amGardpro and tGard AS-interface

amGardpro and tGard AS-interface Frequently Asked Questions

How many addresses will my stack take up on the bus?
As many as you need! Fortress try to help their customers so even when we consolidate nodes into one module they will only be enabled if you need them, saving you addresses on your bus. This leaves the question of how many nodes are needed. The spreadsheet configurators will work this out for you but if you want to know the details for yourself:

Each safety function will take one address (e.g. if you have safety switches monitoring a head/keys/solenoid and an e-stop then this is two safety functions and will require two addresses).

Each I/O node (used for push buttons lamps etc.) will provide four outputs (e.g. lamps) and monitor four switches (push buttons use one switch, a three way selector switch uses two). Count up how many inputs and outputs are used (do not forget the monitor switches on the head and solenoid) if both inputs and outputs are under four, one I/O address will be used; if either is above four then two addresses will be needed.

Or just use the spreadsheet configurator!

My safety works fine but the I/O seems to flash in and out; what is wrong?
Your AS-i master is probably expecting different specification of node. Fortress nodes work to the latest specifications as standard to give you the greatest benefit from AS-i available (see question about AS-i specification for details). However, the AS-i master must be capable of meeting these specifications and set up to do so. If you need backward compatibility contact your supplier to see if Fortress can support you.

My old eGard stack works; why will my replacement tGard stack not?
eGard works to the latest AS-i specification, eGard was developed some time back and works to specification that was current at that time. This means your new stack offers you the maximum benefits from AS-i. However, your AS-i master must be able to cope with this specification and be set-up to expect it. If your master does not support this, we can supply you nodes configured to the old specification but you do have to order this up front. Speak to your supplier for further details.

Why can I not see as many nodes as I expect?
Chances are that are that all the nodes are working fine but they have been given the same address. The nodes with the same address will fight on the bus and give odd results that are really difficult to interpret. This can be recovered but you are probably going to have to take the back/ld off the unit, give your supplier a call or email and we can let you know how to sort it out.

Why will my safety monitor not reset; my new safety node is addressed the same as the old one?
You need to teach the safety monitor the new safety codes. If you care why; AS-i Safety at Work uses the same bus as standard AS-i; this is very convenient for the user but a few things have to be taken into consideration. One of those things is masquerading; not a type of ball but the situation where a fault on one node makes it respond like it is another. Normally this is annoying but if it is safety and a node indicates the machine can start when it should not this can be fatal. To overcome this all safety nodes respond with a rolling pattern of eight different codes; this ‘code table’ is unique to every safety node ever produced. This makes the chance of masquerading really low but you do have to let your safety monitor know to expect different codes when you change the node.
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**amGardpro and tGard AS-interface Frequently Asked Questions cont’d**

**Why will the solenoid not engage but everything else seems to work fine?**
The ‘AUX’ supply is probably not connected correctly. AS-I combines power and data on a single pair (generally the odd looking yellow cable). However, it cannot provide huge amounts of power in this way, and as solenoids are power hungry little devices, we split them off on to their own supply (known as the AUX supply connected to pins two and four of the M12 connector). If this supply is not connected correctly they will not work.

**What are all the different AS-I specifications about?**
The first AS-I specification was released in 1994 and turned out to be really popular as it offered really good technical features for communicating switches and sensors. As machine complexity increased, more sensors and switches were required, so AS-I responded with version 2.11 in 1998; doubling the number of nodes available on a bus but reducing the number of outputs from four to three. In 2005 Version 3.0 was released reinstating the fourth output and offering even more data transfer (although at the cost of reduced response times). Fortress nodes all work to the latest specification to offer you the maximum benefit from AS-I. However, if you need to work with older systems contact us to see if we can help.

**Why do I need an AUX supply when the AS-I bus provided power and data?**
AS-I combines power and data on a single pair (generally the odd looking yellow cable). However, it cannot provide huge amounts of power in this way, and as solenoids are power hungry little devices, we split them off on to their own supply (known as the AUX supply connected to pins two and four of the M12 connector). If your unit does not have a solenoid then the AUX supply is probably not needed on that unit.

**What profiles will my AS-I nodes have?**
Whether amGard or tGard, the same profiles are used:

<table>
<thead>
<tr>
<th>I/O</th>
<th>ID</th>
<th>ID1</th>
<th>ID2</th>
</tr>
</thead>
<tbody>
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<td>7</td>
<td>B</td>
<td>-</td>
</tr>
<tr>
<td>I/O</td>
<td>7</td>
<td>A</td>
<td>7</td>
</tr>
</tbody>
</table>

**Why should I use AS-I?**
You should only use AS-I if it helps you. Fortress offer modular products that allow customisation as standard. Your communication from our product can be leading edge Ethernet based Profisafe or it can be tried and tested hardwired, clean contacts; we offer a range of communication protocols to suit customer requirements. Where the benefits of data commination buses (reduced wiring and maintenance costs) seem good but do not justify the capital and training overhead of an Ethernet based approach, AS-I may offer you the appropriate compromise; see http://www.as-interface.net for details. Whatever your preference for site infrastructure Fortress will have a product to support you.