SIA® FIRE FIGHTING SYSTEMS
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INTRINSICALLY SAFE CIRCUIT CALCULATION

SIA JOB No.: C24032

PROJECT REFERENCE: PSC ENGINEERING S.p.A. - FIRE & GAS DETECTION SYSTEM FOR ELECTRICAL CONTAINER

DEVICE COVERED BY THE CALCULATION: I.S. SMOKE DETECTORS 50-AT-021A / 50-AT-021B / 50-AT-021C

CABLE ELECTRICAL CHARACTERISTICS:

Manufacturer: **SPINA / EUROCAVI**

Cable Type: **MGT/XLPE/OS/LSZH/SWA/LSZH**

Cross Section: **2 x 1,5 sqmm.**

Lenght: **10 mt. (Maximum length)**

Cable Capacitance Cc	**< 150 nF /Km**
Cable Inductance Lc	**< 1 mH/Km**

SAFETY BARRIER CHARACTERISTICS:

Manufacturer: **PEPPERL+FUCHS**

Model: **KFD0-CS-Ex2.51P**

Output Voltage Uo	**25.2 V**
Output Current Io	**93 mA**
Output Power Po	**585 mW**
External Capacitance Co	**0.107 µF**
External Capacitance Lo	**4.3 mH**

FIELD DEVICE CHARACTERISTICS:

Manufacturer: **HOCHIKI EUROPE**

Model: **SOC-E-IS**

Input Voltage Ui	**30 V**
Input Current Ii	**100 mA**
Input Power Pi	**750 mW**
Inernal Capacitance Ci	**0**
Internal Inductance Li	**0**

Intrinsically Safe Requirements	**Uo<=Ui** **Io<=Ii** **Po<=Pi** **Lo>=Li+Lc** **Co>=Ci+Cc**

CONCLUSION: BASED ON THE ABOVE DATA THE REQUIREMENTS FOR I.S. CIRCUITS ARE SATISFIED.

NOTES: THE ABOVE MENTIONED DETECTORS ARE INSTALLED IN THE SAME ROOM OF THE FIRE CONTROL PANEL (NOT INTRINSICALLY SAFE).