

EXTERNAL POWER CONNECTIONS

HAZARDOUS OR SAFE AREA

CLASS I, DIVISION 1, GROUPS C, D
ZONE 0, GROUP IIB

ASSOCIATED APPARATUS

e.g. external +12V power supply

OUTPUT ENTITY PARAMETERS

$U_o, V_{oc} \leq 16V$
 $I_o, I_{sc} \leq 2A$
 $C_o, C_a \geq (0 + C_{cable})$
 $L_o, L_a \geq (0 + L_{cable})$

HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: $-40^{\circ}C$ TO $+60^{\circ}C$

SMART-ALEK MODEL 2005
EXTERNAL I/O TERMINAL BLOCK

GND
EXTERNAL POWER IN

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

INPUT ENTITY PARAMETERS

$U_i, V_{max} = 16V$
 $I_i, I_{max} = 2A$
 $C_i = 0$
 $L_i = 0$

NOTES:

1. POWERING THE SMART-ALEK VIA THE RF/SOLAR PORT AND EXTERNAL POWER INPUT ON THE I/O TERMINAL BLOCK AT THE SAME TIME IS NOT ALLOWED. USE ONE OR THE OTHER, BUT NOT BOTH.
2. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
3. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
4. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
5. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20μH/foot.

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

REV	Drawn by	Approved By	Date	Comments
1	E. XU	L. ZHAO	2005-10-25	INITIAL DRAFT
2	E. XU	L. ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E. XU	L. ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L. A.	L. ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

Title: INTRINSIC SAFETY CONTROL DRAWING FOR SMART-ALEK MODEL 2005		Number: 14525	REV 5
Desc: APPROVED HAZARDOUS LOCATION CONFIGURATIONS		Class MD	Type SW
Edmonton, Canada		SHEET 1 OF 7	

CONTACT IN, OUT, PULSE CONNECTIONS

HAZARDOUS OR SAFE AREA

CLASS I, DIVISION 1, GROUPS C, D
ZONE 0, GROUP IIB

ASSOCIATED APPARATUS
e.g. relay control

ASSOCIATED APPARATUS
e.g. pulse generator

ASSOCIATED APPARATUS
e.g. dry contact switch

ASSOCIATED APPARATUS
e.g. dry contact switch

INPUT ENTITY PARAMETERS
 $U_i, V_{max} \geq 9.6V$
 $I_i, I_{max} \geq 12mA$
 $C_i \leq (0.5\mu F + C_{cable})$
 $L_i \leq (1.5mH + L_{cable})$

OUTPUT ENTITY PARAMETERS
 $U_o, V_{oc} \leq 16V$
 $I_o, I_{sc} \leq 2A$
 $C_o, C_a \geq (0 + C_{cable})$
 $L_o, L_a \geq (0 + L_{cable})$

HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40°C TO +60°C

SMART-ALEK MODEL 2005
EXTERNAL I/O TERMINAL BLOCK

CONTACT OUTPUT

GND

PULSE INPUT +

PULSE INPUT -

CONTACT INPUT # 2

CONTACT INPUT # 1

GND

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

INPUT ENTITY PARAMETERS
 $U_i, V_{max} = 16V$
 $I_i, I_{max} = 2A$
 $C_i = 0$
 $L_i = 0$

OUTPUT ENTITY PARAMETERS
 $U_o, V_{oc} = 9.6V$
 $I_o, I_{sc} = 12mA$
 $C_o, C_a = 0.5\mu F$
 $L_o, L_a = 1.5mH$

NOTES:

1. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
2. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
3. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
4. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20μH/foot.

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

REV	Drawn by	Approved By	Date	Comments
1	E. XU	L.ZHAO	2005-10-25	INITIAL DRAFT
2	E. XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E. XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION CONFIGURATIONS

zedi

EDMONTON, CANADA

Number:
14525
REV
5
Class MD Type SW SHEET 2 OF 7

RS485 CONNECTIONS

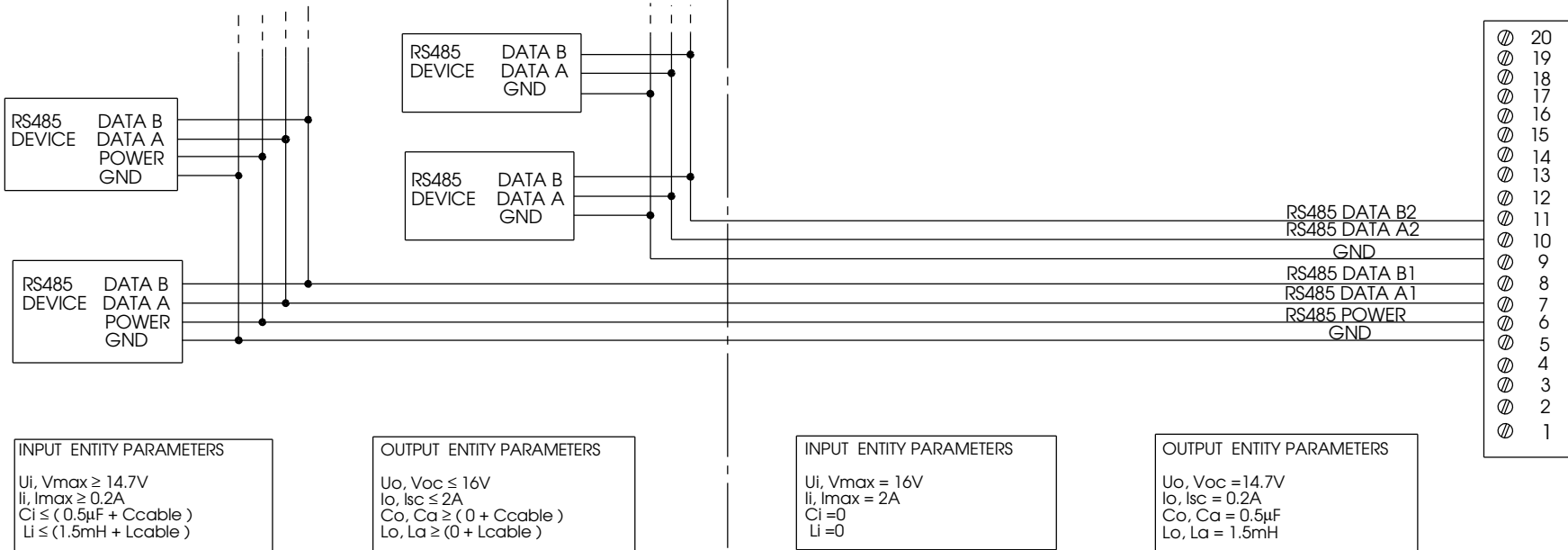
HAZARDOUS OR SAFE AREA

CLASS I, DIVISION 1, GROUPS C, D
ZONE 0, GROUP IIB

HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40°C TO +60°C

SMART-ALEK MODEL 2005
EXTERNAL I/O TERMINAL BLOCK



NOTES:

1. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
2. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
3. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
4. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20μH/foot.

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

REV	Drawn by	Approved By	Date	Comments
1	E. XU	L.ZHAO	2005-10-25	INITIAL DRAFT
2	E. XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E. XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION COFIGURATIONS

zedi
EDMONTON, CANADA

Number:
14525

REV
5

Class MD Type SW SHEET 3 OF 7

RTD CONNECTIONS

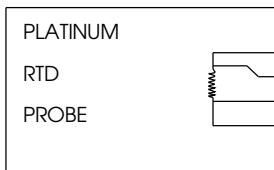
HAZARDOUS OR SAFE AREA

CLASS I, DIVISION 1, GROUPS C, D
ZONE 0, GROUP IIB

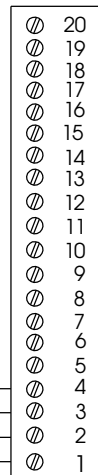
HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40°C TO +60°C

SMART-ALEK MODEL 2005
EXTERNAL I/O TERMINAL BLOCK



RTD RETURN
RTD NEGATIVE SENSE
RTD POSITIVE SENSE
RTD DRIVE



NOTES:

1. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
2. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
3. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
4. RTD CONNECTIONS ARE TO BE CONNECTED TO A SIMPLE DEVICE ONLY, E.G. 100ohm PLATINUM RTD.

REV	Drawn by	Approved By	Date	Comments
1	E.XU	L.ZHAO	2005-10-25	INITIAL DRAFT
2	E.XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E.XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION CONFIGURATIONS

zedi

EDMONTON, CANADA

Number:
14525

Class MD Type SW

REV
5

SHEET 4 OF 7

SIZE
B

SOLAR PANEL AND ANTENNA

HAZARDOUS OR SAFE AREA

CLASS I, DIVISION 1, GROUPS C, D
ZONE 0, GROUP IIB

ASSOCIATED APPARATUS
e.g. Solar Panel
WITH CELLULAR ANTENNA (MODEL 65X)

OUTPUT ENTITY PARAMETERS

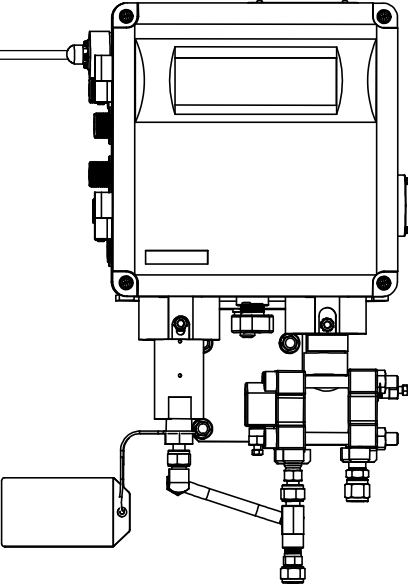
 $U_o, V_{oc} \leq 25V$
 $I_o, I_{sc} \leq 2A$
 $C_o, C_a \geq (0 + C_{cable})$
 $L_o, L_a \geq (0 + L_{cable})$

HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40 °C TO +60 °C

INPUT ENTITY PARAMETERS

 $U_i, V_{max} = 25V$
 $I_i, I_{max} = 2A$
 $C_i = 0$
 $L_i = 0$



NOTES:

- 1. POWERING THE SMART-ALEK VIA THE RF/SOLAR PORT AND EXTERNAL POWER INPUT ON THE I/O TERMINAL BLOCK AT THE SAME TIME IS NOT ALLOWED. USE ONE OR THE OTHER, BUT NOT BOTH.
- 2. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
- 3. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY SAFE.
- 4. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
- 5. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20µH/foot.

REV	Drawn by	Approved By	Date	Comments
1	E.XU	L.ZHAO	2005-10-25	INITIAL DRAFT
2	E.XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E.XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

PROPRIETARY AND CONFIDENTIAL
This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION CONFIGURATIONS

zedi

EDMONTON, CANADA

Number:
14525

REV
5

Class MD

Type SW

SHEET 5 OF 7

SIZE
B

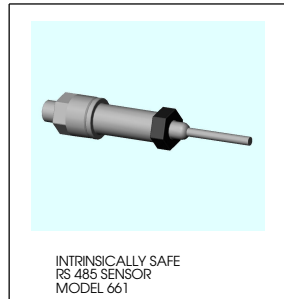
MODEL 661 SENSOR

HAZARDOUS OR SAFE AREA

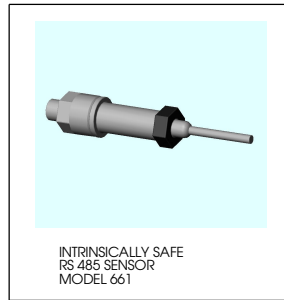
CLASS I, DIVISION 1, GROUPS C, D

HAZARDOUS AREA

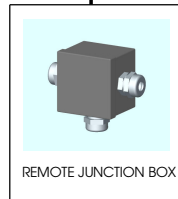
CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40°C TO +60°C



INTRINSICALLY SAFE
RS 485 SENSOR
MODEL 661



INTRINSICALLY SAFE
RS 485 SENSOR
MODEL 661



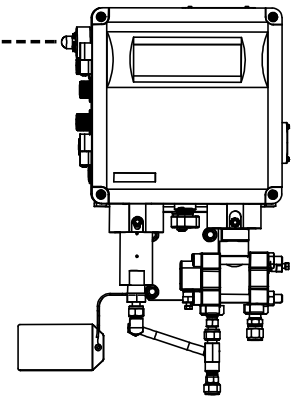
REMOTE JUNCTION BOX

INPUT ENTITY PARAMETERS

$U_i, V_{max} = 16V$
 $I_i, I_{max} = 2A$
 $C_i = 0$
 $L_i = 0$

OUTPUT ENTITY PARAMETERS

$U_o, V_{oc} = 14.7V$
 $I_o, I_{sc} = 0.2A$
 $C_o, C_a = 0.5\mu F$
 $L_o, L_a = 1.5mH$



NOTES:

1. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
2. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
3. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
4. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20μH/foot.

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

REV	Drawn by	Approved By	Date	Comments
1	E.XU	L.ZHAO	2005-12-11	INITIAL DRAFT
2	E.XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E.XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION CONFIGURATIONS

zedi

EDMONTON, CANADA

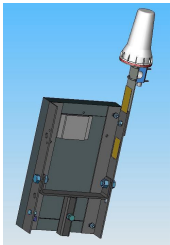
Number:	14525	REV	5
Class	MD	Type	SW

SHEET 6 OF 7

SATELLITE MODEM

HAZARDOUS OR SAFE AREA

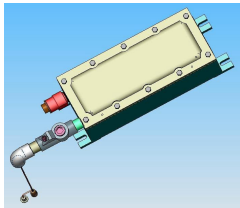
CLASS I, DIVISION 2, GROUPS C, D



SOLAR PANEL (MODEL 620 OR 621 OR 622)WITH
SATELLITE ANTENNA (MODEL 65X)

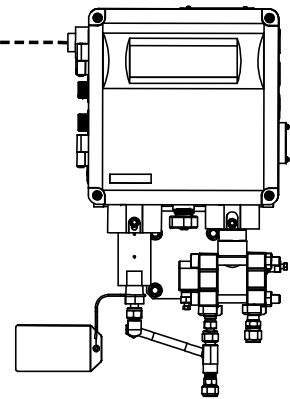
HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D



HAZARDOUS AREA

CLASS I, DIVISION 1, GROUPS C, D, T3
ZONE 0, GROUP IIB, T3
AMBIENT TEMPERATURE: -40°C TO +60°C



NOTES:

1. POWERING THE SMART-ALEK VIA THE RF/SOLAR PORT AND EXTERNAL POWER INPUT ON THE I/O TERMINAL BLOCK AT THE SAME TIME IS NOT ALLOWED. USE ONE OR THE OTHER, BUT NOT BOTH.
2. INSTALLATION MUST BE IN ACCORDANCE WITH THE LOCAL INSTALLATION CODE.
3. ALL NOTES AND WIRING PROCEDURES MUST BE COMPLIED WITH FOR THE SYSTEM TO BE INTRINSICALLY-SAFE.
4. DRAWING CANNOT BE CHANGED WITHOUT PRIOR CSA CERTIFICATION.
5. INSTALLER MUST ENSURE THAT THE TOTAL CAPACITANCE AND INDUCTANCE OF THE CABLE DO NOT EXCEED THE C_a AND L_a OF THE ASSOCIATED APPARATUS. IF THE CAPACITANCE AND INDUCTANCE OF THE CABLE IS UNKNOWN, USE THE FOLLOWING VALUES: CABLE CAPACITANCE 60pF/foot; CABLE INDUCTANCE 0.20μH/foot.

PROPRIETARY AND CONFIDENTIAL

This document contains proprietary information.
Disclosure in whole or part is strictly prohibited
without prior written consent from Zedi Inc.

DO NOT SCALE DRAWING

REV	Drawn by	Approved By	Date	Comments
1	E.XU	L.ZHAO	2005-10-25	INITIAL DRAFT
2	E.XU	L.ALLEN	2006-02-08	ADD TEMPERATURE RATING
3	E.XU	L.ALLEN	2006-11-02	ADD SATELLITE MODEM AND ANTENNA
4	L.A.	L.ALLEN	2006-12-04	Change Model 660 to Division 1
5	J. DUAN	L. ZHAO	2007-01-12	CHANGE MODEL 660 TO MODEL 661

MATERIAL:

Title:
INTRINSIC SAFETY CONTROL DRAWING
FOR SMART-ALEK MODEL 2005

Desc:
APPROVED HAZARDOUS LOCATION CONFIGURATIONS

zedi

EDMONTON, CANADA

Number:	REV
14525	5
Class MD	Type SW
SHEET 7 OF 7	

SIZE
B