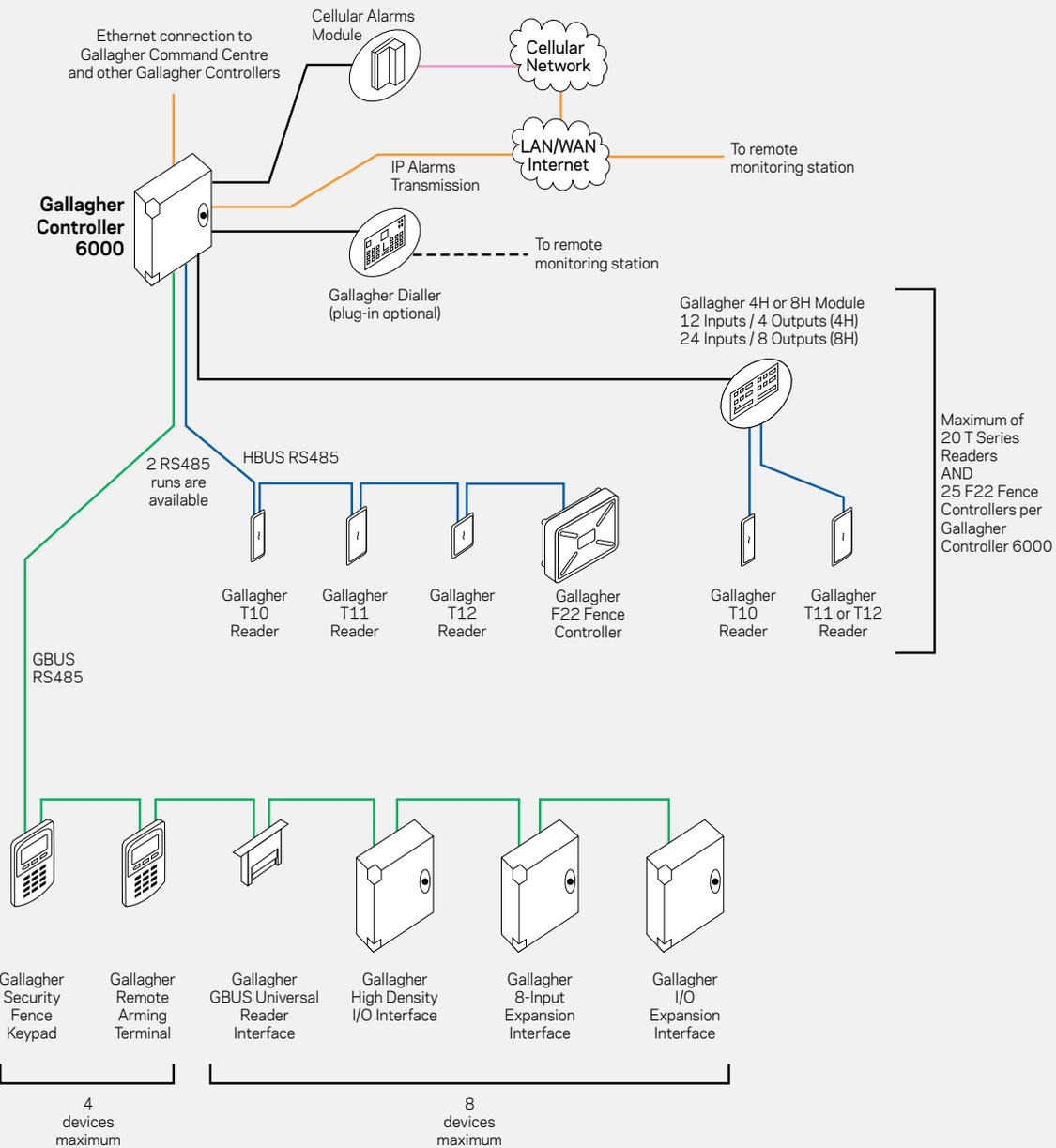
Two Gallagher Cabinets are available to accommodate the Gallagher Controller 6000 and I/O Devices:
> Gallagher Cabinet
> Gallagher Dual Cabinet

The Gallagher Dual Cabinet is available with or without a power supply. Refer to the Gallagher Cabinets datasheet for further information.

Note: Actual number depends on the type of elevator system being interfaced to.

Controller 6000

Ethernet connection to
Gallagher Command Centre
and other Gallagher Controllers

Cellular Alarms
Module

**Cellular
Network**

**Gallagher
Controller
6000**

IP Alarms
Transmission

**LAN/WAN
Internet**

To remote
monitoring station

Gallagher Dialler
(plug-in optional)

To remote
monitoring station

Gallagher 4H or 8H Module
12 Inputs / 4 Outputs (4H)
24 Inputs / 8 Outputs (8H)

2 RS485
runs are
available

HBUS RS485

Maximum of
20 T Series
Readers
AND
25 F22 Fence
Controllers per
Gallagher
Controller 6000

Gallagher
T10
Reader

Gallagher
T11
Reader

Gallagher
T12
Reader

Gallagher
F22 Fence
Controller

Gallagher
T10
Reader

Gallagher
T11 or T12
Reader

GBUS
RS485

Gallagher
Security
Fence
Keypad

Gallagher
Remote
Arming
Terminal

Gallagher
GBUS Universal
Reader
Interface

Gallagher
High Density
I/O Interface

Gallagher
8-Input
Expansion
Interface

Gallagher
I/O
Expansion
Interface

4
devices
maximum

8
devices
maximum

*The diagram above notes maximum
connectivity. System configuration,
network capacities, and the volume
of system activity affect performance.
Please contact Gallagher Technical
Support for advice.*

LEGEND

— Internet Protocol
— HBUS RS485
— GBUS RS485
— Plug-in Connection
-- Dial Up Connection
— Cellular Signal

Gallagher
Remote Alarm Transmission

The Gallagher Controller 6000 allows for remote alarms transmission via multiple mediums:
> LAN/WAN networks using TCP/IP protocol
> Cellular networks, via cellular modem
> PSTN Alarms, via Gallagher Dialler

GALLAGHER IP ALARMS

Controller 6000 – IP Alarms Transmitter
The Controller 6000 can be configured with a Gallagher item, the 'IP Alarm Transmitter' via LAN/WAN networks or cellular networks to enable alarms transmission. An IP Alarm Transmitter is a logical rather than physical item, providing the linkage between the Controller and one, or several, remote monitoring station's alarm receivers.

Should alarms fail to be received at the first receiver, the transmitter can automatically failover to the next receiver, after a pre-configured number of attempts.

IP Alarms Transmission - Protocol and Security
Alarms sent via an IP Alarms Transmitter conform to the ANSI / SIA DC-09-2007 alarm transmission protocol. The data transmitted over this protocol is the same data as currently transmitted with Contact ID alarm transmission. The DC-09 protocol allows for highly secure

encryption of the transmitted data, using AES 256 bit encryption, which can be optionally configured between the IP Alarms Transmitter and Receiver.

Cellular Network Alarms Transmission
Each receiver on an IP Alarms Transmitter can be configured to communicate via either a hard-wired IP link, or via a wireless, cellular network. If the 'Wireless' option is selected for an alarms receiver, and the appropriate cellular hardware (C300600) is connected to the Controller 6000, the alarms will be transmitted over the installed SIM card's cellular network. The cellular data transmission conforms to the above DC-09 protocol for secure data communication.

Gallagher IP Alarms Receiver
The Gallagher IP Alarms Receiver (GIPAR) is an application freely available for remote alarms monitoring stations to receive Controller 6000 IP alarms signals, should their existing receiver software not be capable of receiving the ANSI / SIA DC-09 transmission protocol.

The GIPAR's primary purpose is to receive all IP alarms from Gallagher sites for an alarm monitoring station, then translate these into serial RS-232 Ademco™ 685 (ContactID) protocol, commonly accepted by most alarm receiver applications.

The GIPAR can reside on the same PC as a monitoring station's main receiver software, using a virtual RS-232 connection to communicate, or on a separate PC with physical RS-232 serial connection. Alternatively, the Gallagher IP Alarms Receiver may be operated in a stand alone mode.

GALLAGHER DIALLER
The Gallagher Dialler enables remote alarms management in conjunction with either the Gallagher Command Centre software, or with an alarm monitoring company. The Dialler also enables an on-demand connection between the Gallagher Command Centre and remote Gallagher Controller 6000, for configuration and security management.

The Gallagher Dialler and Gallagher Controller 6000 can be configured to dial via both of these methods on the occurrence of an alarm.

Communications
The Gallagher Dialler dials out to the Gallagher Command Centre or the alarm monitoring station over telephone lines. Importantly, the Gallagher Dialler is able to seize the phone line to transmit alarms, when the line is shared with a normal phone or other device. The peer-to-peer communications between Gallagher Controllers enables a controller fitted

with a Gallagher Dialler to support off-site alarm monitoring and operate as a back-up dialler for other Gallagher Controllers on site.

Contact ID Protocol is supported for off-site alarms monitoring. The Gallagher Dialler facilitates off-site monitoring by transmitting alarms to remote monitoring stations using industry-standard Contact ID format.

Using Contact ID, the Gallagher Dialler can be configured to:
> Dial on the occurrence of specific alarms or events
> Provide periodic test transmissions (24 hour test and configurable line test)
> Dial on the arming (setting) / disarming (unsetting) of alarm zones.

Dial-up Connection to Gallagher Command Centre

The Gallagher Dialler can be used to facilitate communications between the Gallagher Command Centre server and Gallagher Controllers located at remote sites. This dial-up connection can be used for remote site configuration including access control for cardholders and alarm configuration.

The Gallagher Dialler will dial-up on demand, for example when an alarm occurs or when the event buffer of the Gallagher Controller reaches a pre-defined threshold.

Configuration

Remote alarms monitoring using the Contact ID protocol and the dial-up connection to the server are set up in the Gallagher Command Centre.

They can both be configured to dial on the occurrence of an alarm. In this scenario, dial-up to a remote alarm monitoring station occurs first followed up with dial-up to the server.

Housing and Power

Each Gallagher Dialler is mounted on top of its respective Gallagher Controller, which is housed in the Gallagher Cabinet. The Gallagher Dialler is 13.6V DC powered and can share the same power source as that provided for the Gallagher Controller.

Technical Specifications

Operating System		Windows CE 6		
Power Supply	Voltage	13.6 v DC±15%		

Current (measured at 13.6 V DC with module connected)*

		Relays Operating		
		No relays	4 relays	8 relays
	Controller 6000	175mA	320mA	460mA
	Controller 6000HS	610mA	730mA	870mA

* Note: Current measurements are indicative only and exclude external devices. Currents have been rounded up to the nearest 5mA. Controller 6000HS measurements include the use of both primary and secondary high speed ethernet ports. Please refer to the Gallagher Connectivity Guide and product Installation Notes for detailed power supply and operating characteristics.

Temperature Range	Gallagher Controller 6000	-10° to +70° C
	Gallagher Controller 6000 High Spec (HS)	-10° to +55° C
Humidity		95% Noncondensing
Data Storage per	Max. number of access zones	Unlimited
Gallagher Controller 6000	Max. number of alarms zones	256
	Max. number of access groups	2,000
	Max. number of time schedules	400
	Number of cardholders	500,000
	Number of events	80,000
	Max. number of doors	10
	Max. inter-controller peer to peer connections	60
RS485 Device Communications (2 Ports)	HBUS	up to 1 Mbits per second
	GBUS	2 wire at 38.4 Kbits per second
	Sensor Bus	115.2kbits per second, 1000m max.
	Aperio	19.2kbits per second, 1000m max.
Network Communications	Network connection - Controller 6000	10/100 BaseT Ethernet Port
	Network connection - Controller 6000 High Spec	10/100/1000 BaseT Ethernet Port
	Network protocol	TCP/IP - 256 bit AES symmetric encryption for Controller to Server and Inter-Controller communications
Compliance Standards	CE, A-Tick, C-Tick, FCC and UL	CE ⚠ Ⓒ ACN 002132943 SECURITY cULus LISTED / cUL Type G 14RM

Device Connectivity

	Reader Connections		HBUS Connections	Inputs	Relay Outputs	DC Outputs
	Gallagher	Wiegand				
Gallagher 4H Module	-	-	4	12	4	2
Gallagher 8H Module	- or	-	8	24	8	4
Gallagher 4R Module	4	2	-	12	4	2
Gallagher 8R Module	8	4	-	24	8	4

Technical Specifications

GALLAGHER MODULES		AUGUST 2012
Data Format	4R / 8R Modules	Cardax IV & Wiegand Readers
	4H / 8H Modules	HBUS Readers & F22 Fence Controllers
Relay Specifications	Resistive load	3 A at 24 V DC/AC
	Inductive load	1 A at 24 V DC/AC
DC Outputs		0.5 A per output
Elevator Control	Max. Number of shafts per Controller 6000	2
	Max number of floors per shaft	75 (low level)
		256 (high level)*
Gallagher Cabinets		Refer to Gallagher Cabinet datasheet

GALLAGHER DIALLER		
Dimensions	Gallagher Dialler	113 x 54mm
Power Supply		13.6V ± 15%, 300mA
Temprature Range (ambient)		-10 to +55°C
Mounting	Gallagher Dialler plugs vertically into the serial port on the Gallagher Controller	
Communication		RS232
Dial-Up Communications	Dial up model	Gallagher Dialler operating PPP protocol
	Network Service	PPP protocol using PSTN (telephone line) connection
	Alarm Monitoring Service	Contact ID protocol using PSTN (telephone line) connection
Compliance Standards	NZ Telepermit, A Tick C-Tick, CE	CE ⚠ C ACN 002132943

PART NUMBERS		
	Gallagher Controller 6000	C300100
	Gallagher Controller 6000 High Spec	C300101
	Gallagher 4H Module	C300142
	Gallagher 8H Module	C300182
	Gallagher 4R Module	C300141
	Gallagher 8R Module	C300181
	Gallagher Cabinet	C200104
	Gallagher Dual Cabinet (with power supply)	C200105
	Gallagher Dialler	C200620

Notes:
1. Compliance with other international standards will be proven as required. Please contact Gallagher for the latest list of approvals. All Gallagher products must be installed in accordance with the Installation Notes to comply with international standards.
2. System configuration, network capabilities, and the volume of system activity affect performance. Please contact Gallagher technical support for advice.

* Elevator system dependant

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