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AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

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Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing & Certification Ltd, Cleeve Road, Leatherhead KT22 7SA, UK

Control Number: *4008610* **Authorized by:** _____
for Dean Davidson, Certification Manager

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This document supersedes all previous Authorizations to Mark for the noted Report Number.

Intertek Testing Services NA Inc.
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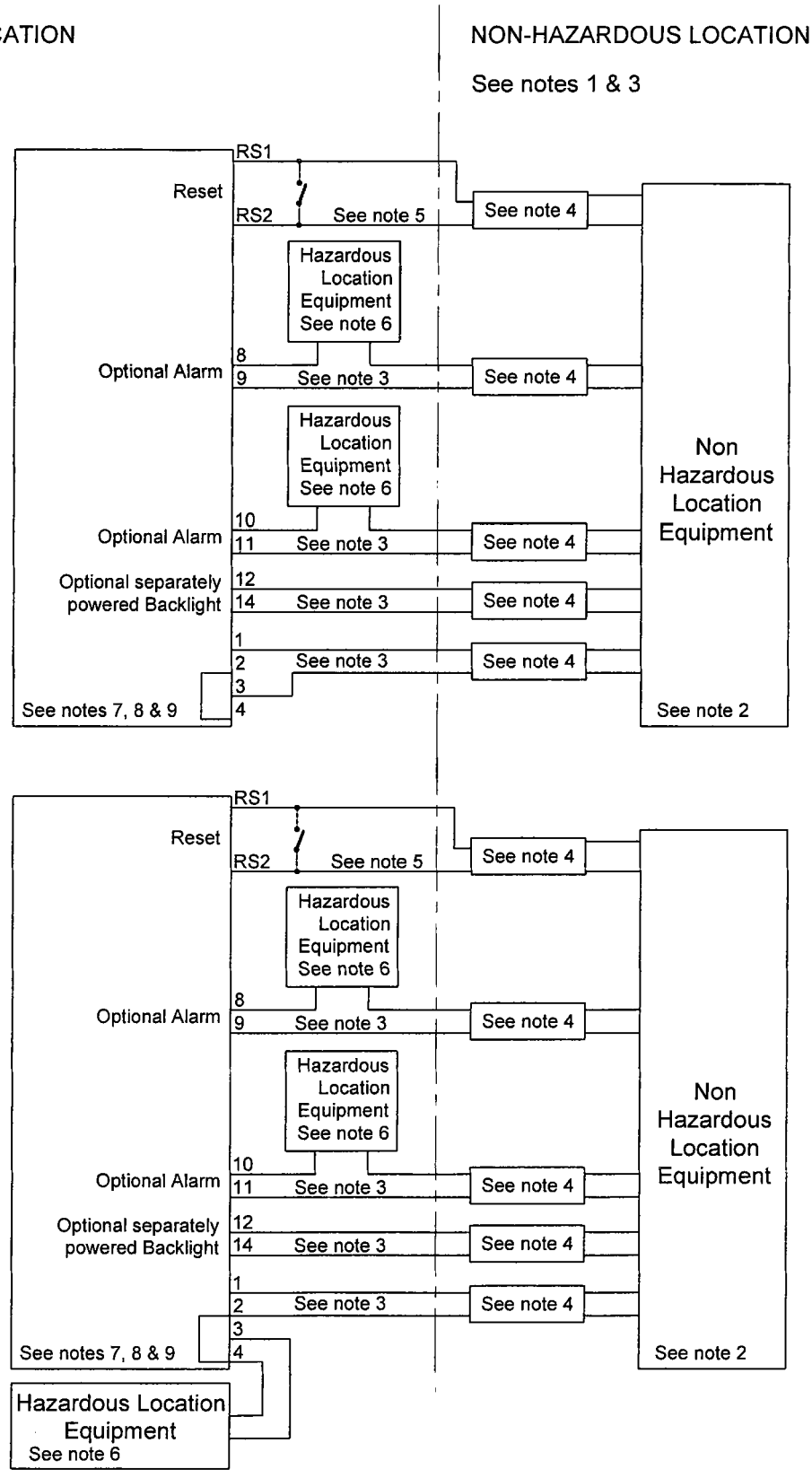
Standard(s):	UL 60079-0 Issued: 2013/07/26 Ed: 6 Explosive Atmospheres - Part 0: Equipment - General Requirements Explosive Atmospheres - Part 11: Equipment Protection By Intrinsic Safety 'i' [UL 60079-11:2013 Ed.6 +R:28Mar2014] Explosive Atmospheres - Part 15: Equipment Protection By Type Of Protection 'N' [UL 60079-15:2013 Ed.4 +R:02Aug2013] Explosive Atmospheres - Part 31: Equipment Dust Ignition Protection By Enclosure "T" [UL 60079-31:2015 Ed.2] Explosive Atmospheres - Part 0: Equipment - General Requirements [CSA C22.2#60079-0:2015 Ed.3] Explosive Atmospheres - Part 11: Equipment Protection By Intrinsic Safety "i" [CSA C22.2#60079-11:2014 Ed.2] Explosive Atmospheres — Part 15: Equipment Protection By Type Of Protection "N" [CSA C22.2#60079-15:2016 Ed.2] Explosive Atmospheres - Part 31: Equipment Dust Ignition Protection By Enclosure "T" [CSA C22.2#60079-31:2015 Ed.2] Nonincendive Electrical Equipment For Use In Class I And II, Division 2 And Class III, Divisions 1 And 2 Hazardous (Classified) Locations [ISA 12.12.01:2015 Ed.6] Enclosures For Use In Class Ii, Division 1, Groups E, F, And G Hazardous Locations [CSA C22.2#25:2017 Ed.4] Nonincendive Electrical Equipment For Use In Class I And II, Division 2 And Class III, Divisions 1 And 2 Hazardous (Classified) Locations [CSA C22.2#213:2016 Ed.2] Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use – Part 1: General Requirements [UL 61010-1:2012 Ed.3+R:29Apr2016] Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use – Part 1: General Requirements (R2017) [CSA C22.2#61010-1-12:2012 Ed.3+U1;U2]
Product:	4 and 5 Digit Loop Powered Indicators and Loop Powered Rate Totaliser for use in: Class I Division 1 Groups A B C D T5 -40°C ≤ Ta ≤ +70°C Class II Division 1 Groups E F G -40°C ≤ Ta ≤ +60°C Class III Division 1 -40°C ≤ Ta ≤ +60°C Class I Zone 0 AEx ia IIC T5 Ga -40°C ≤ Ta ≤ +70°C Zone 20 AEx ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C Ex ia IIC T5 Ga -40°C ≤ Ta ≤ +70°C Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C Class I Zone 2 Ex nA ic IIC T5 Gc -40°C ≤ Ta ≤ +60°C Zone 22 AEx ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C Ex nA ic IIC T5 Gc, Ex n IIC T5 Gc -40°C ≤ Ta ≤ +60°C Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C and Class I Division 2 Groups A B C D T5 Class II Division 2 Groups F G Class III Division 2 -40°C ≤ Ta ≤ +70°C
Brand Name:	BEKA
Models:	BA304G, BA324G, BA354G, BA304NG, BA324NG, BA354NG, BA307NE and BA327NE

BEKA associates Hitchin England

Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

LOOP POWERED INDICATORS AND TOTALISER WITH SEPARATELY POWERED BACKLIGHT



Title

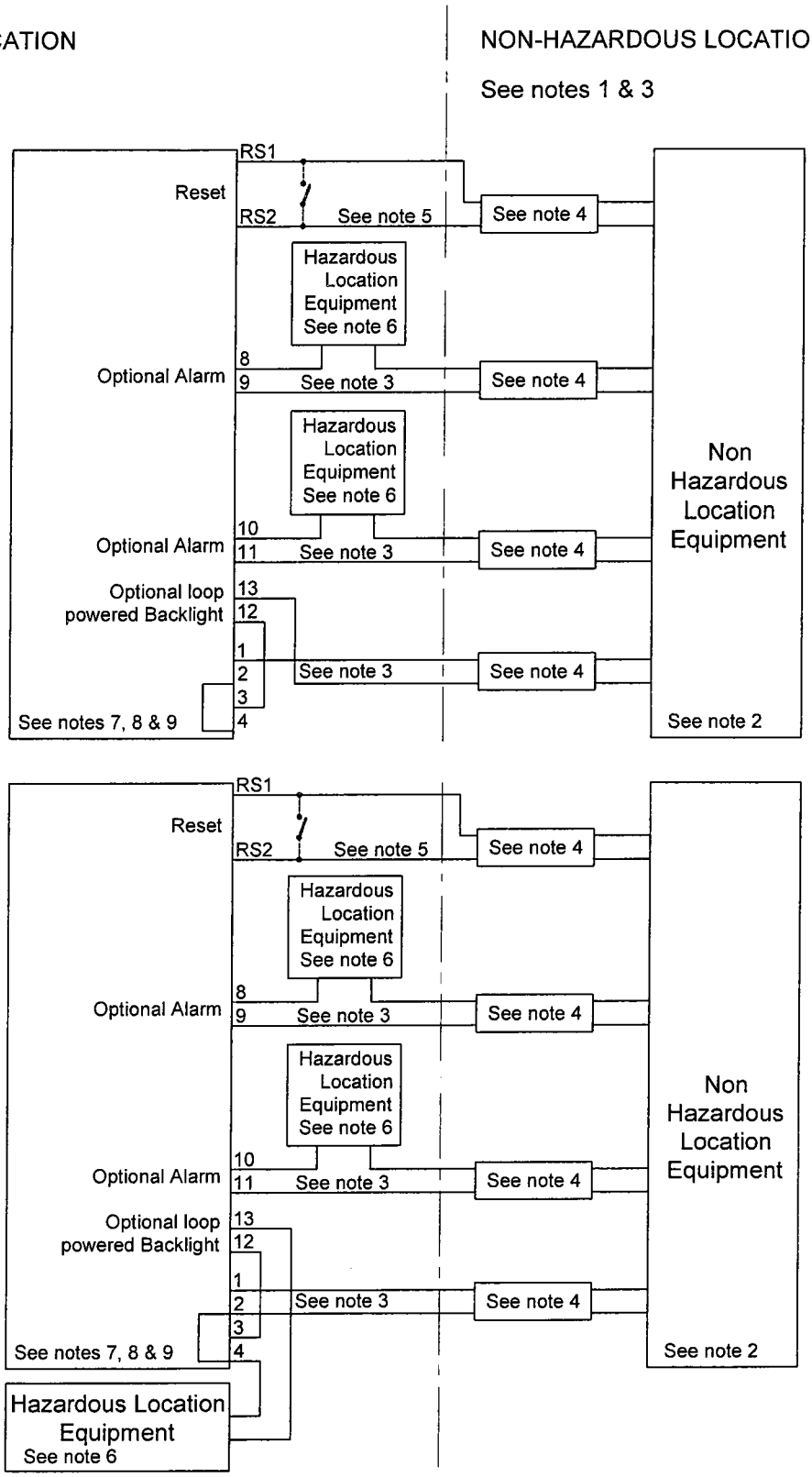
ETL Intrinsically Safe Control Drawing for
BA304G, BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISER

Drawn	Checked	Scale
SQ	QL	–

Drawing No. CI300–83
Sheet 1 of 5

File No 300–83s1.dwg 04.05.17

LOOP POWERED INDICATORS AND TOTALISER WITH LOOP POWERED BACKLIGHT



Iss.	Date	Modification	Ckd.	Appd.

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Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

Title

ETL Intrinsically Safe Control Drawing for
BA304G, BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISER

Drawn	Checked	Scale
SQ	OL	–

Drawing No. CI300–83
Sheet 2

File No 300–83s2.dwg 04.05.17

Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

Notes

1. The associated protective barriers and galvanic isolators shall be NRTL approved and the manufacturers instructions shall be followed when installing this equipment.
   For installations in Canada the associated protective barriers and galvanic isolators shall be NRTL or CSA approved and the manufacturers installation drawings shall be followed when installing this equipment.

2. The unclassified location equipment shall not use or generate more than 250V rms or 250V dc.

3. Installations shall be in accordance with ANSI/ISA RP 12.06.01 'Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations' and the National Electrical Code ANSI/NFPA 70. Installations in Canada shall be in accordance with the Canadian Electrical Code C22.2.

4. One single channel or one two channel associated protective barrier or galvanic isolator with entity parameters complying with the following requirements:

Uo	equal or less than	The lowest Ui of the NRTL or CSA approved apparatus installed in the loop.
Io	equal or less than	The lowest Ii of the NRTL or CSA approved apparatus installed in the loop.
Po	equal or less than	The lowest Pi of the NRTL or CSA approved apparatus installed in the loop.
Lo	equal or greater than	The sum of the cable inductances and the internal inductances Li of each NRTL or CSA approved apparatus in the loop.
Co	equal or greater than	The sum of the cable capacitance and the internal capacitance Ci of each NRTL or CSA approved apparatus in the loop.

5. Reset terminals RS1 and RS2 are only fitted to BA354G Rate Totaliser.
   They may be connected to one single channel or one two channel associated protective barrier or galvanic isolator as defined in note 4 And / or to a single pole switch complying with requirements for simple apparatus as defined in the National Electrical Code ANSI/NFPA 70, or for installations in Canada by the Canadian Electrical Code C22.2.

Title: ETL Intrinsically Safe Control Drawing for BA304G, BA324G LOOP POWERED INDICATORS BA354G LOOP POWERED RATE TOTALISER

Drawn	Checked	Scale
SQ	QL	–

Drawing No. CI300–83
Sheet 3

File No 300–83s3.dwg 29.11.16

Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

6. Simple Apparatus as defined in the National Electrical Code ANSI/NFPA 70, or for installations in Canada by the Canadian Electrical Code C22.2 OR:

Ui	equal or greater than	The highest Uo of the NRTL or CSA approved apparatus powering the loop.
Ii	equal or greater than	The highest Io of the NRTL or CSA approved apparatus powering the loop.
Pi	equal or greater than	The highest Po of the NRTL or CSA approved apparatus powering the loop.
Lo	of the NRTL or CSA approved apparatus powering the loop equal or greater than	The sum of the cable inductances and the internal inductances Li of each NRTL or CSA approved apparatus in the loop.
Co	of the NRTL or CSA approved apparatus powering the loop equal or greater than	The sum of the cable capacitances and the internal capacitances Ci of each NRTL or CSA approved apparatus in the loop.

7. Loop powered indicators and loop powered rate totalisers with coding and model numbers as shown in the table below.

'G' FIELD MOUNTING INSTRUMENTS

Type	Model Nos.	Division Marking	Zonal Marking	Ambient Temp.
Loop powered indicators Loop powered rate totaliser	BA304G BA324G BA354G	Gas: Class I Division 1 Groups A, B, C & D T5	Gas: Class I Zone 0 AEx ia IIC T5 Ga	−40°C to +70°C
		Dust: Class II Division 1 Groups E, F & G Class III Division 1	Dust: Zone 20 AEx ia IIIC T80°C Da	−40°C to +60°C

8. **CAUTION** The BA304G and BA324G Indicators and the BA354G Rate Totaliser enclosures are manufactured from conducting plastic per Article 250 of the National Electrical Code.

Title: ETL Intrinsically Safe Control Drawing for BA304G, BA324G LOOP POWERED INDICATORS BA354G LOOP POWERED RATE TOTALISER

Drawn	Checked	Scale
SQ	OL	–

Drawing No. CI300–83
Sheet 4

File No 300–83s4.dwg 04.05.17

9. Safety parameters

4/20mA input terminals 1, 2, 3 & 4

Ui	=	30V
Ii	=	200mA
Pi	=	0.84W
Uo	=	1.1V
Io	=	3mA
Po	=	4.5mW
Ci	=	5.4nF
Li	=	0.016mH
Co	=	60.6nF
Lo	=	0.78mH

4/20mA input terminals 1, 2, 3, 4, 12 & 13 & loop powered backlight.

Ui	=	30V
Ii	=	200mA
Pi	=	0.84W
Uo	=	1.1V
Io	=	3mA
Po	=	4.5mW
Ci	=	5.4nF
Li	=	0.016mH
Co	=	60.6nF
Lo	=	0.78mH

Separately powered backlight terminals 12 & 14.

Ui	=	30V
Ii	=	200mA
Pi	=	0.84W
Ci	=	3.3nF
Li	=	0.008mH
Co	=	63nF
Lo	=	0.79mH

Alarm terminals 8, 9, 10 and 11

Ui	=	30V
Ii	=	200mA
Pi	=	0.84W
Uo	=	1.47V
Io	=	1.0µA
Po	=	2.2µW
Ci	=	0nF
Li	=	0.008mH
Co	=	66nF
Lo	=	0.79mH

Reset terminals RS1 & RS2
BA354G rate totaliser only.

Ui	=	30V
Ii	=	200mA
Pi	=	0.84W
Uo	=	6V
Io	=	2.5mA
Po	=	3.8mW
Ci	=	0nF
Li	=	0.008mH
Co	=	66nF
Lo	=	0.79mH

Iss.	Date	Modification	Ckd.	Appd.
1	29.11.2016	New drawing	QL	

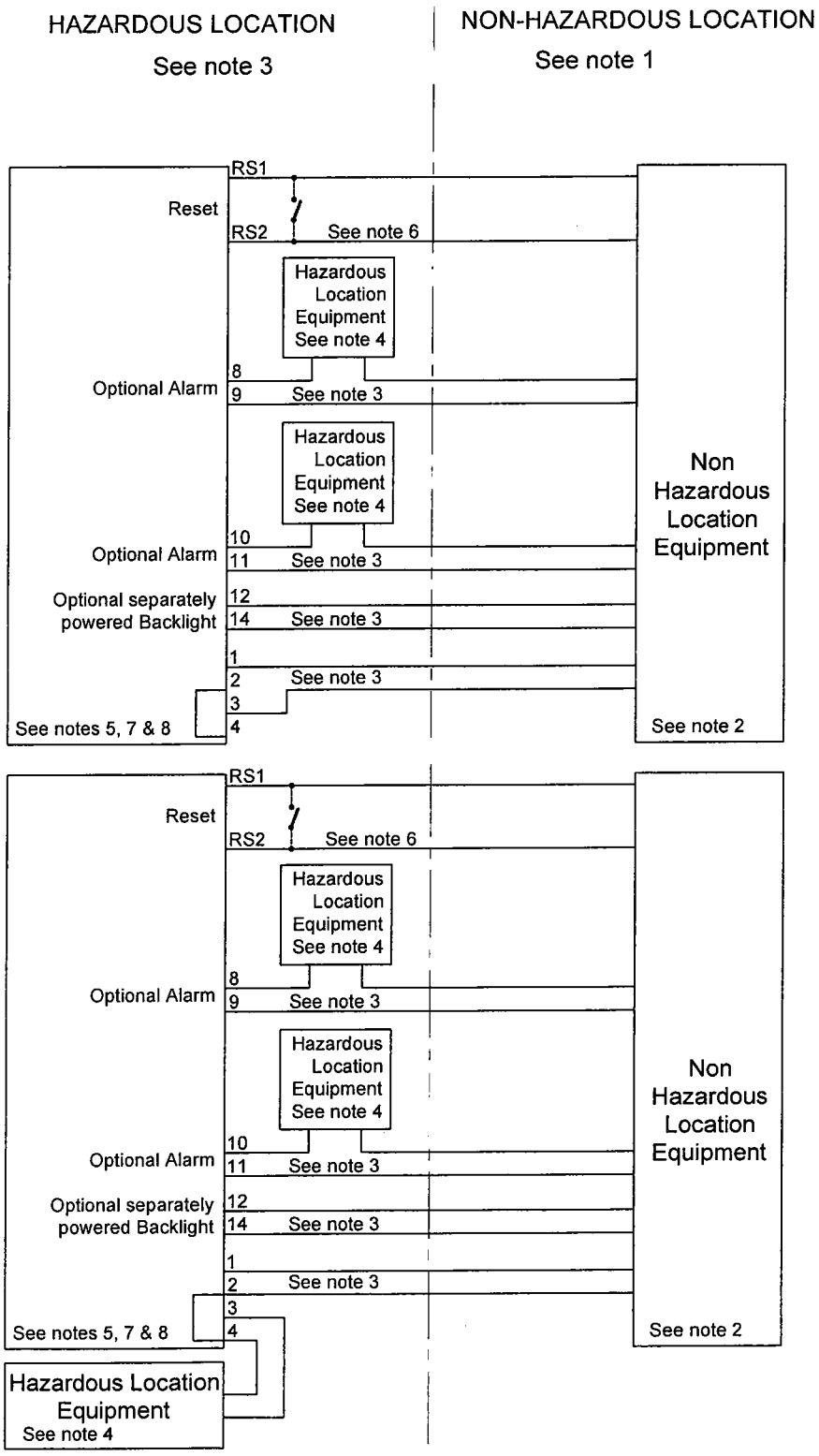
Title: ETL Intrinsically Safe Control Drawing for BA304G, BA324G LOOP POWERED INDICATORS BA354G LOOP POWERED RATE TOTALISER

Drawn	Checked	Scale
SQ	QL	–

Drawing No. Sheet 5: CI300–83

File No 300–83s5.dwg 04.05.17

LOOP POWERED INDICATORS & TOTALISERS WITH SEPARATELY POWERED BACKLIGHT



Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

Title

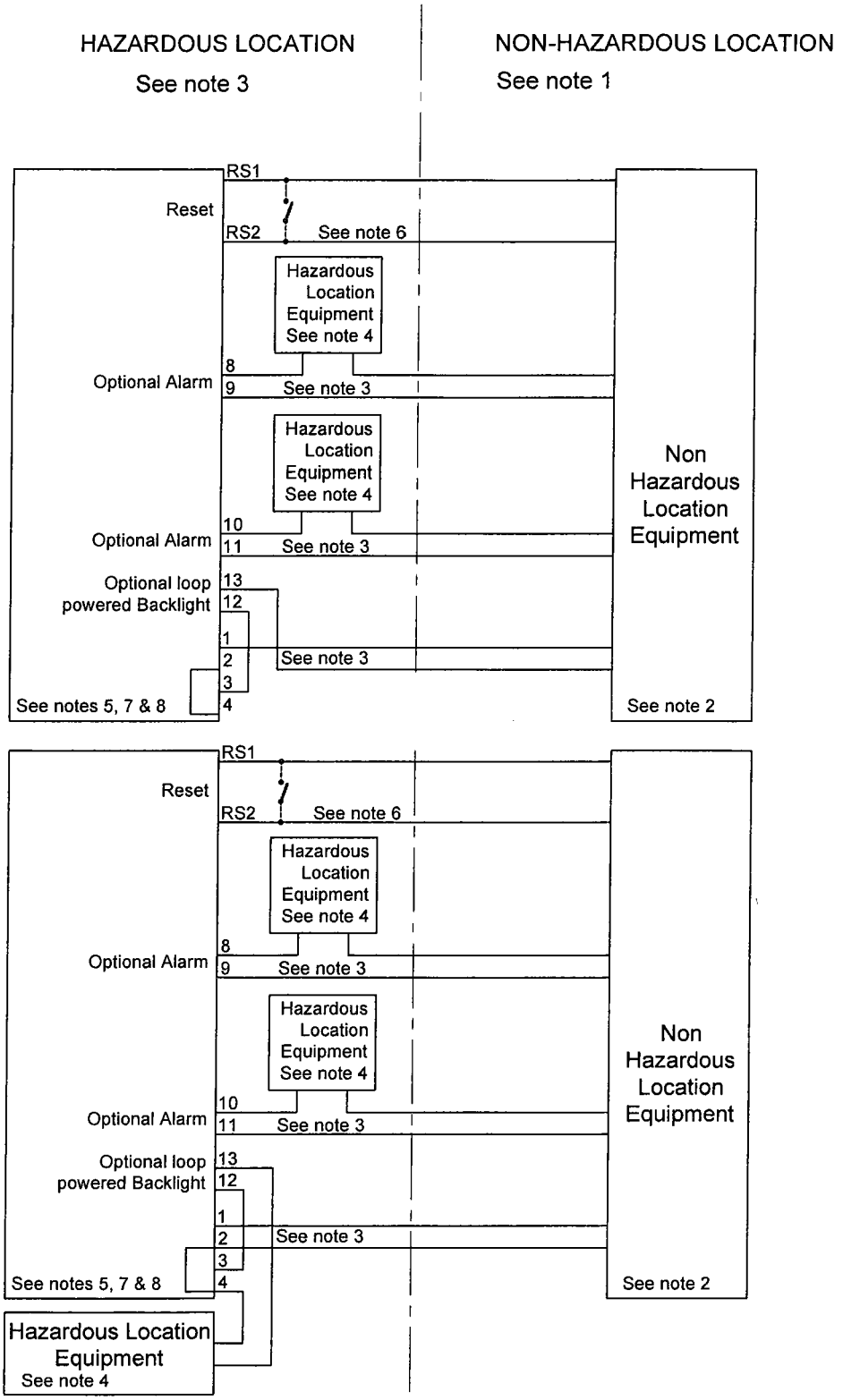
ETL Nonincendive Control Drawing for
BA304G and BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISERS

Drawn	Checked	Scale
SQ	OL	–

Drawing No. CI300–84
Sheet 1 of 4

File No 300–84s1.dwg 04.05.17

LOOP POWERED INDICATORS AND TOTALISERS WITH LOOP POWERED BACKLIGHT



Iss.	Date	Modification	Appd.	Ckd.

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Iss.	Date	Modification	Appd.	Ckd.
1	29.11 2016	New drawing		

Title

ETL Nonincendive Control Drawing for
BA304G and BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISERS

Drawn	Checked	Scale
SQ	QL	–

Drawing No. CI300–84
Sheet 2

File No 300–84s2.dwg 04.05.17

Iss.	Date	Modification	Ckd.	Appd.

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Notes

1. The unclassified location equipment shall not use or generate more than 250V rms or 250V dc.

2. Nonincendive field wiring installations shall be in accordance with the National Electrical Code ANSI/NFPA 70. The Nonincendive Field Wiring concept allows interconnection of Nonincendive Field Wiring Apparatus with Associated Nonincendive Field Wiring Apparatus using any of the wiring methods permitted for unclasified locations. Installations in Canada shall be in accordance with the Canadian Electrical Code C22.2.

3. Classified location equipment shall be NRTL Approved Nonincendive Field Wiring Apparatus or simple apparatus as defined in ANSI/NFPA70. For Canadian installations classified location equipment shall be NRTL or CSA Approved Nonincendive Field Wiring Apparatus.

4. Simple Apparatus as defined in the National Electrical Code ANSI/NFPA 70, or for installations in Canada by the Canadian Electrical Code C22.2 or as defined in note 3.

5. Loop powered indicators and loop powered rate totalisers with model numbers and coding as shown in the tables below.

'G' FIELD MOUNTING INSTRUMENTS

Type	Model Nos.	Division Marking	Zonal Marking	Ambient Temp.
Loop powered indicators Loop powered rate totaliser	BA304G BA324G BA354G	Class I Division 2 Groups A, B, C & D T5 Class II Division 2 Groups F & G Class III Division 2	None	−40°C to +70°C

6. Reset terminals RS1 and RS2 are only fitted to the BA354G Rate Totaliser. They may be connected to Associated Nonincendive Field Wiring Apparatus, Nonincendive Field Wiring Apparatus or simple apparatus such as a single pole switch.

7. **CAUTION** The BA304G, BA324G Indicators and the BA354G Rate Totaliser enclosures are manufactured from conducting plastic per Article 250 of the National Electrical Code.

Iss.	Date	Modification	Ckd.	Appd.
1	29.11.2016	New drawing		

Title

ETL Nonincendive Control Drawing for
BA304G and BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISERS

Drawn	Checked	Scale
SQ	QL	–

Drawing No. CI300–84
Sheet 3

File No 300–84s3.dwg 04.05.17

Iss.	Date	Modification	Ckd.	Appd.

8. Safety parameters

4/20mA input terminals 1, 2, 3 & 4

Ii = 200mA
Uo = 1.1V
Io = 3mA

4/20mA input terminals 1, 2, 3, 4, 12 & 13 & loop powered backlight.

Ii = 200mA
Uo = 1.1V
Io = 3mA

Separately powered backlight terminals 12 & 14.

Ui = 30V

Alarm terminals 8, 9, 10 and 11

Ui = 30V
Ii = 200mA
Uo = 1.47V
Io = 1.0µA

Reset terminals RS1 & RS2
BA354G and BA354NG rate totalisers only.

Ui = 4.3V
Uo = 6V
Io = 2.5mA

Iss.	Date	Modification	Ckd.	Appd.
1	29.11 2016	New drawing		

Title
ETL Nonincendive Control Drawing for
BA304G and BA324G LOOP POWERED INDICATORS
BA354G LOOP POWERED RATE TOTALISERS

Drawn	Checked	Scale
SQ	OL	–

Drawing No. CI300–84
Sheet 4

File No 300–84s4.dwg 04.05.17