



Exploration & Production

GENERAL SPECIFICATION

INSTRUMENTATION

GS INS 195

**Voting Logic
standard function
-2ooN -**

00	11/03	Fist issue
Rev.	Date	Notes



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1. Scope

The purpose of this document is to define the Standard Function for Voting logic (2ooN).

In order to assist in understanding, this document should be read in conjunction with **GS INS 150**, Design Methods for System Configuration Standard Functions

This standard is generally used in relationship with F&G detectors and AIS standards; it may also be applied to voting logic of DI_AL.

The outputs from the of 2ooN standard are usually processed by the Safety bar standard.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

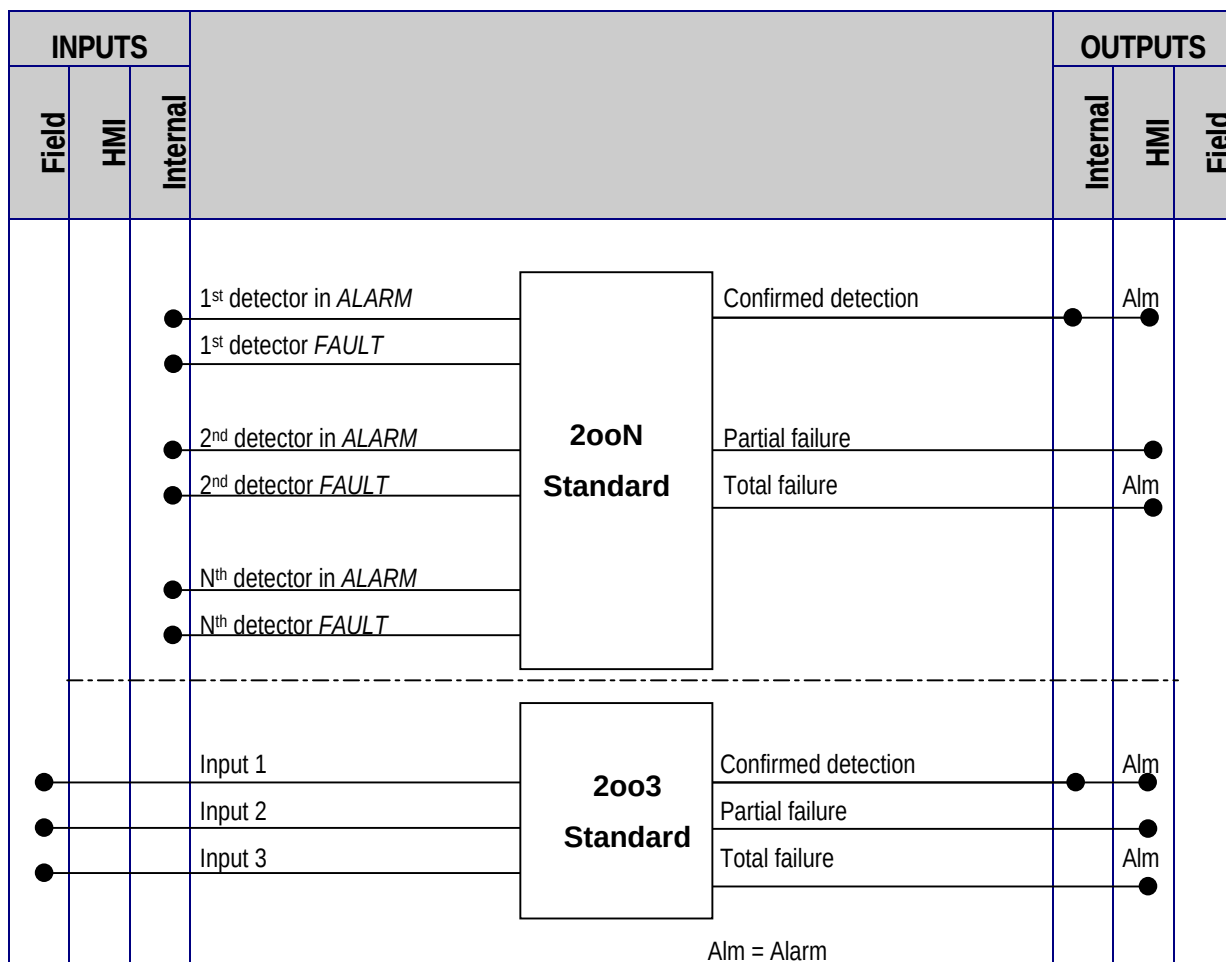
Reference	Title
GS INS 150	Design Method for System Configuration Standard Functions

3. General description of functions

3.1 List of main functions

- Confirmed detection
- Fault status

4. Interface description



5. Detailed description of functions

5.1 Internal data calculation rules

Internal data	Calculation rules	Status
Confirmed detection	2ooN detectors in <i>ALARM</i> or N -1 detectors in <i>FAULT</i> and the last in <i>ALARM</i> or all detectors in <i>FAULT</i>	<i>ACTIVE</i>
Partial failure (only for operator alarming)	1ooN detectors in <i>FAULT</i>	<i>ACTIVE</i>
Total failure	All detectors in <i>FAULT</i>	<i>ACTIVE</i>

6. Representation and animation description (HMI)

6.1 Events to be recorded

- Confirmed detection
- Total failure
- Individual input in alarm (only when voting logic used with digital inputs)

6.2 Alarm handling

Alarm Description	Priority
Confirmed detection	Level 3
Total failure alarm	Level 3
Individual input in alarm	Level 3

6.3 Specific animation description

6.3.1 Animation on safety displays

Tag names will be as following :

- Confirmed gas detection → GSH xxxx (first level), GSHH xxxx (second level),
- Confirmed fire detection → RSHH xxxx (smoke), RHHH xxxx (heat),
- Safety threshold detection (AIS) → PSHH xxxx (pressure),...

Internal data	Display	Text (safety bar input)	Frame
Confirmed detection = <i>INACTIVE</i>	Tag	Blue steady	NA
Confirmed detection = <i>ACTIVE</i> Alarm unacknowledged		Red flashing	NA
Confirmed detection = <i>ACTIVE</i> Alarm acknowledged	Tag	Red steady	NA
Partial failure= <i>ACTIVE</i>		as above	Red steady (internal frame)
Total failure= <i>ACTIVE</i>		as above	(internal frame) Red flashing before acknowledgement Red steady after acknowledgement
Communication fault = <i>ACTIVE</i>		Blue	Magenta (external frame)

6.3.2 Example of using in F&G safety matrix (for information)

(As per fire extinguishing system Standard Function)

Protected room name		Inert gas extinguishing system	
		HMI RELEASE	MAN
			LOCAL RELEASE
		Inert gas RELEASED	