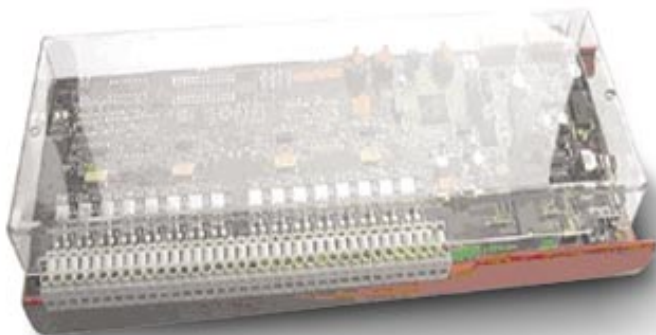


GEMTEQ

Flexible, low cost plant I/O system



GEMTEQ

GEMTEQ is ALSTOM's new generation of distributed I/O modules specifically for the GEM80-500 range of programmable logic controller.

Designed as the interface between the plant and the GEM80 PLC the complete modular family provides a flexible, simple and intelligent device.

GEMTEQ I/O is designed with advanced features and functions making them intelligent and capable, yet even easier and more intuitive to use.

Application

GEMTEQ's diagnostics and ability to use dual networks and redundant/changeover masters makes it ideal where high availability, high reliability architecture is required.

GEMTEQ is easily adaptable to a variety of applications, including water treatment, metals, food, automotive, paper transportation and oil & gas industries. With its ease of configuration GEMTEQ is ideal for even simple applications.

Customer Benefits

Comprehensive

With its built in intelligence and comprehensive diagnostic information, GEMTEQ is easy to configure and maintain using the standard GEM80 programming package.

Flexible

The modular design combined with the wide range of I/O modules and options provides the exact system for your needs.

Simple

The terminal rail mounting module is easy to use and reduces installation time.



Features

- I/O wherever you need it
 - Local to PLC or
 - Distributed I/O
- Modular and scaleable architecture
- Redundant PLC and high availability configurations
- Cost efficient solutions
 - Fast installation
 - Reduced wiring
- GEMTEQ I/O can save system builders and end users considerable time and money
- Quick connect wiring
- Distributed I/O modules
- Redundant link capability
- 125 modules per scanner module
- Dual Network Ports
- Each link independently configurable
- Scanner can be configured as, master, slave, redundant, change over.
- Network length up to 5000 metres
- In current mode configurable 0-20ma or 4-20ma
- Communication speed up to 1 M baud
- Digital inputs configurable DBounce time
- Support for third party CAN compliant modules
- Freeze/Fallback configuration on a per I/O point basis

Comprehensive Facilities

Its comprehensive facilities means there is so much more to GEMTEQ.

- ALSTOM'S distributed I/O module system provides the latest in compact flexibility – allowing the user to install the required amount of I/O where it is required.
- Redundant link capability allows the user to change modules without shutting down their machine, optimising productivity and minimising downtime.
- Extensive built in diagnostics make identifying faults a matter of routine maximising up-time.
- Dual network ports.
- Redundant cabling – I/O modules will always be connected to minimise downtime.
- Integrated diagnostics to keep the system operating at its optimum including dual network and freeze /fall back.
- Distributed plant – modules where you require them.



GEMCAN I/O Scanner

The GEMCAN I/O scanner fits into the GEM80-500 controller to provide the interface to the GEMTEQ I/O system.

- Up to 125 nodes per scanner
- 2 port per scanner
- 2 scanners per host PLC

System Design

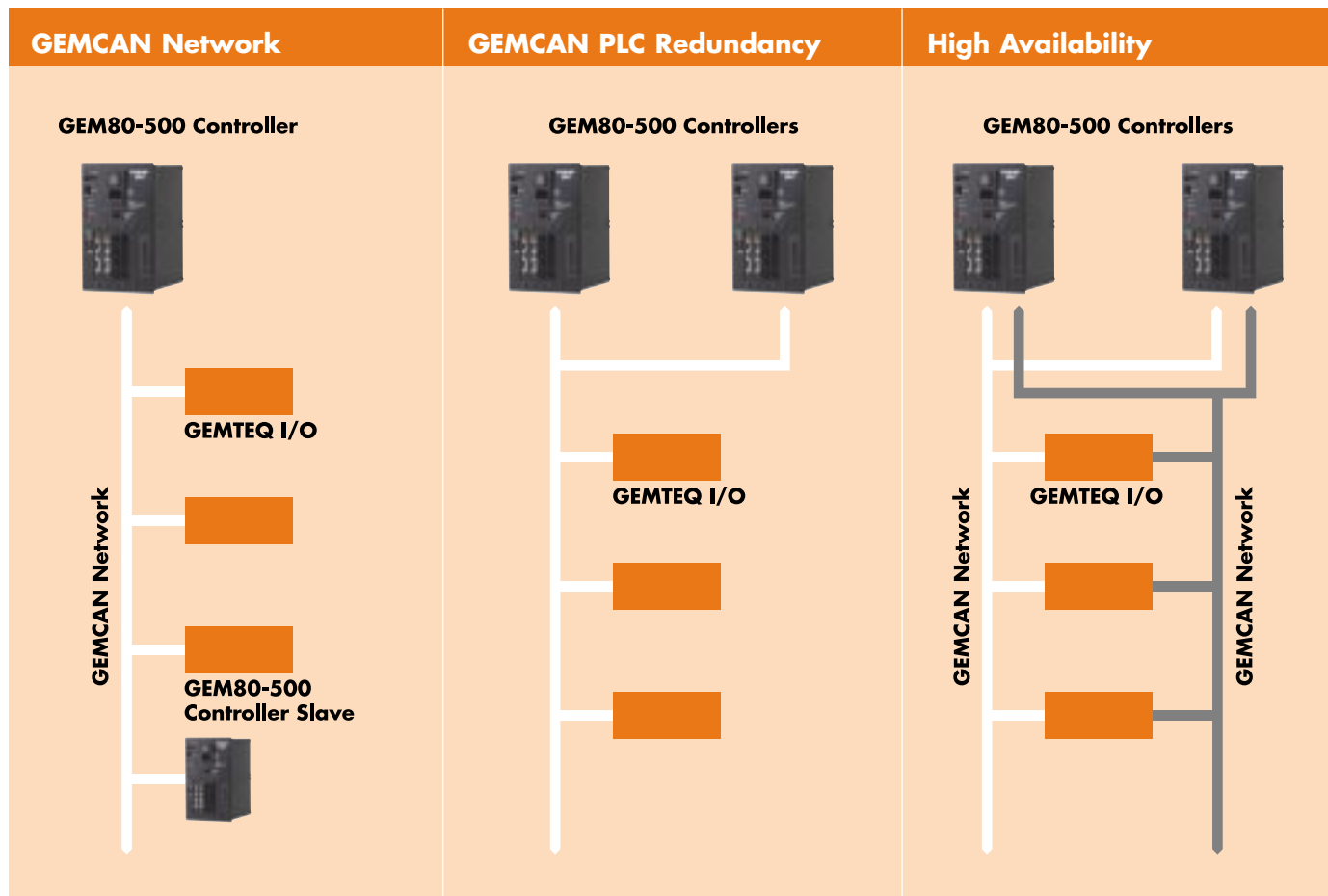
Each GEMTEQ I/O system will consist of:-

- GEMCAN I/O Scanner module in a host GEM80-500 PLC
- GEMCAN network

- GEMTEQ I/O modules
- GEM80-500 PLC's as slave devices (optional)

GEMTEQ I/O Modules

- Advanced diagnostics and embedded LED I/O indicators speed up troubleshooting and increase productivity.
- Hot-swap minimises downtime by allowing failed I/O modules to be changed without shutting down the plant.
- Convenient rotary switches are used for setting bus address and baud rate therefore no programming required.
- Removable wiring connectors save time and speed up commissioning
- DIN rail mounting – no special tools required.
- Configurable digital DBounce and analogue filter times.



Due to the unique design of GEMTEQ - a wide range of configurations are possible including redundant and high availability schemes.

Specifications	24V d.c, 16- way input module	110V a.c, 16-way input module
Part Number	9730-4012	9732-4012
Description	GEMTEQ 16Ch I/P 24VDC	GEMTEQ 16Ch I/P 110VAC
Environmental		
Environmental	Operating: 0°C to 50°C Storage –20°C to 70°C	
Atmospheric contamination:	For use in a non corrosive atmosphere. Please enquire for conformally coated units at time of ordering	
Electrical Specification		
Rate voltage	24 volts d.c	24 volts d.c
Module supply	24 volts d.c nominal, 300mA	24 volts d.c nominal, 300mA
Module supply voltage range	±10%, 21.6 to 26.4 V d.c	±10%, 21.6 to 26.4 V d.c
Module supply Fuse	2.5A 20x5mm Time Delay	2.5A 20x5mm Time Delay
Input Characteristics		
On-state voltage	20 to 30 volts d.c	88 to 132 volts a.c, 45 to 64Hz
Off-state voltage	0 to 5 volts d.c	0 to 25 volts a.c
On state current	7mA typical	16mA typical
Off-state current	0.7mA maximum	3mA maximum
On response time	5mS	10mS
Off response time	7mS	15mS
Power Consumption (All inputs On)	-	-
Power Dissipation	-	-
Isolation	2500V between field side and logic side 1000v between CAN network and logic side	2500V between field side and logic side 1000v between CAN network and logic side
Mechanical Specification		
Dimensions & weight	Height: 286mm Width: 125mm Depth: 80mm Weight: 0.7kg	Height: 286mm Width: 125mm Depth: 80mm Weight: 0.7kg
Product Compliance		
Standards	This product complies with the essential safety requirements of the Low Voltage Directive (1), and the Electromagnetic Compatibility Directive (2). However, it is outside the scope of the Electromagnetic Directive, and the CE Marking and Declaration of Conformity requirements of the Directives applies only to the Low voltage directive (1) Low voltage Directive 73/23/EEC at 19 February 1973 amended by The CE Marking Directive 93/68/EEC of 22 July 1993 (2) Electromagnetic Compatibility Directive 589/336/EEC of 3 May 1989 amended by The Directive 92/31/EEC of 28 April 1992	
EMC Emissions	EN55011 – Conducted and Radiated "Industrial Scientific & Medical Equipment (Group 1, Class A)	
EMC Immunity	EN61000-4-2 Electrostatic Discharge 8KV Air, 4KV Contact IEC61000-4-3 RF Susceptibility 10V / m EN61000-4-4 Fast Transient Burst 2KV IEC61000-4-5 Surge Withstand • a.c supply – 1KV line to line – 2 KV line to earth • d.c supply – 0.5KV line to line – 0.5KV line to earth • I/O 1KV line to earth IEC61000-4-6 Conducted RF 10V	

Technical Information - Output Modules

Specifications	24V d.c , 0.5A, 16-way Output module	110V a.c, 1A, 16-way output module	8 In / 8 Out Combination Analogue Module	Relay, 3A, 16-way Output Module	
Part Number	9731-4012	9733-4012	9734-4012	9735-4012	
Description	GEMTEQ 16Ch O/P 24VDC 500mA	GEMTEQ 16Ch O/P 110VAC 1A	GEMTEQ Analogue I/O 8 I/P +8 O/P 0.20mA/+10v	GEMTEQ 16Ch Relay O/P 3A 250VAC	
Environmental					
Environmental	5% to 95% relative humidity, non-condensing				
Temperature:	Operating: 0°C to 50°C Storage -20°C to 70°C				
Atmospheric contamination:	For use in a non-corrosive atmosphere. Please enquire for conformally coated units at time of ordering				
Electrical Specification					
Rate voltage	24 volts d.c	110 volts a.c	110 volts a.c	-	
Module supply	24 volts d.c nominal, 300mA	24 volts d.c nominal, 300mA	24 volts d.c nominal, 400mA	24 volts d.c nominal, 300mA	
Module supply voltage range	±10%, 21.6 to 26.4 V d.c	±10%, 21.6 to 26.4 V d.c	±10%, 21.6 to 26.4 V d.c	±10%, 21.6 to 26.4 V d.c	
Module supply Fuse	2.5A 20x5mm Time Delay	2.5A 20x5mm Time Delay	2.5A 20x5mm Time Delay	2.5A 20x5mm Time Delay	
Output Characteristics					
Load Current	Up to 0.5A (total current all channels less than 6A)	Up to 0.5A (total current 5A per 8 channels)	-	3 A a.c, 3 A d.c	
Surge Current	1A for 10mS, 0.7A for 40mS	3A for 10mS, 1.5A for 40mS	-	Max Switchable load	150W, 1250VA
Leakage current for off state	0.1mA Max	6.4mA Max	-	Min switchable load	10mA at 5V
Voltage Drop for on state	1.4/2.1V at 1.0A	1.2 V at 0.5A typical	-	Contact Resistance	100m ohms Max
	-	-	-	Insulation Resistance at 500V d.c	Greater than 10 ⁹ ohms
(Typical maximum)	1.2/1.7V at 0.5A	-	-	-	-
On response Time	1mS	10mS	-	10mS	
Off response time	1mS	10mS	-	5mS	
Output protection	None	One fuse per group of 8 channels	-	No protection	
Power Consumption (All inputs On)					
Power Dissipation					
Isolation	2500V between field side and logic side 1000v between CAN network and logic side	4000V between field side and logic side 1000V between CAN network and logic side	No isolation between field side and logic. 1000V between CAN network and logic side	-	
Mechanical Specification					
Dimensions & weight	Height: 286mm Width: 125mm Depth: 80mm Weight: 0.7kg	Height: 286mm Width: 125mm Depth: 80mm Weight: 0.7kg	Height: 286mm Width: 125mm Depth: 80mm Weight: 0.7kg	-	
Product Compliance					
Standard	This product complies with the essential safety requirements of the Low Voltage Directive (1), and the Electromagnetic Compatibility Directive (2). However, it is outside the scope of the Electromagnetic Directive, and the CE Marking and Declaration of Conformity requirements of the Directives applies only to the Low voltage directive (3) Low voltage Directive 73/23/EEC at 19 February 1973 amended by The CE Marking Directive 93/68/EEC of 22 July 1993 (4) Electromagnetic Compatibility Directive 589/336/EEC of 3 May 1989 amended by The Directive 92/31/EEC of 28 April 1992				
EMC Emissions	EN55011 – Conducted and Radiated “Industrial Scientific & medical Equipment (Group 1, Glass A)				
EMC Immunity	EN61000-4-2 - Electrostatic Discharge 8KV Air, 4KV Contact, IEC61000-4-3 – RF Susceptibility 10V / m EN61000-4-4 - Fast Transient Burst 2KV IEC61000-4-5 - Surge Withstand a.c supply – 1KV line to line – 2 KV line to earth d.c supply – 0.5KV line to line – 0.5KV line to earth I/O – 1KV line to earth IEC61000-4-6 - Conducted RF 10V				

