



<b>DO NOT SCALE DRAWING</b>		
TOLERANCES (UNLESS NOTED)	DRAWN	H. ELSAYED 4/06
DECIMALS = ±.1 / 2.54	CHECKED	C. MATHEWS 4/06
.X = ±.01 / 0.25	ENGINEER	G. ELIAS 4/06
.XXX = ±.005 / 0.125	SCALE	N/A
HOLES = ±.005 / 0.080		
ANGLES = ±1/2°		

CATEGORY	<b>SPEC. CONTROL</b>
TITLE	ROUTE MASTER: RM100 & RMA100 SERIES cFMus INTRINSICALLY SAFE FIELD BUS SYSTEM

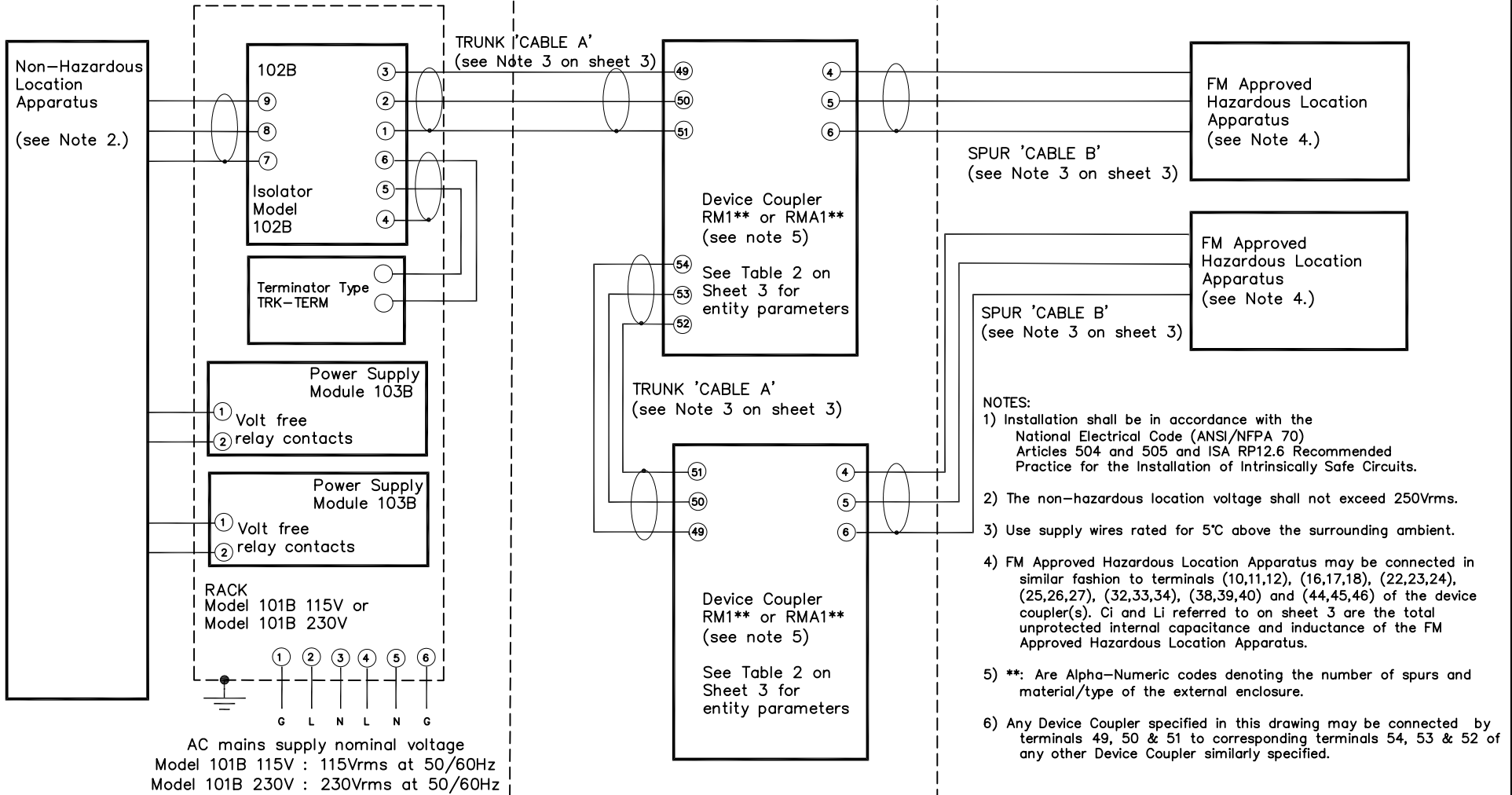
DRAWING NUMBER	HCGFB-902 SHEET 1 OF 3			REVISION	<b>B</b>
REVISED BY	ECO 14527	DATE	6/06	BY	GE
				APPROVAL	CP
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NON-HAZARDOUS LOCATION

HAZARDOUS 'CLASSIFIED' LOCATIONS

CLASS I DIVISION 1 GROUPS C & D

CLASS I DIVISION 1 GROUPS A, B, C, D





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TOLERANCES  
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.XX = ±.01 /0.25  
.XXX = ±.005 /0.125  
HOLES = ±.003 /0.080  
ANGLES = ±1/2'

DRAWN SEE SHEET 1  
CHECKED SEE SHEET 1  
ENGINEER SEE SHEET 1  
SCALE N/A

CATEGORY

**SPEC. CONTROL**

TITLE

ROUTE MASTER:  
RM100 & RMA100 SERIES  
cFMus INTRINSICALLY  
SAFE FIELD BUS SYSTEM

DRAWING NUMBER

HCGFB-902 SHEET 2 OF 3

REVISION

**B**

REVISED BY

SEE SHEET 1

DATE

BY

APPROVAL

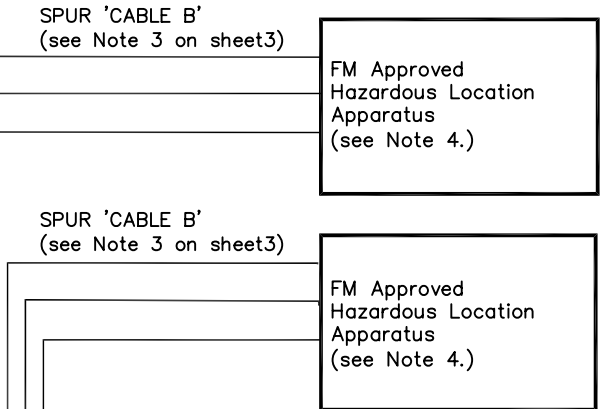
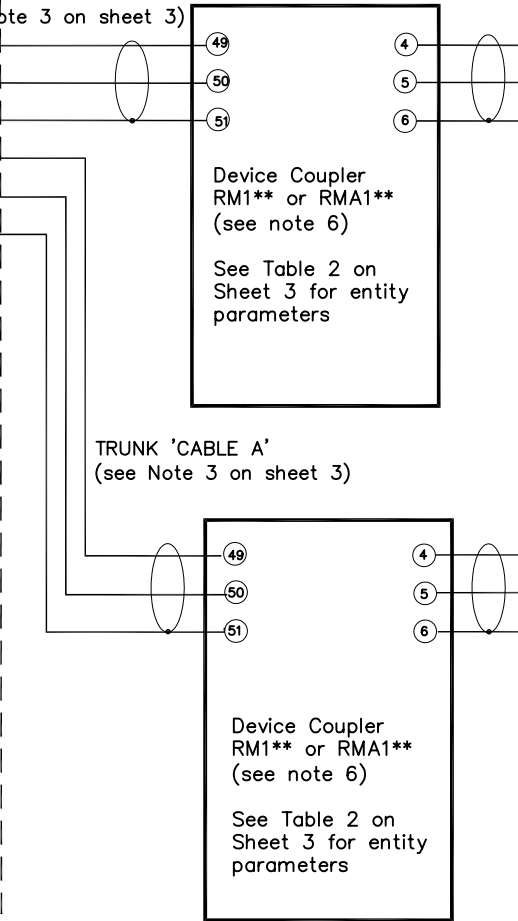
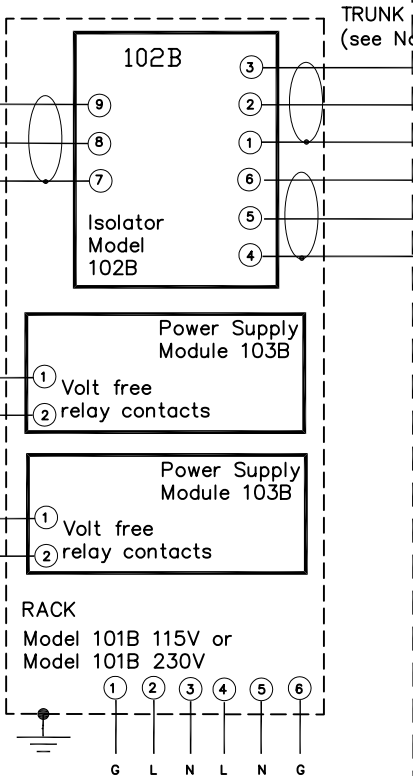
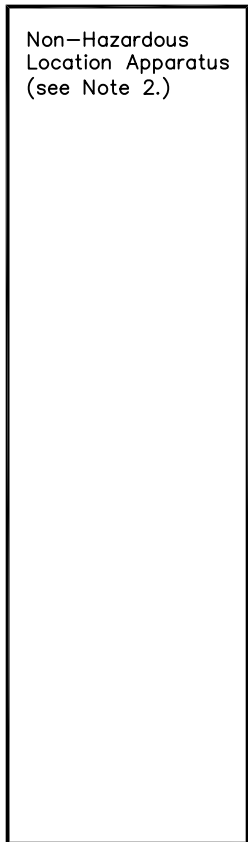
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NON-HAZARDOUS LOCATION

HAZARDOUS 'CLASSIFIED' LOCATIONS

CLASS I DIVISION 1 GROUPS C & D

CLASS I DIVISION 1 GROUPS A, B, C, D



- NOTES:
- 1) Installation shall be in accordance with the National Electrical Code (ANSI/NFPA 70) Articles 504 and 505 and ISA RP12.6 Recommended Practice for the Installation of Intrinsically Safe Circuits.
  - 2) The non-hazardous location voltage shall not exceed 250Vrms.
  - 3) Use supply wires rated for 5°C above the surrounding ambient.
  - 4) FM Approved Hazardous Location Apparatus may be connected in similar fashion to terminals (10,11,12), (16,17,18), (22,23,24), (25,26,27), (32,33,34), (38,39,40) and (44,45,46) of the device coupler(s). Ci and Li referred to on sheet 3 are the total unprotected internal capacitance and inductance of the FM Approved Hazardous Location Equipment.
  - 5) Any Device Coupler specified in this drawing may be connected by terminals 49, 50 & 51 to corresponding terminals 54, 53 & 52 of any other Device Coupler similarly specified.
  - 6) \*\*: Are Alpha-Numeric codes denoting the number of spurs and material/type of the external enclosure.



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DRAWN SEE SHEET 1  
CHECKED SEE SHEET 1  
ENGINEER SEE SHEET 1  
SCALE

CATEGORY

**SPEC. CONTROL**

TITLE  
ROUTE MASTER:  
RM100 & RMA100 SERIES  
cFMus INTRINSICALLY  
SAFE FIELDBUS SYSTEM

DRAWING NUMBER

HCGFB-902 SHEET 3 OF 3

REVISION

**B**

REVISED BY  
**SEE SHEET 1**  
DATE BY APPROVAL

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# Entity Parameters

Table 1

LINEAR POWER SUPPLY MODULE 103B CN3 CONNECTIONS 1 AND 2	
PARAMETER	RATING
Um	250 V rms

Table 2

DEVICE COUPLER RM114, RM118, RM118DIN, RM124 AND RM128 OUTPUT PARAMETERS: TERMINALS 4, 5 AND 6 AND ALL OTHERS MARKED 'DEVICE'

PARAMETER	VALUE
Voc	18.9 V
Isc	249.3 mA
Pmax	1.15 W
Ca	See Table 5
La	See Table 3 or 4

DEVICE COUPLER RMA100 OUTPUT PARAMETERS

PARAMETER	VALUE
Voc	18.9 V
Isc	249.81 mA
Pmax	1.18 W
Ca	See Table 5
La	See Table 3 or 4

Table 3

Total maximum allowable Inductance 'La'		
Cable A Group	Cable B Group	La (mH)
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP A, B, C, D	0.15
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP C, D	0.206
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP D	0.206
CL I DIV 1 GROUP D	CL I DIV 1 GROUP A, B, C, D	0.15
CL I DIV 1 GROUP D	CL I DIV 1 GROUP C, D	0.412
CL I DIV 1 GROUP D	CL I DIV 1 GROUP D	0.412

Table 4

Maximum Inductance to Resistance Ratio 'Lo/Ro'		
Cable A Group	Cable B Group	Lo/Ro (µH/ohms)
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP A, B, C, D	30
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP C, D	36
CL I DIV 1 GROUP C, D	CL I DIV 1 GROUP D	36
CL I DIV 1 GROUP D	CL I DIV 1 GROUP A, B, C, D	30
CL I DIV 1 GROUP D	CL I DIV 1 GROUP C, D	72
CL I DIV 1 GROUP D	CL I DIV 1 GROUP D	72

**NOTES:**

- For interconnection of apparatus using the Entity Concept, use the appropriate parameters to ensure the following:  
 $Voc \leq Vmax$      $Isc \leq Imax$      $Pmax \leq Pi$   
 $C_i + C_{CableB} \leq C_a$  & either  $[L_i + L_{Cable(A+B)} \leq L_a]$  or  $[L/R_{Cable} \leq L_o/R_{oCable}]$
- Note 1 applies to each connected device via terminals 4, 5 & 6, 10, 11 & 12, 16, 17 & 18, 22, 23 & 24, 25, 26 & 27, 32, 33 & 34, 38, 39 & 40, 44, 45 & 46
- The cable from Isolator to Device Coupler is "Cable A". The Cable from Device Coupler to Device is "Cable B". See Sheets 1 and 2 for cables A and B.
- The maximum capacitance of cable A shall not exceed the value in Table 5. The maximum capacitance of Cable B plus the Ci of the FM Approved Apparatus shall not exceed the value Ca in Table 5. The sum of the inductances of cable A and cable B plus the Li of FM Approved apparatus shall not exceed the La value in Table 3. The maximum inductance to resistance ratio Lo/Ro in Table 4 applies to each cable.

Table 5

Maximum Allowable Capacitance		
Group	Capacitance of Cable A	Ca (see sheets 1 & 2 note 4)
CL I DIV 1 GROUP A, B, C, D	N/A	262 nF
CL I DIV 1 GROUP C, D	1.6 µF	1.6 µF
CL I DIV 1 GROUP D	6.39 µF	6.39 µF

**WARNING:**

Substitution of components is not allowed as it may impair the system's Intrinsically Safe and/or Non-Incendive circuit.

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing. Also, read, understand and adhere to the manufacturer's live maintenance procedures.

**Certified Product**

This is a controlled 'Related' or 'Schedule' drawing. No modifications are permitted without the notification and final approval of the Certification Engineer (related dwgs.) or the Certifying Agency (schedule dwgs.)