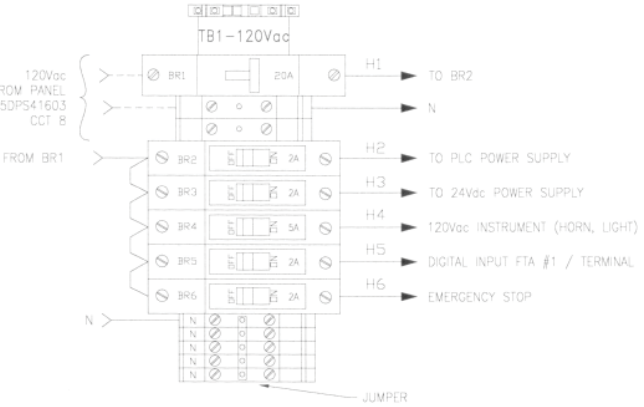
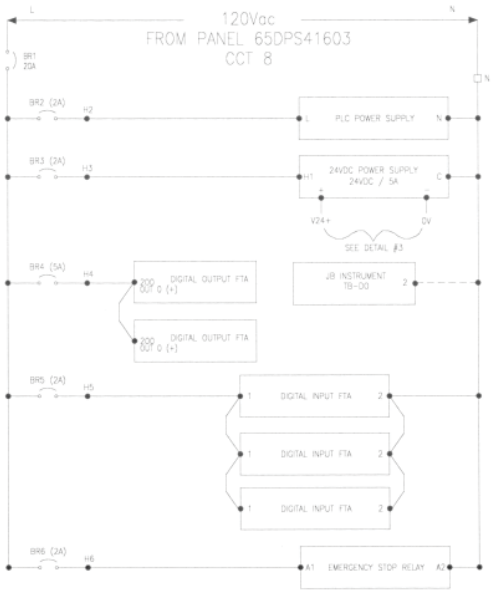
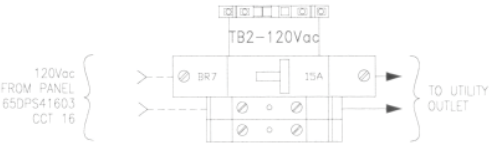
NO. DESSIN
DRAWING NO. 65-ULT-416-IN-003 (DISTRIBUTION)



DETAIL #1



DETAIL #1 SCHEMATIC DIAGRAM



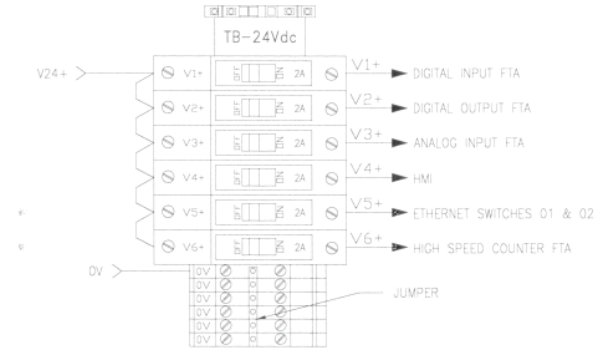
DETAIL #2

LEGEND

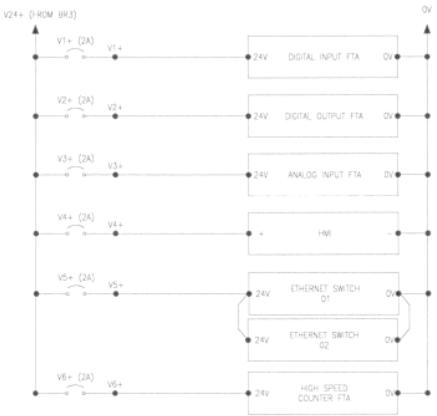
PLC CABINET INTERNAL WIRING

FIELD WIRING

DETAIL #1, #2, #3 FROM PLC CABINET LAYOUT DWG # 65-ULT-416-IN-001



DETAIL #3



DETAIL #3 SCHEMATIC DIAGRAM

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3677
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
(AGNICO EAGLE) DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
5	2017-09-19	FOR CONSTRUCTION	C.L.	D.C.	
4	2017-08-14	UPDATE AREA & TAG NUMBER	C.L.	D.C.	
3	2017-06-30	FOR CONSTRUCTION	C.L.	D.C.	
2	2017-05-15	FOR CONSTRUCTION	C.L.	D.C.	

REVISIONS

NUNAVUT PROPER MINING
ultragen
NO. PROJET / PROJECT NO. 591700

TITRE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
120Vac / 24Vdc DISTRIBUTION
MAIN PLC CABINET

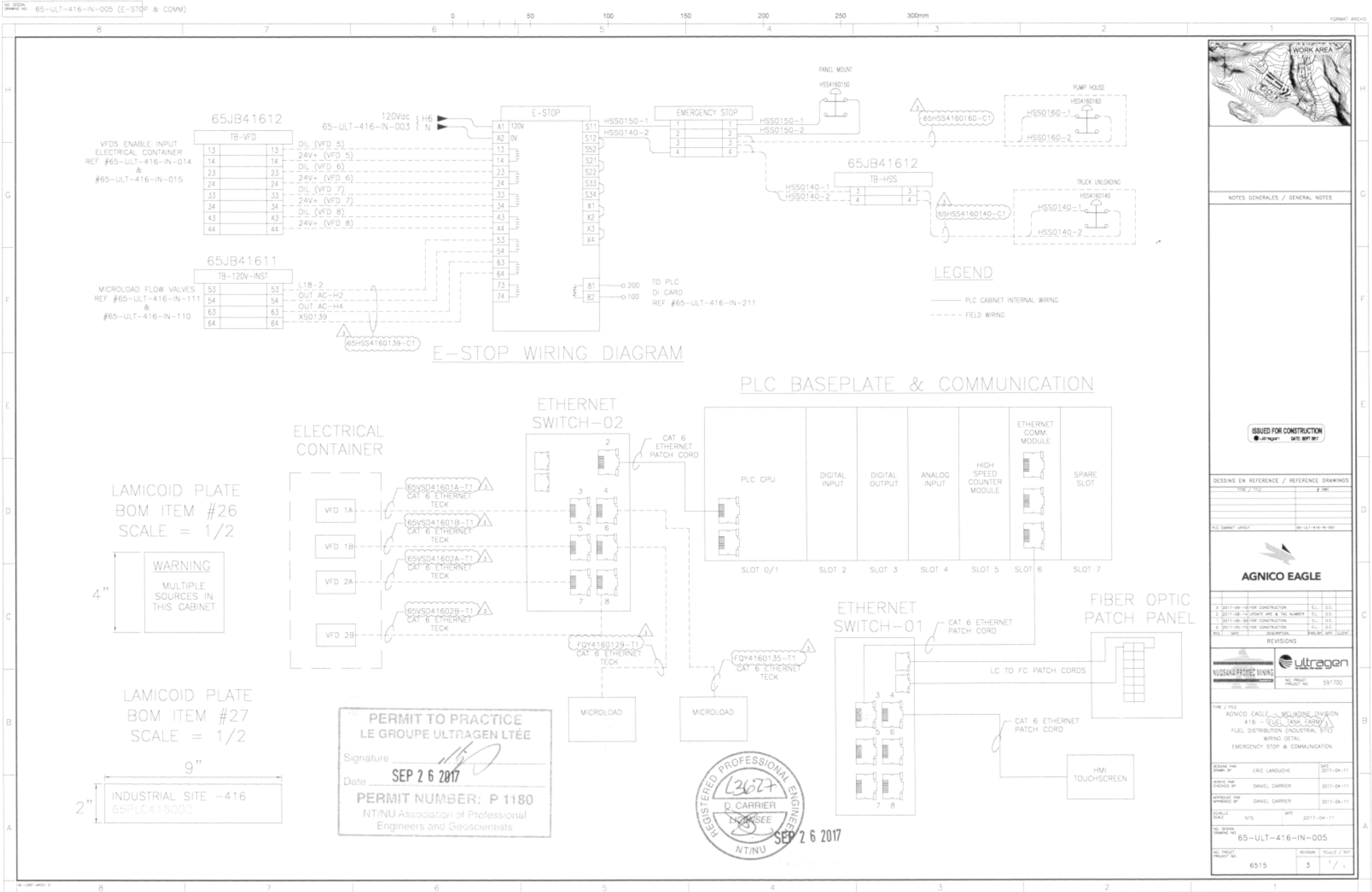
DESSINE PAR / DRAWN BY	ERIC LAROUCHE	2017-04-11
VERIFIE PAR / CHECKED BY	DANIEL CARRIER	2017-04-11
APPROUVE PAR / APPROVED BY	DANIEL CARRIER	2017-04-11
ECHELLE / SCALE	NTS	DATE 2017-04-11

NO. DESSIN / DRAWING NO. 65-ULT-416-IN-003

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	3	1 / 1

AC-DAFT-ARCH 2

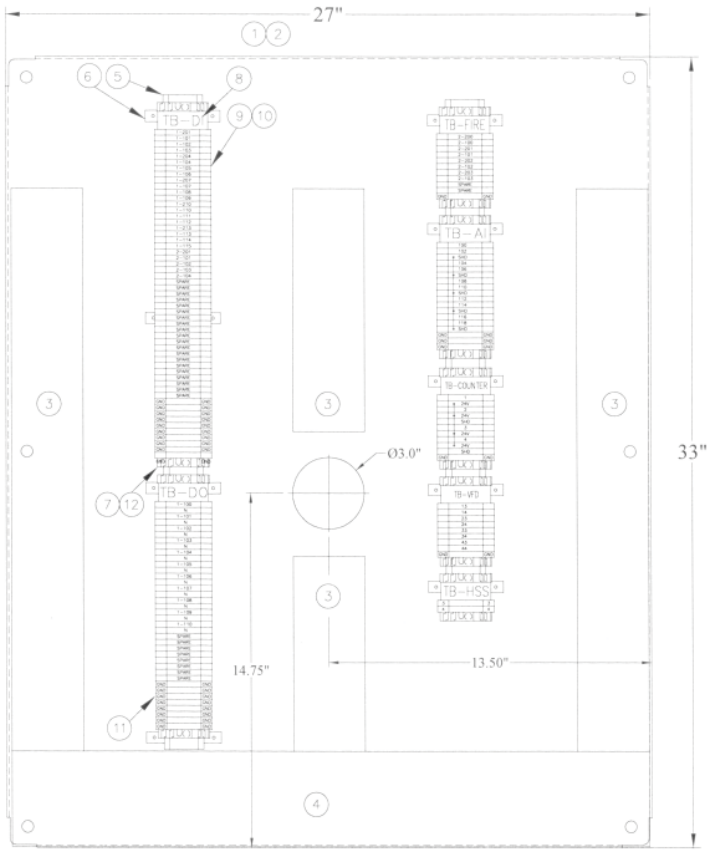
FILE NO. 65-ULT-416-IN-003 (DISTRIBUTION).dwg



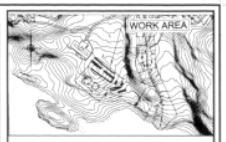
65-ULT-416-IN-005 (E-STOP & COMM)
E-STOP WIRING DIAGRAM
65JB41612
TB-VFD
VFDS ENABLE INPUT
ELECTRICAL CONTAINER
REF #65-ULT-416-IN-014
&
#65-ULT-416-IN-015
DIL (VFD 5)
24V+ (VFD 5)
DIL (VFD 6)
24V+ (VFD 6)
DIL (VFD 7)
24V+ (VFD 7)
DIL (VFD 8)
24V+ (VFD 8)
120Vac
65-ULT-416-IN-003
H6
N
E-STOP
65JB41611
TB-120V-INST
MICROLOAD FLOW VALVES
REF #65-ULT-416-IN-111
&
#65-ULT-416-IN-110
L18-2
OUT AC-H2
OUT AC-H4
XS0139
65HSS4160139-C1
TO PLC
DI CARD
REF #65-ULT-416-IN-211
EMERGENCY STOP
HSS0150-1
HSS0140-2
HSS0150-2
PANEL MOUNT
HSS4160150
65JB41612
TB-HSS
HSS0140-1
HSS0140-2
PUMP HOUSE
HSS4160160
HSS0160-1
HSS0160-2
65HSS4160160-C1
TRUCK UNLOADING
HSS4160140
65HSS4160140-C1
LEGEND
PLC CABINET INTERNAL WIRING
FIELD WIRING
PLC BASEPLATE & COMMUNICATION
PLC CPU
DIGITAL INPUT
DIGITAL OUTPUT
ANALOG INPUT
HIGH SPEED COUNTER MODULE
ETHERNET COMM. MODULE
SPARE SLOT
SLOT 0/1
SLOT 2
SLOT 3
SLOT 4
SLOT 5
SLOT 6
SLOT 7
ELECTRICAL CONTAINER
VFD 1A
VFD 1B
VFD 2A
VFD 2B
65VSD41601A-T1
CAT 6 ETHERNET TECK
65VSD41601B-T1
CAT 6 ETHERNET TECK
65VSD41602A-T1
CAT 6 ETHERNET TECK
65VSD41602B-T1
CAT 6 ETHERNET TECK
ETHERNET SWITCH-02
CAT 6 ETHERNET PATCH CORD
FQY4160129-T1
CAT 6 ETHERNET TECK
FQY4160135-T1
CAT 6 ETHERNET TECK
MICROLOAD
MICROLOAD
ETHERNET SWITCH-01
CAT 6 ETHERNET PATCH CORD
FIBER OPTIC PATCH PANEL
LC TO FC PATCH CORDS
CAT 6 ETHERNET PATCH CORD
HMI TOUCHSCREEN
LAMICOID PLATE
BOM ITEM #26
SCALE = 1/2
WARNING
MULTIPLE SOURCES IN THIS CABINET
4"
LAMICOID PLATE
BOM ITEM #27
SCALE = 1/2
9"
2"
INDUSTRIAL SITE -416
65PLC416002
PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 2 6 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists
REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
LICENSEE
NT/NU
SEP 2 6 2017
WORK AREA
NOTES GENERALES / GENERAL NOTES
ISSUED FOR CONSTRUCTION
DATE: SEPT 2017
DESSINS EN REFERENCE / REFERENCE DRAWINGS
AGNICO EAGLE
REVISIONS
3 2017-09-19 FOR CONSTRUCTION
2 2017-08-14 UPDATE ARE & TAG NUMBER
1 2017-06-30 FOR CONSTRUCTION
0 2017-05-15 FOR CONSTRUCTION
NUQSANA PROTEC MINING
ultragen
591700
AGNICO EAGLE - MELIADINE DIVISION
416 - FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
WIRING DETAIL
EMERGENCY STOP & COMMUNICATION
ERIC LAROUCHE 2017-04-11
DANIEL CARRIER 2017-04-11
DANIEL CARRIER 2017-04-11
NTS 2017-04-11
65-ULT-416-IN-005
6515
3
1/1

NO. DESSIN DRAWING NO. 65-ULT-416-IN-009 (JB INST LAYOUT)

FORMAT ARCH D



ITEM	QUANTITY INDUSTRIAL SITE	DESCRIPTION	MANUFACTURER	MODEL
1	1	WALLMOUNT ENCLOSURE 36H, 30W, 8D TYPE 4X ALUMINIUM	Hammond	1418N4ALM8
2	1	INNER MOUNTING PANEL FOR ENCLOSURE	Hammond	INCLUDED (ITEM 1)
3	1	RACEWAY INSIDE CABINET 3" x 4", 6 FEET LENGTH	Panduit	G3X4LG6
4	1	RACEWAY INSIDE CABINET 4" x 4", 6 FEET LENGTH	Panduit	G4X4LG6
5	1	TS-35 DIN MOUNTING RAIL, 7.5MM, 2 METERS LONG	Weidmuller	514500000
6	6	RAIL SUPPORT 1"	Weidmuller	7924270030
7	14	END COVER FOR TS-35	Weidmuller	38356
8	7	GROUP MARKER CARRIER	Weidmuller	29246
9	125	TERMINAL BLOCK WDU 4	Weidmuller	1020100
10	250	MARKER	Weidmuller	0517961607720051530
11	22	GROUND TERMINAL YELLOW/GREEN	Weidmuller	10101
12	7	END PLATE	Weidmuller	10500



NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / SIZE	# DWG
TB-DI INTERCONNECTION	65-ULT-416-IN-211
TB-DO INTERCONNECTION	65-ULT-416-IN-210
TB-FIRE INTERCONNECTION	65-ULT-416-IN-213
TB-VFD 5&6 INTERCONNECTION	65-ULT-416-IN-014
TB-VFD 7&8 INTERCONNECTION	65-ULT-416-IN-015
TB-HSS INTERCONNECTION	65-ULT-416-IN-005
TB-AI INTERCONNECTION	65-ULT-416-IN-213
TB-COUNTER INTERCONNECTION	65-ULT-416-IN-214

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/DES	APP.	CLIENT
2	2017-06-16	FOR CONSTRUCTION	C.L.	D.C.	
1	2017-06-14	UPDATE AREA & TAG NUMBER	C.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	C.L.	D.C.	

REVISIONS

NUNAVIK PROJECT MINING

ultragen

NO. PROJET PROJECT NO. 591700

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CABINET LAYOUT
JUNCTION BOX INSTRUMENTATION
65J841612

DESSINE PAR DRAWN BY	ERIC LARQUOCHE	DATE 2017-06-12
VERIFIE PAR CHECKED BY	DANIEL CARRIER	2017-06-12
APPROUVE PAR APPROVED BY	DANIEL CARRIER	2017-06-12
ECHELLE SCALE	NTS	DATE 2017-06-12

NO. DESSIN DRAWING NO. 65-ULT-416-IN-009

NO. PROJET PROJECT NO. 6515

REVISION 2

FEUILLE / SHT 1 / 1

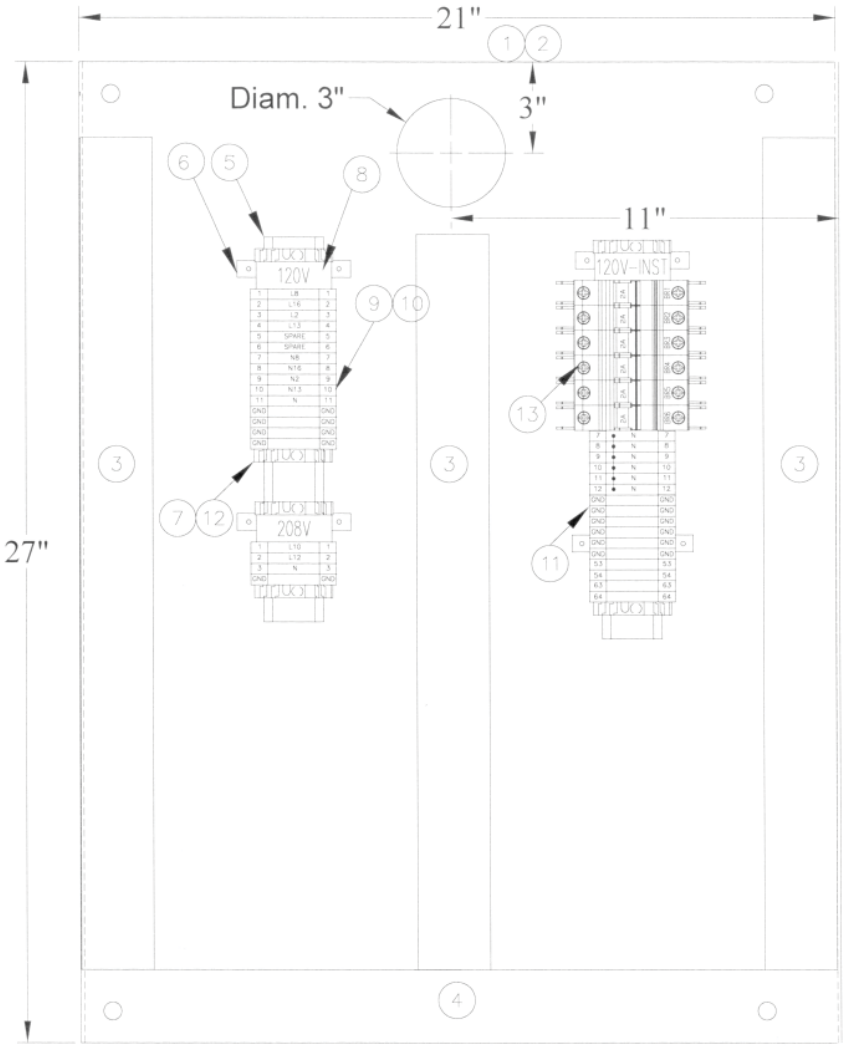
PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 2 6 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
13627
D. CARRIER
LICENSEE
NT/NU
SEP 2 6 2017

A1-GRF-ARCH D

FILE NO. 65-ULT-416-IN-009 (JB INST LAYOUT).dwg

NO. DESSIN / DRAWING NO. 65-ULT-416-IN-010 (JB 120V LAYOUT)



ITEM	QUANTITY INDUSTRIAL SITE	DESCRIPTION	MANUFACTURER	MODEL
1	1	WALLMOUNT ENCLOSURE 30H, 24W, 8D TYPE 4X ALUMINUM	Hammond	1418N4ALK8
2	1	INNER MOUNTING PANEL FOR ENCLOSURE	Hammond	INCLUDED (ITEM 1)
3	1	RACEWAY INSIDE CABINET 2" x 4", 6 FEET LENGTH	Panduit	G2X4LG6
4	1	RACEWAY INSIDE CABINET 3" x 4", 6 FEET LENGTH	Panduit	G3X4LG6
5	1	TS-35 DIN MOUNTING RAIL, 7.5MM, 2 METERS LONG	Weidmuller	514500000
6	6	RAIL SUPPORT 1"	Weidmuller	7924270030
7	6	END BRACKET FOR TS-35	Weidmuller	38356
8	3	GROUP MARKER CARRIER	Weidmuller	29246
9	28	TERMINAL BLOCK WDU 6	Weidmuller	10202
10	56	MARKER	Weidmuller	0517961607720051530
11	12	GROUND TERMINAL YELLOWGREEN	Weidmuller	10102
12	4	END PLATE	Weidmuller	10500
13	6	120VAC/24VDC CIRCUIT BREAKER 2A	Weidmuller	GB2CB07

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
65J841611, 120Vac INTERCONNECTION	65-ULT-416-IN-016

AGNICO EAGLE

REV.	DATE	DESCRIPTION	DRAWN/DESSINE	APP.	CLIENT
2	2017-09-18	FOR CONSTRUCTION	EL	DC	
1	2017-08-14	UPDATE AREA & TAG NUMBER	EL	DC	
0	2017-06-30	FOR CONSTRUCTION	EL	DC	

REVISIONS

NUGGAMA PROJECT MINING

ultragen

NO. PROJET / PROJECT NO.: 591700

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CABINET LAYOUT
JUNCTION BOX 120V
65J841611

DESSINE PAR / DRAWN BY	ERIC LAROUCHE	DATE 2017-04-19
VERIFIE PAR / CHECKED BY	DANIEL CARRIER	2017-04-19
APPROUVE PAR / APPROVED BY	DANIEL CARRIER	2017-04-19
ECHELLE / SCALE	NTS	DATE 2017-04-19

NO. DESSIN / DRAWING NO.: 65-ULT-416-IN-010

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1 / 1

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTEE
Signature
Date SEP 2 6 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
NT/NU
SEP 2 6 2017

AC-CART-ARCH D

FILE NO. 65-ULT-416-IN-010 (JB 120V LAYOUT).dwg

NO. DESSIN DRAWING NO. 65-ULT-416-IN-014 (VFD)-416-IN-105

FORMAT ARCH D

PLC CABINET
65PLC41612

OUTSIDE
PUMPING STATION CONTAINER

ELECTRICAL DISTRICTION
CONTAINER

PUMPING STATION
CONTAINER

LOADING HORIZONTAL
TANKS PUMPS

65SPB41602-01-P1

65VSD41601A
ABB VFD

65VSD41601A-P1

FROM DISCONNECT SWITCH
REF #65-416-275-201

L1 L2 L3 T1 T2 T3

15 HP 65POD41601A

EMERGENCY STOP RELAY

WIRING DETAIL
REF #65-ULT-416-IN-005

13 14 DIL (VFD5) 24V+ (VFD5)

65JB41612
TB-VFD

65VSD41601A-C1
3C #14 TECK

DIL 24V+

XD24 1 DIL 2 24V+

ETHERNET SWITCH-02

3

2 65VSD41601A-T1
CAT 6 ETHERNET TECK

65SPB41602-02-P1

65VSD41601B
ABB VFD

65VSD41601B-P1

FROM DISCONNECT SWITCH REF
#65-416-275-201

L1 L2 L3 T1 T2 T3

15 HP 65POD41601B

EMERGENCY STOP RELAY

WIRING DETAIL
REF #65-ULT-416-IN-005

23 24 DIL (VFD6) 24V+ (VFD6)

65JB41612
TB-VFD

65VSD41601B-C1
3C #14 TECK

DIL 24V+

XD24 1 DIL 2 24V+

ETHERNET SWITCH-02

5

2 65VSD41601B-T1
CAT 6 ETHERNET TECK

MOTOR SCHEMATIC

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 2 6 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
13627
D. CARRIER
LICENSEE
NT/NU
SEP 2 6 2017

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-007

AGNICO EAGLE

REV.	DATE	DESCRIPTION	DRAWN BY	APP'D	CLIENT
2	2017-09-18	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUNAVUT PROJECT MINING
ultragen

NO. PROJECT PROJECT NO. 591700

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
VFD SCHEMATIC WIRING DETAIL
65VSD41605/65VSD41606

DESSINÉ PAR DRAWN BY	ERIC LAROUCHE	2017-06-08
VÉRIFIÉ PAR CHECKED BY	DANIEL CARRIER	2017-06-08
APPROUVÉ PAR APPROVED BY	DANIEL CARRIER	2017-06-08

ÉCHELLE SCALE NTS DATE 2017-06-08

NO. DESSIN DRAWING NO. 65-ULT-416-IN-014

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1 / 1

FILE NO. 65-ULT-416-IN-014 (VFD).dwg

NO. DESSIN DRAWING NO: 65-ULT-416-IN-015 (VFD)-416-IN-105

FORMAT ARCH D

PLC CABINET
65PLC41612

OUTSIDE
PUMPING STATION CONTAINER

ELECTRICAL DISTRIBUTION
CONTAINER

PUMPING STATION
CONTAINER

UNLOADING TRUCK PUMPS

65SPB41602-03-P1

65VSD41602A
ABB VFD

65VSD41602A-P1

FROM DISCONNECT SWITCH REF.
#65-416-275-201

L1 L2 L3

T1 T2 T3

15 HP

65POD41602A

EMERGENCY STOP RELAY

WIRING DETAIL
REF. #65-ULT-416-IN-005

33 34

DIL (VFD7)
24V+ (VFD7)

65JB41612
TB-VFD

33 34

DIL
24V+

65VSD41602A-C1
3C #14 TECK

DIL
24V+

XD24
1 DIL
2 24V+

ETHERNET SWITCH-02

7

2
65VSD41602A-T1
CAT 6 ETHERNET TECK

65SPB41602-04-P1

65VSD41602B
ABB VFD

65VSD41602B-P1

FROM DISCONNECT SWITCH REF.
#65-416-275-201

L1 L2 L3

T1 T2 T3

15 HP

65POD41602B

EMERGENCY STOP RELAY

WIRING DETAIL
REF. #65-ULT-416-IN-005

43 44

DIL (VFD8)
24V+ (VFD8)

65JB41612
TB-VFD

43 44

DIL
24V+

65VSD41602B-C1
3C #14 TECK

DIL
24V+

XD24
1 DIL
2 24V+

ETHERNET SWITCH-02

8

2
65VSD41602B-T1
CAT 6 ETHERNET TECK

MOTOR SCHEMATIC

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

WORK AREA

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PROJET APP.	CLIENT
2	2017-09-14	FOR CONSTRUCTION	E.L.	D.C.
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.
0	2017-08-02	FOR CONSTRUCTION	E.L.	D.C.
PA	2017-06-07	FOR COMMENTS	E.L.	D.C.

REVISIONS

NUNAVUT PROMISE MINING

ultragen

NO. PROJET PROJECT NO. 591700

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
VFD SCHEMATIC WIRING DETAIL
65VSD41607/65VSD41608

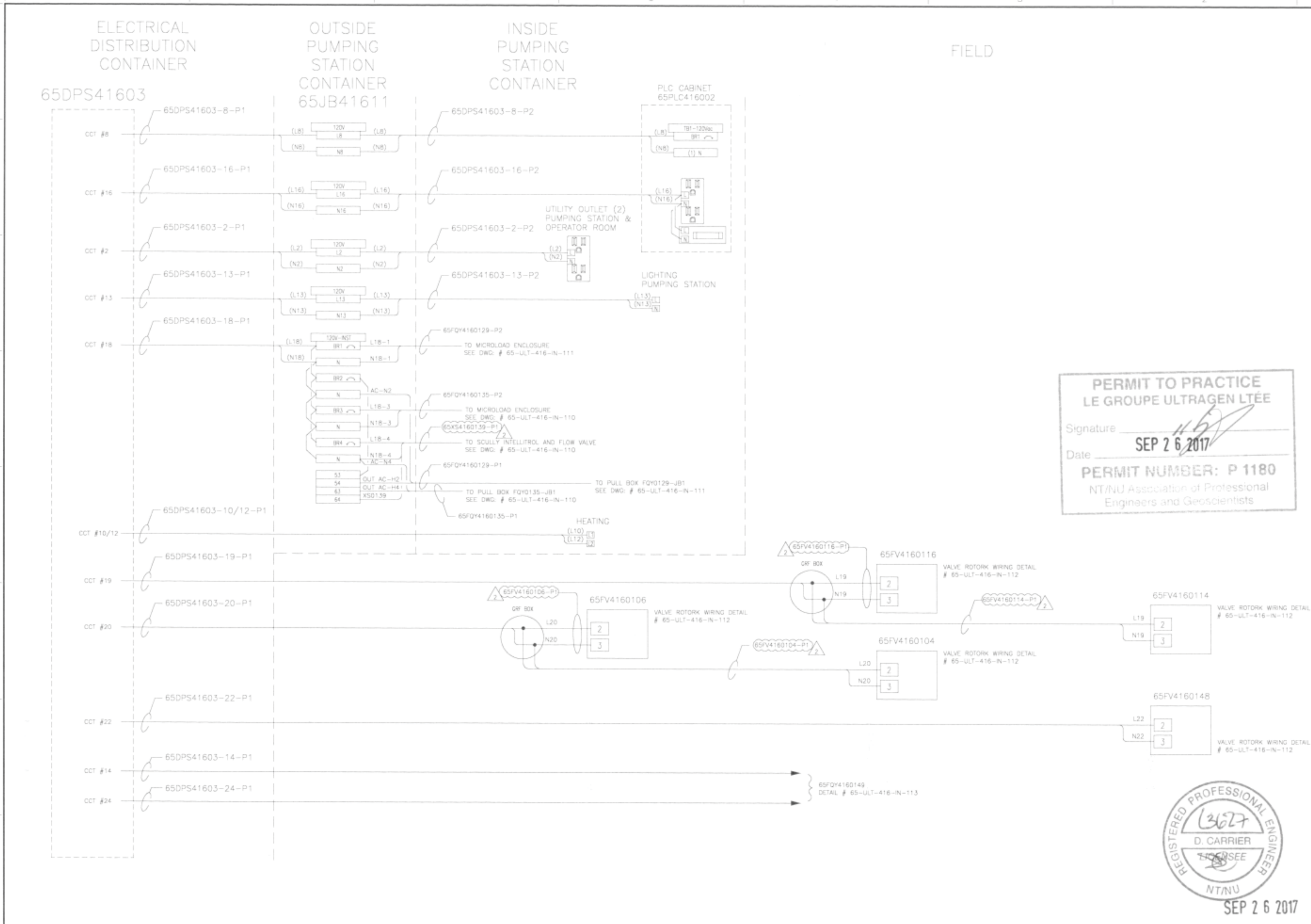
DESSINÉ PAR DRAWN BY	ERIC LAROUCHE	DATE 2017-06-08
VÉRIFIÉ PAR CHECKED BY	DANIEL CARRIER	2017-06-08
APPROUVÉ PAR APPROVED BY	DANIEL CARRIER	2017-06-08
ÉCHELLE SCALE	NTS	DATE 2017-06-08

NO. DESSIN DRAWING NO. 65-ULT-416-IN-015

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1/1

FILE NO. 65-ULT-416-IN-015 (VFD).dwg

65-ULT-416-IN-016 (DISTRIBUTION BJ 120)



NOTES GENERALES / GENERAL NOTES

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-09-19	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-06-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUNAVUT NUGSANA PROJECT MINING

ultragen

NO. PROJET / PROJECT NO. 591700

TITRE / TITLE
AGNICO EAGLE - MELIADINE DIVISION
416 - FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
INTERCONNECTION
65JB41611 - 120Vac DISTRIBUTION

		DATE
DESSINE PAR / DRAWN BY	ERIC LAROUCHE	2017-06-12
VERIFIE PAR / CHECKED BY	DANIEL CARRIER	2017-06-12
APPROUVE PAR / APPROVED BY	DANIEL CARRIER	2017-06-12
ECHELLE / SCALE	NTS	2017-06-12

NO. DESSIN / DRAWING NO. 65-ULT-416-IN-016

NO. PROJET / PROJECT NO. 6515 — REVISION 2 — FEUILLE / SHT 1 / 1

FILE NO. 65-ULT-416-IN-016 DISTRIBUTION BJ 120.dwg

NO. DESSIN DRAWING NO. 65-ULT-416-IN-110-416-IN-105

0 50 100 150 200 250 300mm

FORMAT ARCH D

PUMPING STATION

OPERATOR ROOM

TRUCK AREA

NOTES GENERALES / GENERAL NOTES

NOTES:

1. ALL AC WIRING MUST BE ROUTED INTO MICROLOAD THROUGH THE KNOCK OUT ENTRIES (2) LOCATED ON BOTH SIDE OF THE HOUSING.
2. ALL ETHERNET AND DC WIRING MUST BE ROUTED INTO MICROLOAD THROUGH THE KNOCKOUT ENTRIES (2) LOCATED IN THE BOTTOM OF THE HOUSING.

ISSUED FOR CONSTRUCTION
DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	DWN/DIT.	APP.	CLIENT
2	2017-09-18	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUNAVUT PROJECT MINING

ultragen

NO. PROJET PROJECT NO. 591700

TITRE / TITLE

AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
UNLOADING TRUCK
MICROLOAD INTERCONNECTION
65FQY416035

DESSINE PAR DRAWN BY	ERIC LAROUCHE	DATE 2017-06-08
VERIFIE PAR CHECKED BY	DANIEL CARRIER	2017-06-08
APPROUVE PAR APPROVED BY	DANIEL CARRIER	2017-06-08

ECHELLE SCALE: NTS — DATE: 2017-06-08

NO. DESSIN DRAWING NO. 65-ULT-416-IN-110

NO. PROJET PROJECT NO. 6515 — REVISION 2 — FEUILLE / SHT 1/1

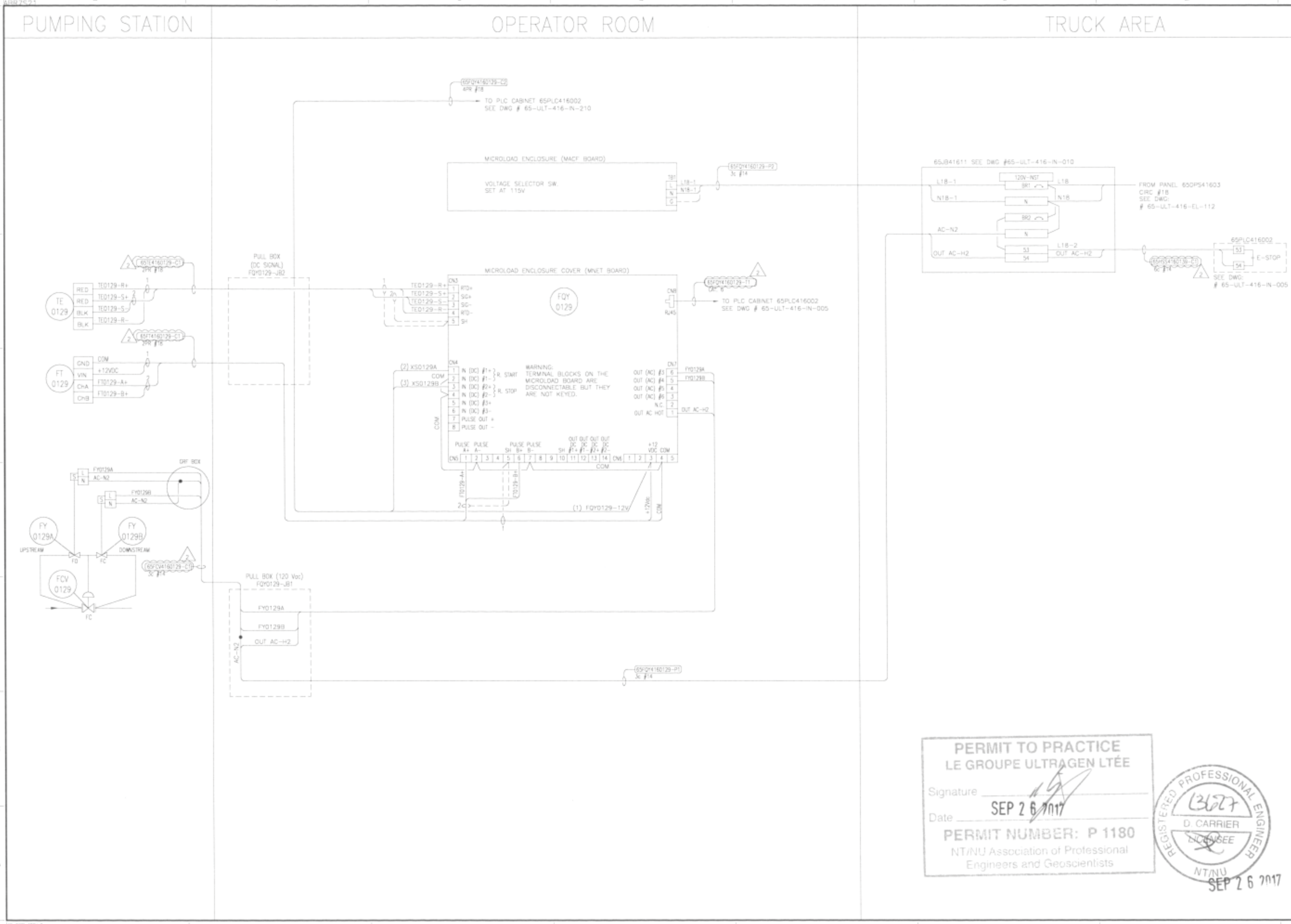
PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
13627
D. CARRIER
NT/NU
SEP 26 2017

AC-CART-ARCH: D

FILE NO. 65-ULT-416-IN-110.dwg

65-ULT-416-IN-111 (SMITH)-416p-IN-105



NOTES GENERALES / GENERAL NOTES

NOTES:

1. ALL AC WIRING MUST BE ROUTED INTO MICROLOAD THROUGH THE KNOCK OUT ENTRIES (2) LOCATED ON BOTH SIDE OF THE HOUSING.
2. ALL ETHERNET AND DC WIRING MUST BE ROUTED INTO MICROLOAD THROUGH THE KNOCKOUT ENTRIES (2) LOCATED IN THE BOTTOM OF THE HOUSING.

ISSUED FOR CONSTRUCTION
Ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-09-19	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUQSANA PROJEC MINING

ultragen

NO. PROJET / PROJECT NO. 591700

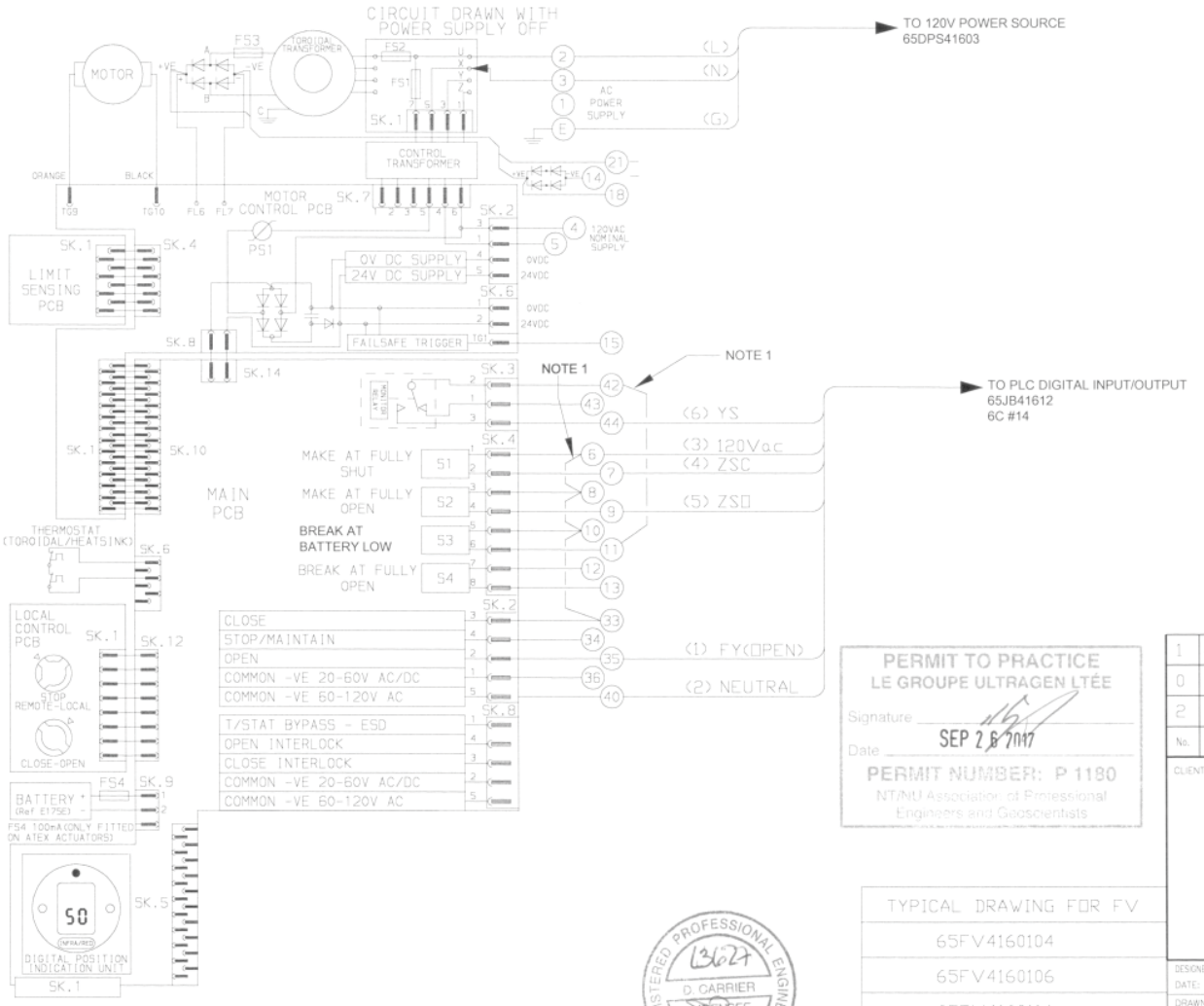
TITRE / TITLE
AGNICO EAGLE – MELIADINE DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
LOADING HORIZONTAL TANKS
MICROLOAD INTERCONNECTION
65FQY4160129

DESSINE PAR / DRAWN BY	ERIC LAROUCHE	DATE 2017-06-06
VERIFIE PAR / CHECKED BY	DANIEL CARRIER	2017-06-06
APPROUVE PAR / APPROVED BY	DANIEL CARRIER	2017-06-06
ECHELLE / SCALE NTS	DATE 2017-06-06	

NO. DESSIN / DRAWING NO. 65-ULT-416-IN-111

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1/1

FILE NO. 65-ULT-416-IN-111 (SMITH).dwg



NOTE :
1. CONTRACTOR MUST INSTALL JUMPERS WIRE ON VALVE TERMINAL BLOCK

2. RELAY MONITOR SWITCH AND S3 SWITCH ARE CONNECTED IN SERIAL. THESE SWITCHES MUST BE PROGRAMMED IN FAIL SAFE MODE (CLOSED CONTACT IN NORMAL OPERATION)

3. S3 SWITCH MUST BE PROGRAMMED FOR BATTERY LOW MONITORING

4. VALVE TO BE CONFIGURED IN TWO WIRES CONTROL MODE, ENERGIZE TO OPEN, DE-ENERGIZE TO CLOSE (CONFIGURE FOR OPEN PRIORITY)

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER 13627 D. CARRIER LICENSEE NT/NU SEP 26 2017

No.	DATE	REVISION	BY / APP.
1	2017-08-14	UPDATE AREA & TAG NUMBER	EL. / DC
0	2017-06-30	ISSUED FOR CONSTRUCTION	EL. / DC
2	2017-09-19	FOR CONSTRUCTION	EL. / DC

CLIENT: AGNICO EAGLE

NUQSANA PROMEC MINING

ultragen

CONSULTANT PROJECT NO. 591700

TYPICAL DRAWING FOR FV
65FV4160104
65FV4160106
65FV4160114
65FV4160116
65FV4160148

DESIGNED BY: E. LAROUCHE DATE: 2017.05.24
DRAWN BY: R. SHRESTHA DATE: 2017.05.24
CHECKED BY: D. CARRIER DATE: 2017.05.24
APPROVED BY: DATE:
SCALE: NTS

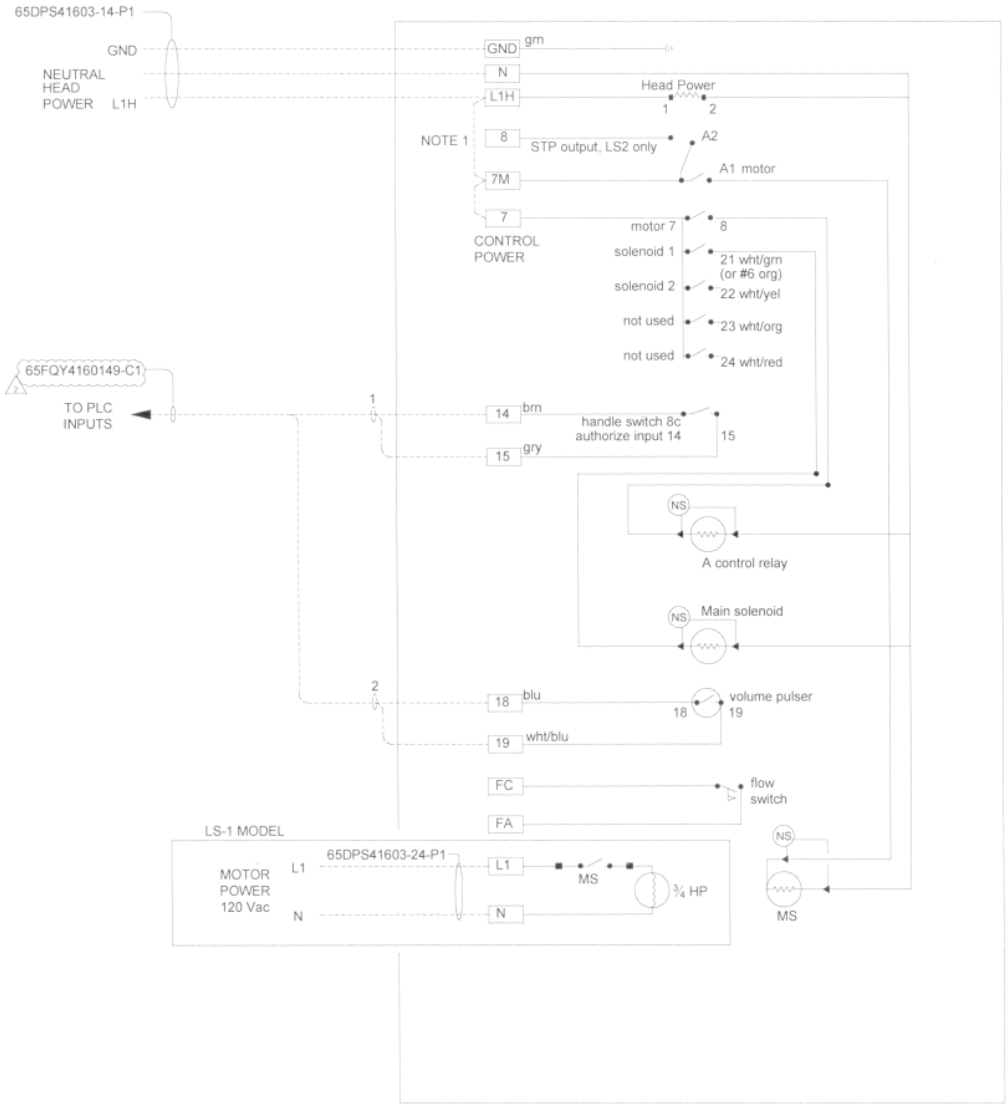
PROJECT: AGNICO EAGLE – MEADOWBANK DIVISION 416 – FUEL TANK FARM 2

TITLE: ROTORK MOTORIZED VALVE WIRING DIAGRAM TYPICAL DRAWING FOR 65FV416XXXX

PROJECT No.	DRAWING NO.	REV.
6515	65-ULT-416-IN-112	2

NO. DESSIN DRAWING NO. 65-103-245-201

RDR McLaren gasboy / Light vehicle typical wiring diagram



PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 2 6 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
D. CARRIER
LICENSEE
NT/NU
SEP 2 6 2017

LEGEND:
INTERNAL WIRING
EXTERNAL WIRING BY CONTRACTOR

NOTES GENERALES / GENERAL NOTES

1. JUMPERS TO BE DONE BY THE CONTRACTOR

ISSUED FOR CONSTRUCTION
ULTRAGEN DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/DR	APP.	DJ ENT
2	2017-09-19	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	ISSUED FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-15	ISSUED FOR COMMENTS	E.L.	D.C.	

REVISIONS

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416-FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
65FQY4160149
McLAREN RDR LS-1
WIRING DIAGRAM

DESSINE PAR DRAWN BY	R. SHRESTHA	DATE 2017-05-25
VERIFIE PAR CHECKED BY	D. CARRIER	2017-05-25
APPROUVE PAR APPROVED BY	D. CARRIER	2017-05-25
ECHELLE SCALE	N.T.S.	DATE 2017-05-25

NO. DESSIN DRAWING NO. 65-ULT-416-IN-113

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
591700	2	1 / 1

FILE NO.: 65-ULT-416-IN-113 (Pump pulse).dwg

NO. DESSIN DRAWING NO. 65-ULT-416-IN-210 (DO CARD)

FORMAT ARCH D

BMXDDO3202K
DIGITAL OUTPUT MODULE
SLOT 3

UNITE	DESCRIPTION
0	YL4160103 Strobe light - 65TNK41601
1	YL4160113 Strobe light - 65TNK41602
2	YL4160147 Strobe light - Light Vehicle Tank
3	YB4160103 Common Horn - grass 416
4	FV4160106 FV - Loading 65TNK41601
5	FV4160104 FV - Unloading 65TNK41601
6	FV4160116 FV - Loading 65TNK41602
7	FV4160114 FV - Unloading 65TNK41602
8	FV4160148 FV - Loading Light Vehicle Tank
9	YS4160129A PLC set Remote start for Microload to run
10	YS4160129B PLC set Remote stop for Microload to stop
11	YS4160135A PLC set Remote start for Microload to run
12	YS4160135B PLC set Remote stop for Microload to stop
13	SPARE
14	SPARE
15	SPARE
16	YA4160150A Tank Overfill Alarm to fire alarm panel
17	YA4160150B Emergency Stop activated to fire alarm panel
18	YA4160150C Temperature Alarm to fire alarm panel
19	YA4160150D Pumps and Valves Malfunction Alarm to fire alarm panel
20	SPARE
21	SPARE
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE

FTA-1
ABE7R16T210

FTA-2
ABE7R16T210

120Vac REF:65-ULT-416-IN-416
H4 N

24Vdc REF:65-ULT-416-IN-003

65-JB-416-12
TB-00

65-JB-416-12
TB-FIRE

PUMPING ROOM AREA

PUMPING ROOM AREA

ELECTRICAL CONTAINER
FIRE ALARM PANEL

SENSING VOLTAGE
SIGNAL IN

TO BE DEFINED BY AGNICO-EAGLE

PLC CABINET 65PLC416002

NOTES GENERALES / GENERAL NOTES

NOTE 1 : CONTRACTOR MUST INSTALL JUMPERS WIRE ON VALVE TERMINAL BLOCK
REF : 65-ULT-416-112

ISSUED FOR CONSTRUCTION
DATE: SEP 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV	DATE	DESCRIPTION	PREPARED	APPROVED	CLIENT
2	2017-09-19	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-15	FOR COMMENTS	E.L.	D.C.	

REVISIONS

MUSKEG PROPHET MINING

ultragen

NO. PROJET PROJECT NO. 591700

TITRE / TITLE
AGNICO EAGLE – MEADOWE DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CARD WIRING INTERCONNECTION
DIGITAL OUTPUT
SLOT 3

		DATE
DESSINE PAR DRAWN BY	ERIC LAROUCHE	2017-06-06
VERIFIE PAR CHECKED BY	DANIEL CARRIER	2017-06-06
APPROUVE PAR APPROVED BY	DANIEL CARRIER	2017-06-06

ECHELLE SCALE: NTS
DATE: 2017-06-06

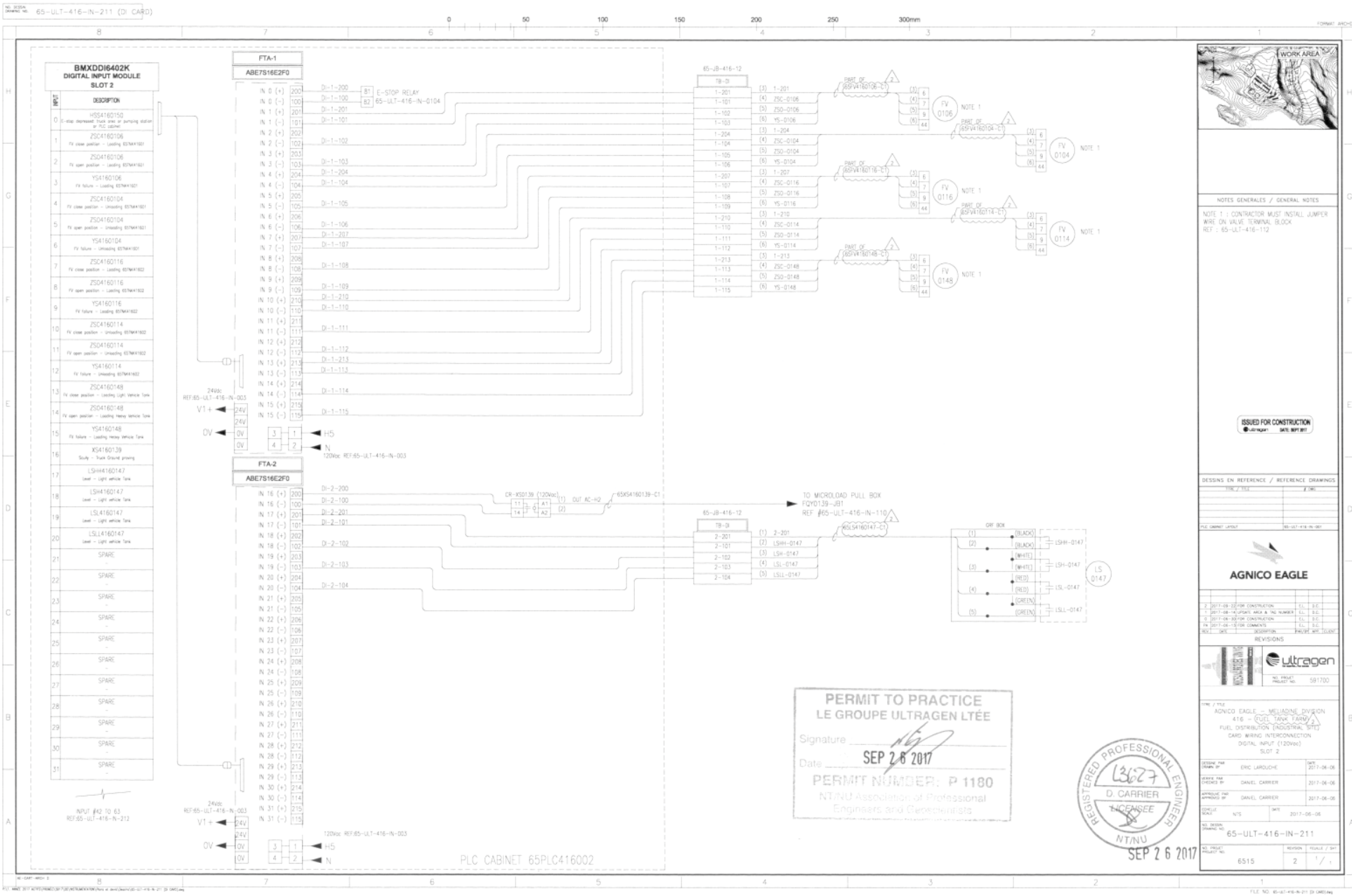
NO. DESSIN DRAWING NO. 65-ULT-416-IN-210

NO. PROJET PROJECT NO. 6515
REVISION 2
FEUILLE / SHT 1 / 1

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

FILE NO. 65-ULT-416-IN-210 (DO CARD).dwg


65-ULT-416-IN-211 (DI CARD)
BMXDDI6402K
DIGITAL INPUT MODULE
SLOT 2
FTA-1
ABE7S16E2F0
FTA-2
ABE7S16E2F0
65-JB-416-12
TB-DI
E-STOP RELAY
65-ULT-416-IN-0104
24Vdc
REF:65-ULT-416-IN-003
120Vac REF:65-ULT-416-IN-003
INPUT #42 TO 63
REF:65-ULT-416-N-212
CR-XSD139 (120Vac)
65XS4160139-C1
TO MICROLOAD PULL BOX
FQYD139-JB1
REF #65-ULT-416-IN-110
65LS4160147-C1
GRF BOX
LSHH-0147
LSH-0147
LSL-0147
LSLL-0147
LS 0147
FV 0106
FV 0104
FV 0116
FV 0114
FV 0148
NOTE 1
PLC CABINET 65PLC416002
WORK AREA
NOTES GENERALES / GENERAL NOTES
NOTE 1 : CONTRACTOR MUST INSTALL JUMPER WIRE ON VALVE TERMINAL BLOCK
REF : 65-ULT-416-112
ISSUED FOR CONSTRUCTION
DESSINS EN REFERENCE / REFERENCE DRAWINGS
AGNICO EAGLE
REVISIONS
PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists
REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CARD WIRING INTERCONNECTION
DIGITAL INPUT (120Vac)
SLOT 2
65-ULT-416-IN-211
6515
591700

NO. DESSIN DRAWING NO. 65-ULT-416-IN-212 (DI CARD)

FORMAT ARCH D

BMXDDI6402K
DIGITAL INPUT MODULE
SLOT 2

INPUT	DESCRIPTION
INPUT #0 TO 31 REF:65-ULT-416-IN-211	
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE
43	SPARE
44	SPARE
45	SPARE
46	SPARE
47	SPARE
48	SPARE
49	SPARE
50	SPARE
51	SPARE
52	SPARE
53	SPARE
54	SPARE
55	SPARE
56	SPARE
57	SPARE
58	SPARE
59	SPARE
60	SPARE
61	SPARE
62	SPARE
63	SPARE

FTA-3
ABE7S16E2F0

IN 0 (+)	200	
IN 0 (-)	100	
IN 1 (+)	201	
IN 1 (-)	101	
IN 2 (+)	202	
IN 2 (-)	102	
IN 3 (+)	203	
IN 3 (-)	103	
IN 4 (+)	204	
IN 4 (-)	104	
IN 5 (+)	205	
IN 5 (-)	105	
IN 6 (+)	206	
IN 6 (-)	106	
IN 7 (+)	207	
IN 7 (-)	107	
IN 8 (+)	208	
IN 8 (-)	108	
IN 9 (+)	209	
IN 9 (-)	109	
IN 10 (+)	210	
IN 10 (-)	110	
IN 11 (+)	211	
IN 11 (-)	111	
IN 12 (+)	212	
IN 12 (-)	112	
IN 13 (+)	213	
IN 13 (-)	113	
IN 14 (+)	214	
IN 14 (-)	114	
IN 15 (+)	215	
IN 15 (-)	115	

24Vdc REF:65-ULT-416-IN-003
V1+ ◄ 24V
24V
0V ◄ 0V
0V

3 1 ◄ H5
4 2 ◄ N
120Vac REF:65-ULT-416-IN-003

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REVISIONS				
2	2017-09-18	FOR CONSTRUCTION	C.L.	D.C.
1	2017-08-14	UPDATE AREA & TAG NUMBER	C.L.	D.C.
0	2017-06-30	FOR CONSTRUCTION	C.L.	D.C.
PA	2017-06-15	FOR COMMENTS	C.L.	D.C.
REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT

ultragen
NO. PROJET PROJECT NO. 591700

TYPE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CARD WIRING INTERCONNECTION
DIGITAL INPUT (120Vac) – PART 2 OF 2
SLOT 2

DESSINE PAR DRAWN BY	ERIC LAROUCHE	DATE 2017-06-06
VERIFIE PAR CHECKED BY	DANIEL CARRIER	2017-06-06
APPROUVE PAR APPROVED BY	DANIEL CARRIER	2017-06-06
ECHELLE SCALE	NTS	DATE 2017-06-06

NO. DESSIN DRAWING NO. 65-ULT-416-IN-212

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1 / 1

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3627
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

AC-CAFT-ARCH D

FILE NO. 65-ULT-416-IN-212 (DI CARD).dwg

NO. DESSIN
DRAWING NO. 65-ULT-416-IN-213 (AI CARD)

FORMAT ARCH D

BMXAMI0810
ANALOG INPUT MODULE
SLOT 4

INPUT	DESCRIPTION
0	LIT4160103 Level - 65TN41601
1	LIT4160113 Level - 65TN41602
2	TT4160102 Temperature - 65TN41601
3	TT4160112 Temperature - 65TN41602
4	LIT4160147 LEVEL - 65TN41605
5	SPARE
6	SPARE
7	SPARE

ABE7CPA31

IS 0	100	AI-0
IV 0	101	
IC 0	102	
OV 0	103	
IS 1	104	AI-1
IV 1	105	
IC 1	106	
OV 1	107	
IS 2	108	AI-2
IV 2	109	
IC 2	110	
OV 2	111	
IS 3	112	AI-3
IV 3	113	
IC 3	114	
OV 3	115	
IS 4	116	AI-4
IV 4	117	
IC 4	118	
OV 4	119	
IS 5	120	
IV 5	121	
IC 5	122	
OV 5	123	
IS 6	124	
IV 6	125	
IC 6	126	
OV 6	127	
IS 7	128	
IV 7	129	
IC 7	130	
OV 7	131	
GND	1	
GND	2	
GND	3	
GND	4	

V.3+ 24V
0V 0V
24Vdc REF:65-ULT-416-IN-003

65-JB-416-12
TB-AI

100		LIT0103+
102		LIT0103-
SHD		
104		LIT0113+
106		LIT0113-
SHD		
108		TT0102+
110		TT0102-
SHD		
112		TT0112+
114		TT0112-
SHD		
116		LIT0147+
118		LIT0147-
SHD		

65LIT4160103-C1
65LIT4160113-C1
65TT4160102-C1
65TT4160112-C1
65LIT4160147-C1

LIT 0103
LIT 0113
TT 0102
TT 0112
LIT 0147

PLC CABINET 65PLC416002

NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEPT 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PREP./BY	APP.	CLIENT
2	2017-09-19	FOR DESCRIPTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUNAVUT PROPHET MINING
ultragen
NO. PROJET / PROJECT NO. 591700

TITRE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION (INDUSTRIAL SITE)
CARD WIRING INTERCONNECTION
ANALOG INPUT
SLOT 4

DESSINE PAR / DRAWN BY	ERIC LAROUCHE	DATE 2017-06-06
VERIFIE PAR / CHECKED BY	DANIEL CARRIER	2017-06-06
APPROUVE PAR / APPROVED BY	DANIEL CARRIER	2017-06-06
ECHELLE / SCALE	NTS	DATE 2017-06-06

NO. DESSIN / DRAWING NO. 65-ULT-416-IN-213

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	1 / 1

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
13627
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

AI-CART-ARCH D

P:\1 ANNEE 2017 ACTIFS\PROJETS\591700\INSTRUMENTATION\Plans et dwg\Dessin\65-ULT-416-IN-213 (AI CARD).dwg

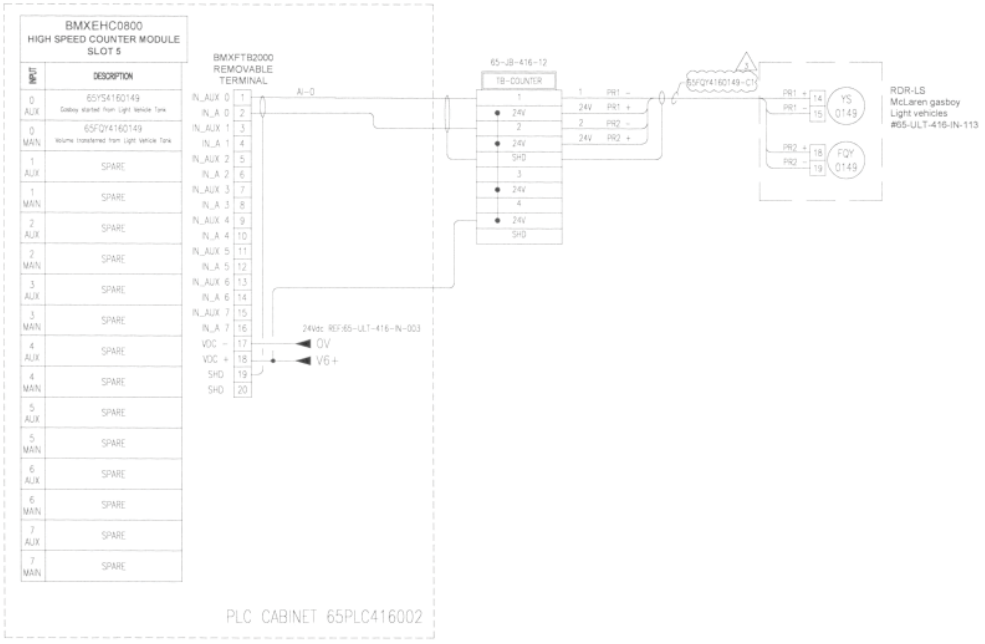
FILE NO.: 65-ULT-416-IN-213 (AI CARD).dwg

NO. DESSIN DRAWING NO. 65-ULT-416-IN-214 (PULSE CARD)

FORMAT ARCH D

BMXEHC0800
HIGH SPEED COUNTER MODULE
SLOT 5

BIT	DESCRIPTION
0 AUX	65YS4160149 Gasboy started from Light Vehicle Tank
0 MAIN	65FQY4160149 Volume transferred from Light Vehicle Tank
1 AUX	SPARE
1 MAIN	SPARE
2 AUX	SPARE
2 MAIN	SPARE
3 AUX	SPARE
3 MAIN	SPARE
4 AUX	SPARE
4 MAIN	SPARE
5 AUX	SPARE
5 MAIN	SPARE
6 AUX	SPARE
6 MAIN	SPARE
7 AUX	SPARE
7 MAIN	SPARE



NOTES GENERALES / GENERAL NOTES

ISSUED FOR CONSTRUCTION
ultragen DATE: SEP 2017

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TYPE / TITLE	# DWG
PLC CABINET LAYOUT	65-ULT-416-IN-001

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-09-19	FOR CONSTRUCTION	E.L.	D.C.	
1	2017-08-14	UPDATE AREA & TAG NUMBER	E.L.	D.C.	
0	2017-06-30	FOR CONSTRUCTION	E.L.	D.C.	
PA	2017-06-13	FOR COMMENTS	E.L.	D.C.	

REVISIONS

NUQSANIQ PROJECT MINING — ultragen — NO. PROJET PROJECT NO. 591700

TITRE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
416 – FUEL TANK FARM
FUEL DISTRIBUTION INDUSTRIAL SITE
CARD WIRING INTERCONNECTION
HIGH SPEED COUNTER MODULE
SLOT 5

DESSINE PAR DRAWN BY	ERIC LAROUCHE	DATE 2017-06-06
VERIFIE PAR CHECKED BY	DANIEL CARRIER	2017-06-06
APPROUVE PAR APPROVED BY	DANIEL CARRIER	2017-06-06
ECHELLE SCALE	NTS	DATE 2017-06-06
NO. DESSIN DRAWING NO.	65-ULT-416-IN-214	
NO. PROJET PROJECT NO.	6515	REVISION 2
FEUILLE / SHT	1 / 1	

PERMIT TO PRACTICE
LE GROUPE ULTRAGEN LTÉE
Signature
Date SEP 26 2017
PERMIT NUMBER: P 1180
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
L3677
D. CARRIER
LICENSEE
NT/NU
SEP 26 2017

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FILE NO. 65-ULT-416-IN-214 (PULSE CARD).dwg

AGNICO EAGLE

Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

4 ☑ Complete, no further submission required.

By: Jean-Francois Tremblay Date: 2017-05-02

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Agnico Eagle No. 6515-C-270-007-141-TES-0014 R: Sub001

DOCUMENT FOR INFORMATION

NUQSANA PROMEC MINING

Agnico-Eagle Mines Ltd.
Non-Conformance Report

ITR Number : AEM-GE-ITR-002
Contract no. : C22466T / C22498E

AGNICO EAGLE

PART 1 – To be completed by Originator

ITR no. :	Supplier/Vendor/Manufacturer/Contractor :	Originator :	Date:

Equipment Identification:	Equipment Tag No.:

Disposition Requested:	NCR Classification:
☐ 48 Hours ☐ Other	☐ Supplier ☐ Fabrication ☐ Engineering ☐ Construction ☐

Current Status:	Potential Impact (Check appropriate box and give estimate):
☐ Work Already Done ☐ Partially Done ☐ Other ____	☐ Cost ☐ Schedule ☐ Other

Detailed Description of Non-Conformance (attach sketch, pictures, etc) :

Describe Deviation to Drawings, Specifications, Standard, Code or other Reference:

PART 2 - Disposition

* CONTRACTOR Proposed Disposition / Resolution:	Concession Request No. (if applicable):	Contractors NCR No. (if applicable):
☐ Use As Is ☐ Repair ☐ Rework ☐ Reject/Scrap		

Details of Contractor Corrective Actions Proposed / Concession Request:

* Disposition:	Dispositioning Party:	Signature:
☐ Use as Is ☐ Repair ☐ Rework ☐ Reject/Scrap		

Recommended Resolution / Actions:

PART 3 - Confirmation

Corrective Actions Completed By:	Corrective Actions Accepted by Dispositioning Party:
Name:	Name:
Date:	Date:
Signature:	Signature:
Corrective Actions Accepted by Originator:	**NCR Closed Out By (Area QA Coordinator)**
Name:	Name:
Date:	Date:
Signature:	Signature:

* ***Note:*** Dispositions are not to be construed as a change to any Contracts which may be affected. Prior to initiating any work which will impact the Contract terms, the Contractors must forward to AMEC written notice of all impacts, including but not limited to cost and schedule. Any work completed without a written instruction to proceed, if required, will be at the Contractor's risk.

6515-C-270-007

Fuel Tanks Piping Supply and Installation

Non-Conformance Log

Document Number : AEM-GE-LOG-002
Contract Number : C22466T / C22498E

Number	Company	Description	Initiator	Date Opened	Date Closed	Progress Status
NCR-001						N/A
NCR-002						N/A
NCR-003						N/A
NCR-004						N/A
NCR-005						N/A
NCR-006						N/A
NCR-007						N/A
NCR-008						N/A
NCR-009						N/A
NCR-010						N/A
NCR-011						N/A
NCR-012						N/A
NCR-013						N/A
NCR-014						N/A
NCR-015						N/A
NCR-016						N/A
NCR-017						N/A
NCR-018						N/A
NCR-019						N/A
NCR-020						N/A
NCR-021						N/A
NCR-022						N/A
NCR-023						N/A
NCR-024						N/A
NCR-025						N/A
NCR-026						N/A
NCR-027						N/A
NCR-028						N/A
NCR-029						N/A
NCR-030						N/A
NCR-031						N/A
NCR-032						N/A
NCR-033						N/A
NCR-034						N/A
NCR-035						N/A
NCR-036						N/A
NCR-037						N/A
NCR-038						N/A
NCR-039						N/A
NCR-040						N/A

AGNICO EAGLE — Vendor Document Status

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Revise as noted and resubmit next submission and status.

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By: Jean-Francois Tremblay Date: 2017-05-02

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Agnico Eagle No. 6515-C-270-007-141-TES-0019 R: Sub001

DOCUMENT FOR INFORMATION

AGNICO EAGLE

Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

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By: Jean-Francois Tremblay Date: 2017-05-02

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Agnico Eagle No. 6515-C-270-007-141-TES-0018 R: Sub001

DOCUMENT FOR INFORMATION

Agnico-Eagle Mines Ltd.
Miscellaneous Field Report

ITR Number : AEM-GE-ITR-006
Contract no. : C22466T / C22498E

SYSTEM:	TAG NO. :	
LOCATION:	AREA:	UNIT:

DATE	ACTIVITY

PROMEC DESIGNATE - SIGNATURE _____ TITLE _____ DATE _____

CLIENT DESIGNATE - SIGNATURE _____ TITLE _____ DATE _____

AGNICO EAGLE

Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

4 ☑ Complete, no further submission required.

By: JEAN-FRANCOIS TREMBLAY Date: 2017-06-22

Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.

Agnico Eagle No. 6515-C-270-007-141-TES-0030 R: Sub002

DOCUMENT FOR INFORMATION

NUQSANA PROMEC MINING

AGNICO-EAGLE MINES Ltd.
Inspection & Testing Report

ITR Number: AEM-IN-ITR-007
ITR Type: Miscellaneous Instruments
Contract No.: 6515-C-270-007

AGNICO EAGLE

Tag Number:		**Equipment/ Pipe N°:**		**System:**	
Service:		**Function:**		**Purchase Order:**	
Manufacturer:		**Model:**		**Serial Number:**	
Location Dwg :		**Reference Datasheet:**		**Installation Detail Dwg:**	
Reference Datasheet Number:					

Item N°	Inspection Points	C	NC/ NCR #	N/A	Completed By/ Date
1	INSTRUMENT TAG ATTACHED	C	NC #_____	N/A	Promec: CLIENT:
2	CABLE TAG ATTACHED	C	NC #_____	N/A	Promec: CLIENT:
3	DEVICE INSTALLED AS PER INSTALLATION DETAILS, LOCATION OR MANUFACTURER'S DRAWING	C	NC #_____	N/A	Promec: CLIENT:
4	EQUIPMENT ACCESSIBLE AND EASY TO MAINTAIN	C	NC #_____	N/A	Promec: CLIENT:
5	WIRING CORRECT AND PROPERLY LABELED	C	NC #_____	N/A	Promec: CLIENT:
6	CALIBRATION CERTIFICATE AVAILABLE	C	NC #_____	N/A	Promec: CLIENT:
7	ELECTRICAL SUPPLY COMPATIBLE WITH SOURCE	C	NC #_____	N/A	Promec: CLIENT:
8		C	NC #_____	N/A	Promec: CLIENT:
9		C	NC #_____	N/A	Promec: CLIENT:
10		C	NC #_____	N/A	Promec: CLIENT:
11		C	NC #_____	N/A	Promec: CLIENT:

Comments

Sign Off			
Promec Signature:		**CLIENT Signature:**	
Date:		**Date:**	

Legend					
C	Conformance	**NC**	Non Conformance	**N/A**	Not Applicable
NCR	Non Conformance Report				

AGNICO EAGLE

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Revise as noted and resubmit next submission and status.

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By: Jean-Francois Tremblay Date: 2017-05-02

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Agnico Eagle No. 6515-C-270-007-141-TES-0017 R: Sub001

DOCUMENT FOR INFORMATION

Agnico-Eagle Mines Ltd.
Inspection Deficiency Report

ITR Number : AEM-GE-ITR-005
Contract no. : C22466T / C22498E

Area:	CWP No:
Equipment Tag No:	Inspection Deficiency Report No:
Date:	Page_____ of _____
Reference Drawings:	
Reference Photos:	
Description of Deficiency:	
Suggested Solution:	
Engineering Contact Made: Yes ☐ No ☐ Name:	
Course of Action:	
Engineering Follow-up Required: Yes ☐ No ☐ Date Required:	

Promec's Representative Print Name		Client's Representative Print Name	
Promec's Representative Signature	Date	Client's Representative Signature	Date

6515-C-270-007

Fuel Tanks Piping Supply and Installation

Inspection Deficiency Log

Document Number : AEM-GE-LOG-004
Contract Number : C22466T / C22984E

Number	Description	Initiator	Dept.	Date	Contract No.		Progress Status
Deficiency-001						N/A	
Deficiency-002						N/A	
Deficiency-003						N/A	
Deficiency-004						N/A	
Deficiency-005						N/A	
Deficiency-006						N/A	
Deficiency-007						N/A	
Deficiency-008						N/A	
Deficiency-009						N/A	
Deficiency-010						N/A	
Deficiency-011						N/A	
Deficiency-012						N/A	
Deficiency-013						N/A	
Deficiency-014						N/A	
Deficiency-015						N/A	
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Deficiency-019						N/A	
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Deficiency-026						N/A	
Deficiency-027						N/A	
Deficiency-028						N/A	
Deficiency-029						N/A	
Deficiency-030						N/A	
Deficiency-031						N/A	
Deficiency-032						N/A	
Deficiency-033						N/A	
Deficiency-034						N/A	
Deficiency-035						N/A	
Deficiency-036						N/A	
Deficiency-037						N/A	
Deficiency-038						N/A	
Deficiency-039						N/A	
Deficiency-040						N/A	

Vendor Document Status

AGNICO EAGLE

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3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

4 ☑ Complete, no further submission required.

By: JEAN-FRANCOIS TREMBLAY Date: 2017-05-16

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Agnico Eagle No. 6515-C-270-007-141-TES-0020 R: Sub001

DOCUMENT FOR INFORMATION

AGNICO EAGLE

Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

4 ☒ Complete, no further submission required.

By: 2017-05-31 Date:

Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.

Agnico Eagle No. 6515-C-270-007-275-SSS-0020 R: Sub001

DOCUMENT FOR INFORMATION

VIKING
PROTECTION INCENDIE VIKING INC.
3005 | boulevard Pitfield | Saint-Laurent, Québec, Canada | H4S 1H4
Tél. **514.332.5110** Télec : 514.332.5063 info@vikingfire.ca

Shop Drawings

Prepared for:
Constr. Promec

Notifier Fire Alarm system
Purchase Order: 61116
Our Project #: TMC-XXXXX
Meliadine Fuel Farm

Prepared by: **Joëlle-Ann Forget**
Sales Représentative: Pierre Noël

May 6, 2017

1 copy by email for **APPROBATION**

	MODEL NUMBER	
1	NFS-320C	NFS-320C, 120VAC NOIR
2	ACM-24AT	ANNONCIATEUR À DEL (24)+INTERRUPTEUR
3	NFN-GW-EM-3	NFN GATEWAY EMBEDDED
4	800BAT1218	BATTERIE 12volts 18amps
6	ISO-6A	CARTE DE 6 ISOLATEURS INCORP.ULC
7	NBG-12LX	STATION MANUEL, 1 ÉTAPE, ADRESSABLE FLASHSCAN
8	SB-10	BOÎTIER DE SURFACE POUR SÉRIENBG
9	FAPT-851A	DÉTECTEUR PHOTO/THERM. FLASHSCAN (TÊTE)
10	B210LPA	BASE DE MONTAGE DE DETECTAVEC BRIDE, ULC
11	FRM-1A	MODULE ADRESSABLE (RELAIS) FLASHSCAN
12	P2RKA-B	KLX STRO.MONT MUR, 2 FILS STND, ROUGE,EXT,BILINGUE
13	HRA	KLAXON, 2 FILS 12/24 VDC. ROUGE, MURALE
14	HRKA	KLAXON, 2 FILS 12/24 VDC.ROUGE,MUR,EPP MAUV.TEMPS
15	SBBR	BOÎTIER DE SURFACE ROUGE POURHP, ET1070/ET1080,E7
16	EOL-CR	PLAQUE DE FIN DE LIGNE MÉTAL ROUGE
17	FDM-1A	MODULE ADRESSABLE DOUBLE ENTRÉES (GICLEUR).
18	NBG-12L	STATION MANUEL, 2 ÉTAPES C/A SERRURE, ROUGE
19	STI-13410FR	RED STI UNIVERSAL STOPPERSTI-13410-FR
20	CR-135MP	DÉTECT. THERM. 135°F THERMO.& FIXE/ANTI-HUMIDITÉ

VIKING
PROTECTION INCENDIE VIKING INC.
3005 | boulevard Pitfield | Saint-Laurent, Québec, Canada | H4S 1H4
Tél. 514.332.5110 Télec : 514.332.5063 info@vikingfire.ca

Basic installation guide

Control panel
A maximum distance of 1728mm (5'-8") must separate the top of the control panel and the finished floor surface.

For built in panels, please refer to the following examples for the minimal distance required between the finished wall (gyproc) and the exterior box.

Fire alarm panel	Minimal distance
NFS-320C-FR	1" (25mm)
NFW-50C-FR (Firewarden)	1" (25mm)
NFW2-100C-FR (Firewarden)	1" (25mm)
SBB-A4 (NFS-640 & NFS-3030)	1" (25mm)
SBB-B4 (NFS-640 & NFS-3030)	1" (25mm)
SBB-C4 (NFS-640 & NFS-3030)	1" (25mm)
SBB-D4 (NFS-640 & NFS-3030)	1" (25mm)

There must be a minimum distance in front of the control panel, equal to the width of the control panel, left in front of it.

Manual pull station
Installation height of **1200mm (47")** from the middle of the component and the level of the finished floor **for buildings with elevators.** As requested in the CNB2010 art. 3.8.1.5 (Required by the Régie du Bâtiment)

Installation height between 1200mm (47") and 1400mm (53") from the middle of the component and the level of the finished floor for buildings without elevators

Fire fighter handset
Installation height between 1350mm (53") and 1500mm (60") from the middle of the component and the level of the finished floor.

Detectors (smoke or heat)
A minimum clearance of 450mm (18") must be provided underneath and around the detectors.

The detectors must be installed at a minimum of 450mm (18") from all electrical supply line and air discharge.

Mini horn with silence button
Installation height of **1200mm (47")** from the middle of the component and the level of the finished floor **for buildings with elevators.** As requested in the CNB2005 art. 3.8.1.5 (Required by the Régie du Bâtiment)

Installation height between 1200mm (47") and 1400mm (53") from the middle of the component and the level of the finished floor for buildings without elevators

Audible and visual device
Installation height between 2000mm and 2400mm from the middle of the component and the level of the finished floor.

NFS-320C

Intelligent Addressable Fire Alarm System

NOTIFIER® by Honeywell

Intelligent Fire Alarm Control Panels

General

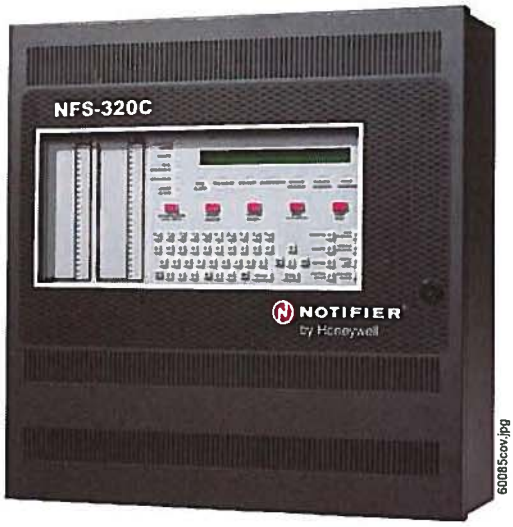
The NFS-320C intelligent Fire Alarm Control Panel is part of the ONYX® Series of Fire Alarm Controls from NOTIFIER.

In stand-alone or network configurations, ONYX Series products meet virtually every application requirement.

The NFS-320C's modular design makes system planning easier. The panel can be configured with just a few devices for small building applications, or networked with many devices to protect a large campus or a high-rise office block. Simply add additional peripheral equipment to suit the application. For example, certain geographic regions such as Canada have specific LED annunciation requirements. To provide up to 48 zones/points in the same cabinet, add an optional ACM Series annunciator (sold separately).

Features

- Listed to Standard ULC-S527-99.
- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. *See DN-60688.*
- One isolated intelligent Digital Communications Loop (DCL) Style 4, 6 or 7.
- Up to 159 detectors and 159 modules per SLC; 318 devices maximum.
  - Detectors can be any mix of ion, photo, thermal, or multisensor.
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay.
- Standard 80-character display.
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NFS-3030, NFS-640, and NCA).
  - Standard network for up to 103 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, S, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Optional universal 318-point DACT.
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.



NFS-320C

- March time / temporal / Canadian two-stage coding, 20 ppm and temporal / strobe synchronization.
- Field-programmable on panel or on PC, with VeriFire Tools program check, compare, simulate.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.

FlashScan® Intelligent Features

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels (see individual device information for available settings).
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Ion –** 0.5 to 2.5%/foot obscuration.
  - **Photo –** 0.5 to 2.35%/foot obscuration.
  - **Laser (VIEW®) –** 0.02 to 2.0%/foot obscuration.
  - **Acclimate Plus™ –** 0.5 to 4.0%/foot obscuration.
  - **IntelliQuad –** 1.0 to 4.0%/foot obscuration.
  - **IntelliQuad™ PLUS –** 1.0 to 4.0%/foot obscuration
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode: In the unlikely event that the FACP's microprocessor fails, FlashScan detectors revert to degraded operation and can activate the NAC circuits and alarm relay.

Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.

- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

FSL-751A VIEW (VERY INTELLIGENT EARLY WARNING) SMOKE DETECTION TECHNOLOGY

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals (U.S. Patent 5,831,524).
- Addressable operation pinpoints the fire location.
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost.

FAPT-851A ACCLIMATE PLUS LOW-PROFILE INTELLIGENT MULTI-SENSOR

- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).

FSC-851 INTELLIQUAD ADVANCED MULTI-CRITERIA DETECTOR

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- Automatic drift compensation of smoke sensor and CO cell.
- High nuisance-alarm immunity.

INTELLIGENT FAAST® DETECTORS FSA-5000A, FSA-8000A, AND FSA-20000A

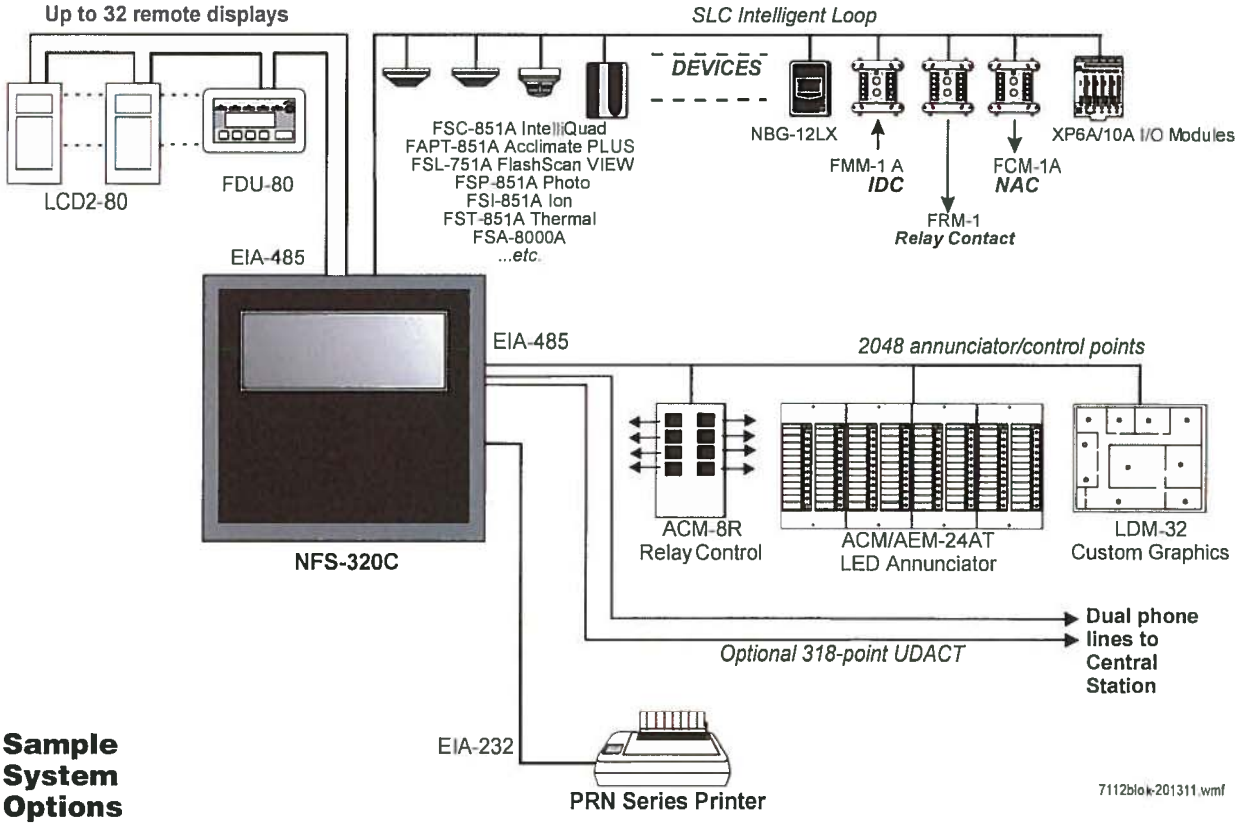
- Connects directly to the SLC loop of compatible ONYX series panels.
- Provides five event thresholds that can be individually programmed with descriptive labels for control-by-event programming; uses five detector addresses.
- Uses patented particle separator and field-replaceable filter to remove contaminants.
- Advanced algorithms reject common nuisance conditions
- FSA-5000A covers 5,000 square feet through one pipe.
- FSA-8000A covers 8,000 square feet through one pipe.
- FSA-20000A covers 28,800 square feet through one to four pipes.

FCO-851A INTELLIQUAD™ PLUS ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire.
- Separate signal for life-safety CO detection.
- Optional addressable sounder base for Temp-3 (fire) or Temp-4(CO) tone.
- Automatic drift compensation of smoke sensor and CO cell.
- High nuisance-alarm immunity.

RELEASING FEATURES

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO_2 listed.



Sample System Options

VOICE FEATURES

- Integrates with FirstCommand Series. *See DN-60772. Note: Only NFC-50/100 and NFC-LOC are approved for Canadian applications.*

HIGH-EFFICIENCY OFFLINE SWITCHING

3.0 A POWER SUPPLY (6.0 A IN ALARM)

- 120 VAC.
- Displays battery current/voltage on panel (with display).

FlashScan, Exclusive World-Leading Detector Protocol

At the heart of the NFS-320C is a set of detection devices and device protocol — FlashScan (U.S. Patent 5,539,389). FlashScan is an all-digital protocol that gives superior precision and high noise immunity.

In addition to providing quick identification of an active input device, this protocol can also activate many output devices in a fraction of the time required by competitive protocols. This high speed also allows the NFS-320C to have the largest device per loop capacity in the industry — 318 points — yet every input and output device is sampled in less than two seconds. The microprocessor-based FlashScan detectors have bicolor LEDs that can be coded to provide diagnostic information, such as device address during Walk Test.

ONYX Intelligent Sensing

Intelligent sensing is a set of software algorithms that provides the NFS-320C with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the high-speed microcomputer used by the NFS-320C.

Drift Compensation and Smoothing: Drift compensation allows the detector to retain its original ability to detect actual smoke, and resist false alarms, even as dirt accumulates. It reduces maintenance requirements by allowing the system to automatically perform the periodic sensitivity measurements required by NFPA 72. Smoothing filters are also provided by software to remove transient noise signals, such as those caused by electrical interference.

Maintenance Warnings: When the drift compensation performed for a detector reaches a certain level, the performance of the detector may be compromised, and special warnings are given. There are three warning levels: (1) Low Chamber value; (2) Maintenance Alert, indicative of dust accumulation that is near but below the allowed limit; (3) Maintenance Urgent, indicative of dust accumulation above the allowed limit.

Sensitivity Adjust: Nine sensitivity levels are provided for alarm detection. These levels can be set manually, or can change automatically between day and night. Nine levels of pre-alarm sensitivity can also be selected, based on predetermined levels of alarm. Pre-alarm operation can be latching or self-restoring, and can be used to activate special control functions.

Self-Optimizing Pre-Alarm: Each detector may be set for "Self-Optimizing" pre-alarm. In this special mode, the detector "learns" its normal environment, measuring the peak analog readings over a long period of time, and setting the pre-alarm level just above these normal peaks.

Cooperating Multi-Detector Sensing: A patented feature of ONYX intelligent sensing is the ability of a smoke sensor to consider readings from nearby sensors in making alarm or pre-alarm decisions. Without statistical sacrifice in the ability to resist false alarms, it allows a sensor to increase its sensitivity to actual smoke by a factor of almost two to one.

Field Programming Options

Autoprogram is a timesaving feature. The FACP "learns" what devices are physically connected and automatically loads them in the program with default values for all parameters. Requiring less than one minute to run, this routine allows the user to have almost immediate fire protection in a new installation, even if only a portion of the detectors are installed.

Keypad Program Edit (with KDM-R2) The NFS-320C, like all NOTIFIER intelligent panels, has the exclusive feature of program creation and editing capability from the front panel keypad, ***while continuing to provide fire protection.*** The architecture of the NFS-320C software is such that each point entry carries its own program, including control-by-event links to other points. This allows the program to be entered with independent per-point segments, while the NFS-320C simultaneously monitors other (already installed) points for alarm conditions.

VeriFire® Tools is an offline programming and test utility that can greatly reduce installation programming time, and increase confidence in the site-specific software. It is Windows®-based and provides technologically advanced capabilities to aid the installer. The installer may create the entire program for the NFS-320C in the comfort of the office, test it, store a backup file, then bring it to the site and download from a laptop into the panel.

Placement of Equipment in Chassis and Cabinet

The following guidelines outline the NFS-320C's flexible system design.

Wiring: When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the *NFS-320/C/E Installation Manual*.

It is critical that all mounting holes of the NFS-320C are secured with a screw or standoff to ensure continuity of Earth Ground.

Networking: If networking two or more control panels, each unit requires a Network Communication Module or High-Speed Network Communication Module (HS-NCM can support two nodes; see "Networking Options" on page 5). These modules can be installed in any option board position (see manual), and additional option boards can be mounted in front of them.

KDM-R2 Controls and Indicators

Program Keypad: QWERTY type (keyboard layout).

12 LED Indicators: Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Signals Silenced; Points Disabled; Control Active; Abort; Pre-Discharge; Discharge.

Keypad Switch Controls: Acknowledge/Scroll Display; Signal Silence; Drill; System Reset; Lamp Test.

LCD Display: 80 characters (2 x 40) with long-life LED backlight.

Product Line Information

- "Configuration Guidelines" on page 4
- "Main System Components" on page 4
- "Networking Options" on page 5
- "Auxiliary Power Supplies and Batteries" on page 4
- "Audio Options" on page 4
- "Compatible Devices, EIA-232 Ports" on page 4
- "Compatible Devices, EIA-485 Ports" on page 4
- "Compatible Intelligent Devices" on page 4
- "Enclosures, Chassis, and Dress Plates" on page 5
- "Other Options" on page 5

Configuration Guidelines

The NFS-320C system ships assembled; description and some options follow. See "Enclosures, Chassis, and Dress Plates" on page 5 for information about mounting peripherals.

***NOTE:** Stand-alone and network systems require a main display. On stand-alone systems, the panel's keypad provides the required display. On network systems (two or more networked fire panel nodes), at least one NCA-2, NCS, or ONYXWorks annunciation device is required. For NCA-2, see DN-7047.*

Main System Components

NFS-320C: The standard, factory-assembled NFS-320C system includes the following components: one control panel mounted on chassis (120 V operation — ships with grounding cable, battery interconnect cables, and document kit); one integral power supply mounted to the control panel; one primary display KDM-R2 keypad/display; and one cabinet for surface or semi-flush mounting. *Purchase batteries separately. One or two option boards may be mounted to the NFS-320 cabinet, with one visible to the left of the display and one inside; additional option boards can be used in remote cabinets. See Canadian applications manual addendum 52747.*

NFS-320CR: Same as NFS-320C but in red enclosure.

NFS-320C-FR: Same as NFS-320C but in French language.

TR-320: Trim ring for the NFS-320C cabinet.

Auxiliary Power Supplies and Batteries

ACPS-610: 6.0 A or 10.0 A addressable charging power supply. *See DN-60244.*

FCPS-24S6C/8C: Remote 6 A and 8 A power supplies. See DN-6297. For use only as a NAC expander.

BAT Series: Batteries. NFS-320 uses two 12 volt, 18 to 200 AH batteries. *See DN-6933.*

Audio Options

NFC-50/100: 25 watt, 25 VRMS, emergency Voice Evacuation Control Panel (VECP) with integral commercial microphone, digital message generator, and Class A or Class B speaker circuits. *See DN-60772.*

Compatible Devices, EIA-232 Ports

PRN-6: 80-column printer. *See DN-6956.*

PRN-7: 80-column printer. *See DN-60897*

VS4095/5: Keltron printer, 40-column, 24 V. Mounted in external backbox. *See DN-3260.* (Not ULC-listed.)

DPI-232: Direct Panel Interface, specialized modem for extending serial data links to remotely located FACPs and/or peripherals; mount on NFS-320 chassis. *See DN-6870.*

Compatible Devices, EIA-485 Ports

ACM-24AT: ONYX Series ACS annunciator – up to 96 points of annunciation with Alarm or Active LED, Trouble LED, and switch per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) by point to be red, green, or yellow; the Trouble LED is always yellow. *See DN-6862.*

AEM-24AT: Same LED and switch capabilities as ACM-24AT, expands the ACM-24AT to 48, 72, or 96 points. *See DN-6862.*

ACM-48A: ONYX Series ACS annunciator – up to 96 points of annunciation with Alarm or Active LED per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) in groups of 24 to be red, green, or yellow. Expandable to 96 points with one AEM-48A. *See DN-6862.*

AEM-48A: Same LED capabilities as ACM-48A, expands the ACM-48A to 96 points. *See DN-6862.*

ACM-8R: Remote Relay Module with eight Form-C contacts. Can be located up to 6,000 ft. (1828.8 m) from panel on four wires. *See DN-3558.*

LCD-80: ACS mode. 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. *See LCD-80/LCD-80TM (DN-3198).*

FDU-80: Terminal mode. 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. Not for use as a primary display in Canada. *See FDU-80 (DN-6820).*

LCD2-80: Terminal and ACS mode. 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. Not for use as primary display in Canadian applications. *See DN-60548.*

LDM: Lamp Driver Modules LDM-32, LDM-E32, and LDM-R32; remote custom driver modules. *See DN-0551.*

SCS: Smoke control stations SCS-8, SCE-8, with lamp drivers SCS-8L, SCE-8L; eight (expandable to 16) circuits (HVAC only). *See DN-4818.*

TM-4: Transmitter Module. Includes three reverse-polarity circuits and one municipal box circuit; mount on NFS-320C chassis or remotely. *See DN-6860.*

UDACT-2: Universal Digital Alarm Communicator Transmitter, 636 channel. *See DN-60686.*

UZC-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs (requires optional programming kit). Mounts in BB-UZC or other compatible chassis (purchased separately). *See DN-3404.*

Compatible Intelligent Devices

FSA-5000A: Intelligent FAAST® XS Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 5,000 sq.ft., with ULC listing.

FSA-8000A: Intelligent FAAST® XM Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 8,000 sq.ft., with ULC listing. *See DN-60792.*

FSA-20000A: Intelligent FAAST® XT Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 28,800 sq.ft., with ULC listing. *See* DN-60849.

FSB-200A: Intelligent beam smoke detector. *See DN-6985.*

FSB-200SA: Intelligent beam smoke detector with integral sensitivity test. *See DN-6895.*

FSC-851A: FlashScan IntelliQuad Advanced Multi-Criteria Detector. *See DN-60412.*

FCO-851A: FlashScan IntelliQuad PLUS Advanced Multi-Criteria Fire/CO Detector. *See DN-60689.*

FSI-851A: Low-profile FlashScan ionization detector. *See DN-6934.*

FSP-851A: Low-profile FlashScan photoelectric detector. *See DN-6935.*

FSP-851TA: Low-profile FlashScan photoelectric detector with 135°F (57°C) thermal. *See DN-6935.*

FSP-851RA: Remote-test capable photoelectric detector for use with DNR(W) duct detector housings. *See DN-6935.*

FST-851A: FlashScan thermal detector 135°F (57°C). *See DN-6936.*

FST-851RA: FlashScan thermal detector 135°F (57°C) with rate-of-rise. *See DN-6936.*

FST-851HA: FlashScan 190°F (88°C) high-temperature thermal detector. *See DN-6936.*

FAPT-851A: FlashScan Acclimate Plus low-profile multi-sensor detector. *See DN-6937.*

FSL-751A: FlashScan VIEW laser photo detector. *See DN-6886.*

DNR: InnovairFlex low-flow non-relay duct-detector housing (order FSP-851A/FSP-851RA separately). Replaces FSD-751PL/FSD-751RPL. *See DN-60429.*

DNRW: Same as above with NEMA-4 rating, watertight. *See DN-60429.*

B224RBA: Low-profile relay base. See DN-60054.

B224BIA: Isolator base for low-profile detectors. See DN-60054.

B210LPA: Low-profile base. Standard U.S. style. Replaces B710LPA. See DN-60054.

B501A: European-style, 4" (10.16 cm) base. See DN-60054.

B200SA: Intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with sychronization protocol. *See DN-60054.*

B200SCOA: Based on B200SA, with added CO detector markings in English/French.

B200SRA: Sounder base, Temporal 3 or Continuous tone. See DN-60054.

FMM-1A: FlashScan monitor module. *See DN-6720.*

FDM-1A: FlashScan dual monitor module. *See DN-6720.*

FZM-1A: FlashScan two-wire detector monitor module. *See DN-6720.*

FMM-101A: FlashScan miniature monitor module. *See DN-6720.*

FCM-1A: FlashScan control module. *See DN-6724.*

FCM-1-RELA: FlashScan releasing control module. *See DN-60390.*

FRM-1A: FlashScan relay module. *See DN-6724.*

FDRM-1A: FlashScan dual monitor/dual relay module. *See DN-60709.*

NBG-12LX: Manual pull station, addressable. *See DN-6726.*

N-MPS series: Manual pull stations, addressable and conventional. For use in Canada only. *See DN-5497.*

FM-955: Addressable pull station with two FMM-101A modules.

FM-9551: Addressable pull station with one FMM-101A module.

FM-955-20C: Addressable pull station with two open contacts.

FM-9551S20C: Addressable pull station with one open and one closed extra contacts.

ISO-XA: Isolator module. *See DN-2243.*

ISO-6A: Six Fault isolator module. *See* DN-60844.

XP6-CA: FlashScan six-circuit supervised control module. *See DN-6924.*

XP6-MAA: FlashScan six-zone interface module; connects intelligent alarm system to two-wire conventional detection zone. *See DN-6925.*

XP6-RA: FlashScan six-relay (Form-C) control module. *See DN-6926.*

XP10-MA: FlashScan ten-input monitor module. *See DN-6923.*

SLC-IM: SLC integration module, for VESDAnet detectors. *See DN-60755*

Networking Options

NCM-W, NCM-F: Standard Network Communications Modules. Wire and multi-mode fiber versions available. *See DN-6861.*

HS-NCM-W/MF/SF/WMF/WSF/MFSF: High-speed Network Communications Modules that can connect to two nodes. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. *See DN-60454.*

RPT-W, RPT-F, RPT-WF: Standard-network repeater board with wire connection (RPT-W), multi-mode fiber connection (RPT-F), or allowing a change in media type between wire and fiber (RPT-WF). Not used with high-speed networks. *See DN-6971.*

ONYXWorks: UL-listed graphics PC workstation, software, and computer hardware. *See DN-7048 for specific part numbers.*

NFN-GW-EM-3: NFN Gateway, embedded. *See DN-60499.*

NWS-3: NOTI•FIRE•NET™ Web Server. *See DN-6928.*

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

VESDA-HLI-GW: VESDAnet high-level interface gateway. *See DN-60753.*

LEDSIGN-GW: UL-listed sign gateway. Interfaces with classic and high-speed NOTI•FIRE•NET networks through the NFN Gateway. *See DN-60679.*

OAX2-24V: UL-listed LED sign, used with LEDSIGN-GW. *See DN-60679.*

Enclosures, Chassis, and Dress Plates

CAB-BM Marine System: Protects equipment in shipboard and waterfront applications. Also order **BB-MB** for systems using 100 AH batteries. For a full list of required and optional equipment, see *DN-60688.*

NFS-LBB: Battery Box (required for batteries over 26 AH).

NFS-LBBR: Same as above, but red.

BB-UZC: Backbox for housing the UZC-256. Required for NFS-320 applications, black. For red, order BB-UZC-R.

SEISKIT-320/B26: Seismic mounting kit. Required for seismic-certified applications with NFS-320C and BB-26. Includes battery bracket for two 26 AH batteries.

SEISKIT-LBB: Seismic kit for the NFS-LBB. Includes battery bracket for two 55 AH batteries.

Other Options

411 Series: Slave Digital Alarm Communicator Transmitters. *See DN-6619.*

IPGSM-4GC: Internet and Digital Cellular Fire Alarm Communicator. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. *See DH-60769.*

NFS-320-RB: Replacement board with central processing unit *NOTE: Keypad must be removed before shipping old unit out for repair.*

NFS-320-RBC-FR: Replacement board with central processing unit, Canadian French. *NOTE: Keypad must be removed before shipping old unit out for repair.*

***NOTE:** For other options including compatibility with retrofit equipment, refer to the panel's installation manual, the SLC manual (for intelligent DCL equipment), and the Device Compatibility Document.*

System Specifications

System Capacity

- Intelligent Digital Communications Loop (DCL) 1
- Intelligent detectors 159
- Addressable monitor/control modules 159
- Programmable internal hardware and output circuits 4
- Programmable software zones 99
- Special programming zones 14
- LCD annunciators per FACP 32
- ACS annunciators per FACP ..... 32 addresses x 64 points

Specifications

- Primary input power: 120 VAC, 50/60 Hz, 5.0 A.
- Current draw (standby/alarm):
  - NFS-320C board: 0.250 A. Add 0.035 A for each NAC in use.
  - KDM-R2 (Backlight on): 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

***NOTE:** The power supply has a total of 6.0 A of available power. This is shared by all internal circuits.*

- Standard notification circuits (4): 1.5 A each.

- Resettable regulated 24V power: 1.25 A.
- Two non-resettable regulated 24V power outputs. One at 1.25 A and the other at 0.50 A.
- Non-resettable 5V power: 0.15 A.
- Battery charger range: 18 AH – 200 AH. Use separate cabinet for batteries over 26 AH.
- Float rate: 27.6 V.

Cabinet Specifications

- NFS-320C cabinet dimensions:
  - Backbox: 18.12 in. (46.025 cm) width; 18.12 in. (46.025 cm) height; 5.81 in. (14.76 cm) depth.
  - Door: 18.187 in. (46.195 cm) width; 18.40 in. (46.736 cm) height; 0.75 in. (1.905 cm) depth.

When using trim ring TR-320, mount backbox with at least 1 inch (2.54 cm) between wall surface and front of backbox, to allow door to open fully past the trim ring. The TR-320 molding width is 0.905 in. (2.299 cm).

Shipping Weight

- NFS-320C: 37 lb (16.78 kg) *without batteries.*

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C.

Agency Listings and Approvals

The listings and approvals below apply to the basic NFS-320C control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S635 (UOJC).
- **FM Approved.**
- **CSFM:** 7165-0028:0243.
- **Fire Dept. of New York:** COA #6121.

Marine Applications: Marine approved systems must be configured using components itemized in this document. (See Main System Components, in "Product Line Information.) Specific connections and requirements for those components are described in the installation document, PN 54756. When these requirements are followed, systems are approved by the following agencies:

- **US Coast Guard:** 161.002/50/0, 161.002/55/0 (Standard 46 CFR and 161.002).
- **Lloyd's Register:** 11/600013 (ENV 3 category).
- **American Bureau of Shipping.**

NOTE: *For information on marine applications, see DN-60688.*

Standards

The NFS-320C complies with the following ULC Standards and NFPA 72, International Building Code (IBC), and California Building Code (CBC) Fire Alarm Systems requirements:

- **ULC-S527-99.**
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual, Waterflow and Sprinkler Supervisory). *Not applicable for FM.*
- **CENTRAL STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires DACT).
- **EMERGENCY VOICE/ALARM.**
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For more information, contact Notifier.
(888) 289-1114
10 Whitmore Road
Woodbridge, Ontario LZL 7Z4
www.notifier.com

ACS Series Annunciators

ONYX® Series

ACM/~~AEM~~-24AT, ACM/AEM-48A

NOTIFIER® by Honeywell

Annunciator Control Systems

General

The ONYX® Series ACS Annunciators provide a modular line of products for annunciation and control of the NOTIFIER ONYX® Series Intelligent Fire Alarm Control Panels, Network Control Annunciators, and NOTIFIER's legacy addressable panels. The ACS line provides arrays of LEDs to indicate point status and, in some versions, switches to control the state of output circuits. These ACS units use a serial interface and may be located at distances of up to 6,000 feet (1,828.8 meters) from the panel.

Features

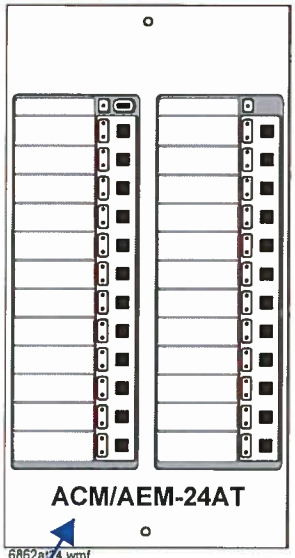
- Speaker control mode for use with XPIQ and the following panels: NFS2-3030, NFS2-640, NFS-320(C) and NFS-320SYS. Enables the ACS to control operation of groups of multi-channels mapped to groups of multi-speakers.
- Compatible with existing annunciators.
- Color-programmable LEDs.
- On-board end-of-line resistors can be enabled/disabled by setting a switch.
- Alarm/Circuit On and Trouble LED per-point thxoption or more dense Alarm-only option.
- Touch-pad control switch option for remote control of system relays; or silence, reset, and evacuate.
- LEDs may be programmed to display status of indicating circuits or control relays as well as system status conditions.
- System Trouble LED indicator.
- On-Line/Power LED indicator.
- Alarm and trouble resound with flash of new conditions.
- Local sounder for both alarm and trouble conditions with silence/acknowledge button (program options).
- May be powered by 24 VDC from the panel or by remote power supplies.
- Microprocessor-controlled electronics, fully supervised.
- Slip-in custom labels, lettered with standard typewriter or LabelEase program.
- Plug-in terminal blocks for ease of installation and service.

Construction

The ACS modules are provided in two basic controller modules, each with its expander module. The ACM-24AT provides 24 annunciation and control points per module, each with a red, green, or yellow Alarm/Circuit On LED, a yellow Trouble LED, and a touch-key switch. The ACM-48A provides 48 annunciation points per module, each with a red, green, or yellow Alarm/Circuit On LED (for annunciating control relays, the LED indicates ON/OFF).

On the ACM-24AT, each LED point is individually color-programmable. On ACM-48A, each column of 24 LED points can be color-configured using a DIP switch.

Temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (noncondensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per ULC. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).



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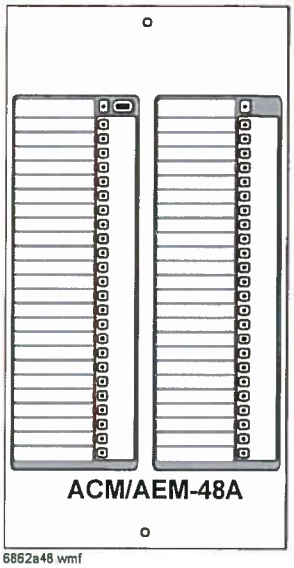

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Installation

The ACS Series annunciator and control subsystems use modular hardware assemblies which allow the custom configuration of the annunciator panel to fit the individual job requirements.

Standard backboxes and mounting hardware schemes, including special remote cabinets, allow the annunciators to be constructed and configured with other system components.

When used with the NFS2-3030, NFS2-640, NFS-320 or legacy panels, the ACS modules can be used for manual selection of speaker and telephone circuits. In this application, they are typically mounted in the main control near the microphone and telephone handset.

For remote annunciation applications, the modules are typically mounted in special ABF or ABS boxes. Control switch key locks (AKS-1B) are available.

Communication between the ACS Series annunciators and the host Fire Alarm Control Panel is made through an EIA-485 multi-drop loop, eliminating the need for costly wiring schemes. Four wires are required, two for the EIA-485 communications (twisted pair), and two for 24 VDC regulated power.

Retrofit of ACS Series annunciators into existing systems is easily accomplished. Software may require upgrading, and some legacy panels may require an interface board.

All field-wiring terminations use removable, compression-type terminal blocks for ease of installation, wiring, and circuit testing.

Operation

The ACS Series annunciator and control system provides the NOTIFIER system with up to 32 remote serially connected annunciators, each with a capacity of 96 points, for a total capacity of ***3072 points*** (subject to the capability of the FACP). The NFS2-3030 and NCA-2 are capable of using the full 96 points.

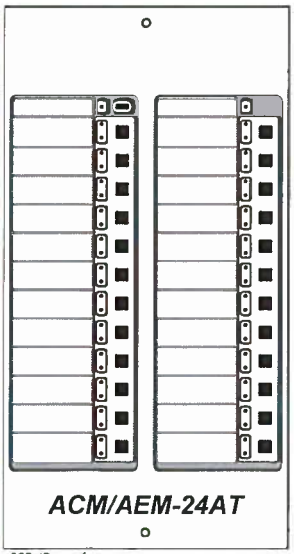
Local or remote power supplies and serial communications allow the ACS to be located virtually anywhere in the protected premises.

On NFS-320, NFS2-640, NFS2-3030, NCA-2 and the legacy panels, system alarm and/or trouble conditions may be annunciated on a per-point basis, or in a grouped or zone configuration.

Control of system operational controls, such as Signal Silence, System Reset, and local annunciation controls (such as Local Acknowledge and Lamp Test) may be accomplished through the module's rubber keypad.

Product Line Information

ACM-24AT: *(see figure)* The Annunciator Control Module-24AT contains 24 color-programmable (red/green/yellow) Active and 24 yellow Trouble LEDs, 24 momentary touch-pad switches, a System Trouble LED, an On-Line/Power LED, and a local piezo sounder with a silence/acknowledge switch for audible indication of alarm and trouble conditions. Includes instructions. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide.



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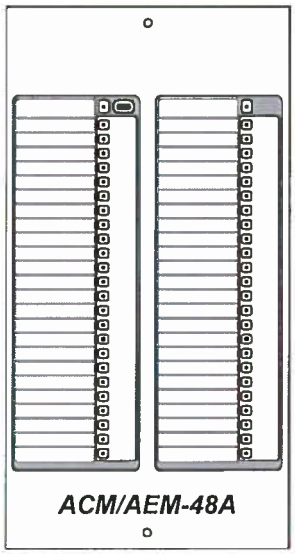

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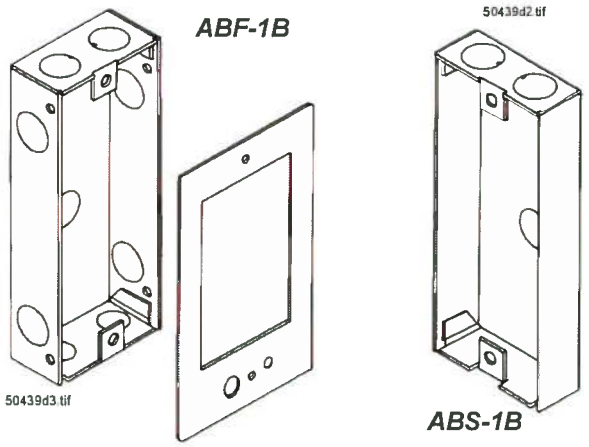
AEM-24AT: The Annunciator Expander Module-24AT expands the ACM-24AT by 24 system points. The AEM-24AT is identical in size and in frontal appearance to the ACM-24AT. Up to three of these expander modules can be supported by an ACM-24AT, for a maximum of 96 system points. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide. ***NOTE:*** *The AEM-24AT* ***cannot*** *be used to expand the ACM-48A.*

ACM-48A: *(see figure)* The Annunciator Control Module-48A contains 48 color-programmable (red/green/yellow) Active LEDs, a System Trouble LED, an On-Line/Power LED, and a local piezo sounder with a Silence/Acknowledge switch for audible indication of alarm and trouble conditions. Includes instructions. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide.

AEM-48A: The Annunciator Expander Module-48A expands the ACM-48A by 48 system points. The AEM-48A is identical in frontal appearance to the ACM-48A. One expander module can be supported by an ACM-48A, providing a maximum of 96 points (subject to the capability of the FACP). 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide. ***NOTE:*** *The AEM-48A* ***cannot*** *be used to expand the ACM-24AT.*

ABS-1B: *(see figure)* The Annunciator Surface Box-1B (black) provides for the remote mounting of one annunciator module in a surface-mount enclosure. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The annunciator mounts directly to the ABS-1B without a dress plate. 8.5" (21.59 cm) high x 4.5" (11.43 cm) wide x 2" (5.08 cm) deep. ***NOTE:*** *The ABS-1B will not support the installation of the AKS-1B Annunciator Key Switch.*



ABS-1TB: The ABS-1TB is an attractive surface-mount backbox for mounting one ACS Series Annunciator. Unlike the ABS-1B, the ABS-1TB has an increased depth that allows mounting of the AKS-1B Annunciator Key Switch. Black, 9.938" (25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep. ***NOTE:*** *An earlier gray model, ABS-1TB, will not accommodate the ACM/AEM-24AT or ACM/AEM-48A. The slightly deeper ABS-1TB will accommodate both the ACM/AEM-24AT or ACM/AEM-48A models and the ACM-16AT/ACM-32A Series (see DN-0524).*

ABS-2B: The Annunciator Surface Box-2B (black) provides for the surface mounting of one ACM-24AT/AEM-24AT combination or one ACM-48A/AEM-48A combination. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The annunciators mount directly to the ABS-2B without a dress plate. 8.5" (21.59 cm) high x 8.92" (22.66 cm) wide x 2" (5.08 cm) deep. ***NOTE:*** *The ABS-2B will not support the installation of the AKS-1B Annunciator Key Switch.*

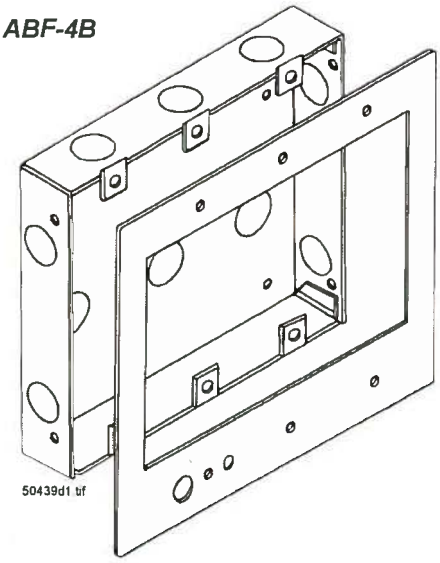
ABF-1B: *(see figure)* The Annunciator Flush Box-1B (black) provides for the remote mounting of a single annunciator module in a flush-mount enclosure. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The ABF-1B includes a painted black metal trim plate [11" (27.94 cm) high x 6.25" (15.875 cm) wide], mounting hardware, and an adhesive-backed annunciator label for the dress plate. 9.938" (25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep.

ABF-2B: The Annunciator Flush Box-2B (black) provides for the flush mounting of two annunciator modules. Includes a painted black metal trim plate [11" (27.94 cm) high x 10.625" (26.99 cm) wide] and adhesive-backed annunciator label. 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep.

ABF-4B: *(see figure)* The Annunciator Flush Box-4B (black) provides for the remote mounting of one to four annunciator modules. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The flush-mounted ABF-4B includes a painted black metal trim plate [11" (27.94 cm) high x 19.375" (49.21 cm)

wide] and an annunciator label. 9.938" (25.24 cm) high x 17.75" (45.09 cm) wide x 2.5" (6.35 cm) deep.

ABF-4B



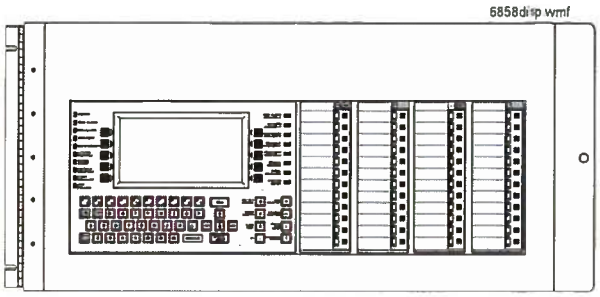
ABF-1DB, ABF-2DB, ABS-4D: The ABF-1DB, ABF-2DB and ABS-4D are semi-flush-mount backboxes for ACS Series Annunciators. The ABF-1DB mounts one annunciator module; the ABF-2DB mounts two modules; the ABS-4D mounts up to four modules. The ABS-4D Series can also accomodate the NCA-2 network annunciator, using the NCA-2 Retro Kit (NCA-2Retro); the NCA-2 is mounted in the center position with a blank plate (BMP-1) mounted on each side. Black with an attracted smoked glass door and keylock. The **ABS-4D** is hinged on the bottom for stability.

- **DIMENSIONS, ABF-1DB:** ***Box only:*** 9.938" (25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep. ***Door:*** 11" (27.94 cm) high x 6" (15.24 cm) wide x 0.75" (1.9 cm) deep.
- **DIMENSIONS, ABF-2DB:** ***Box only:*** 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep. ***Door:*** 11" (27.94 cm) high x 10.375" (26.35 cm) wide x 0.75" (1.9 cm) deep.
- **DIMENSIONS, ABS-4D:** ***Box only:*** 11.97" (30.40 cm) high x 19.87" (50.47cm) wide x 3.50" (8.89 cm) deep. ***Door:*** 11.97" (30.40 cm) high x 19.87" (50.47 cm) wide x 1.25" (3.18 cm) deep.

ADP-4B: The Annunciator Dress Panel-4B (black) provides for the cabinet mounting of one to four modules. The ADP-4B hinge-mounts to the CAB-4 Series cabinet. Modules mount directly to threaded studs on the dress panel.

DP-DISP: (see figure) The Dress Panel-Display allows one to four modules to be mounted in the ***top row*** of the CAB-4 Series backbox. Modules mount directly to threaded studs on the DP-DISP.

DP-DISP2: NFS2-640 Dress Panel accomodates up to two annunciator modules (no expanders).



DP-DISP Dress Panel with NCA-2 Network Control Annunciator in left two positions, and two ACM-24AT Annunciators at right.

BMP-1: Annunciator Blank Module is a flat black dress plate that covers unused module positions in the annunciator backbox or in the ADP-4B. 8.375" (21.27 cm) high x 4.375" (11.11 cm) wide. Studs for a variety of module mounting options are available.

AKS-1B**:** The Annunciator Key Switch-1B (black) provides access security for the control switches on the ACM/AEM-24AT. The key switch kit includes a key and hardware for mounting to the ABF-1B. Also included is an adhesive-backed annunciator label for use with the key switch/dress plate assembly. ***NOTE:*** *The AKS-1B can only be employed with the ABS-1TB.*

Agency Listings and Approvals

The listings and approvals below apply to the ACM/AEM-24AT and the ACM/AEM-48A. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL**: S635
- **ULC**: S635
- **FDNY:** COA #6067 (NFS2-640), COA #6065 (NFS2-3030)
- **CSFM**: 7120-0028:0156, 7165-0028:0243, 7165-0028:0224
- **FM** approved

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ONYXWorks® NFN

Embedded Gateway-3

NOTIFIER® by Honeywell

Network Systems

General

The NOTI•FIRE•NET™ Gateway is an intelligent gateway interface for the ONYXWorks® fire monitoring workstation. This gateway facilitates complete monitoring and control of a NOTI•FIRE•NET™ network. In addition, it supports full panel programming and network diagnostics.

The embedded gateway is a standalone version and is equipped with IP capability thus enabling ONYX® Series users to monitor multiple sites over an Ethernet network without the need for remote workstations.

Features

- Enables ONYX® Series workstation to monitor alarm, pre-alarm, trouble, disabled events, etc. for NFN fire alarm control panels.
- ONYXWorks® supports up to 50 intelligent gateways.
- Compatible with standard and high speed NOTI•FIRE•NET™ network.
- Adds acknowledge, silence, reset, enable/disable, and activate/deactivate control capability to the workstation.
- Supports fire alarm control panel programming upload/downloads and modifications.
- Embedded gateway allows remote IP connections and increases scalability of network.
- Supervised IP connections for remote workstations and gateways.
- Multiple workstations can access the gateway at the same time.
- Gateway redundancy for network survivability.

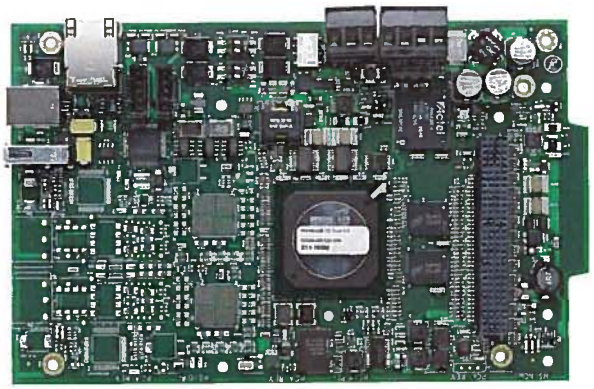
Compatibility

The NOTI•FIRE•NET™ Gateway is compatible with ONYXWorks® and ONYX FirstVision and interfaces to NOTI•FIRE•NET™ version 5.0 and higher, as well as a high speed NOTI•FIRE•NET™ network for the following panels and devices:

- ONYX Series
- AM2020/AFP1010 (version 5.0 SIB-NET)
- AFP-200 (version 5.0 NAM)
- AFP-300/AFP-400 (version 5.0 NAM)
- BACnet Gateway
- NCA-2/NCA Network Control Annunciator
- NOTI•FIRE•NET™Web Server

Specifications

- Power input: 24 VDC
- Input current: 450 mA @ 24 VDC (without NCM).
- Operating temperature: 0°C to 49°C (32°F to 120°F).
- Direct connection to NFS2-640, NFS-640, NFS-320, NFS2-3030, and NFS-3030 fire alarm control panels. NCM required for connection to NOTI•FIRE•NET™, and HS-NCM for connection to high-speed network. (See data sheets DN-6861 and DN-60454.)



NFN-GW-EM-3

Standards and Codes

The NOTI•FIRE•NET™ Gateway complies with the following UL/ULC Standards and NFPA 72 Fire Alarm Systems requirements:

- UL 864
- UL 1076
- UL 2017
- ULC S559-04
- ULC S527-99

Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL / ULC:** S5697
- **FM Approved**
- **CSFM:** 7300-1525:103
- **MEA:** 286-07-E
- **FDNY:** COA #6041

Ordering Information

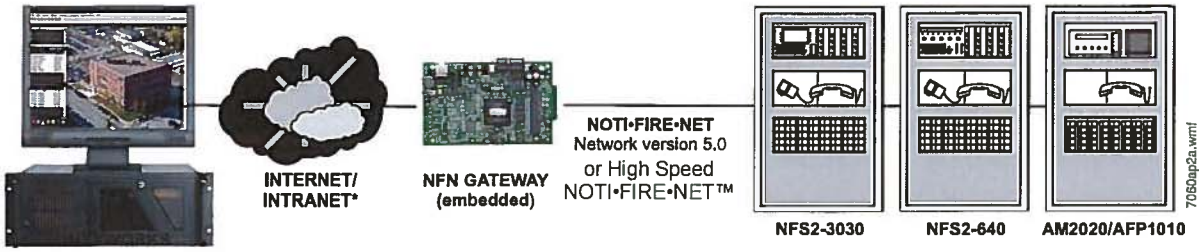
NFN-GW-EM-3: NOTI•FIRE•NET™ Gateway, embedded. Includes PC board, NUP to NUP cable (75577), USB Cable (75665) and NFN Configuration.

Additional EMBEDDED VERSION Gateway required components:

- NCM for connection to NOTI•FIRE•NET™.
- HS-NCM for connection to high speed NOTI•FIRE•NET™.
- IBM®-compatible PC with Windows® XP.
- Standard Ethernet network cable with RJ45 to RJ45 connectors.
- ONYXWorks Workstation V3.12 or above .
- NFN Network Version 5.0 or above.
- Verifire Tools Version 5.71 or above.

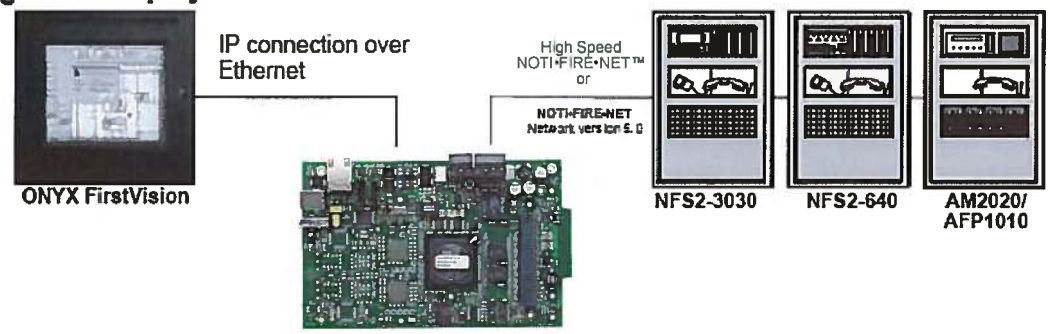
Remote Monitoring

NFN-GW-EM-3



* A UL Listed ethernet (TCP/IP) switch is required between a shared-IP network and the ONYXWORKS equipment. Contemporary Control Systems, Inc. (www.ctrlink.com) has several UL864 recognized switching hubs.

Firefighters' Display



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BAT Series Batteries

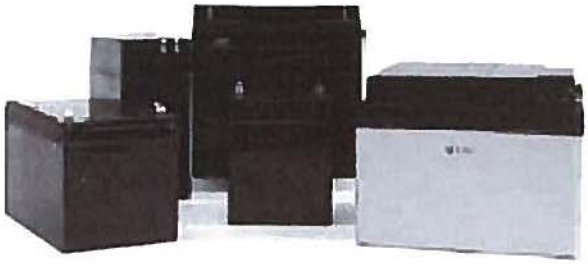
Sealed Lead-Acid

NOTIFIER® by Honeywell

Power Supplies

General

BAT Series Batteries are Power Sonic brand batteries. BAT Series (or Power Sonic brand) batteries are recommended for secondary power or backup power for all NOTIFIER fire alarm control equipment.



6933cov.jpg

Features

- Provide secondary power for control panels.
- Sealed and maintenance-free.
- Overcharge protected.
- Easy handling with leakproof construction.
- Ruggedly constructed, high-impact case (ABS, polystyrene, or polypropylene, depending on models).
- Long service life.
- Compact design.

Agency Listings and Approvals

The listings and approvals below apply to BAT Series Batteries. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Recognized Components**: MH20845 *(Power-Sonic)*

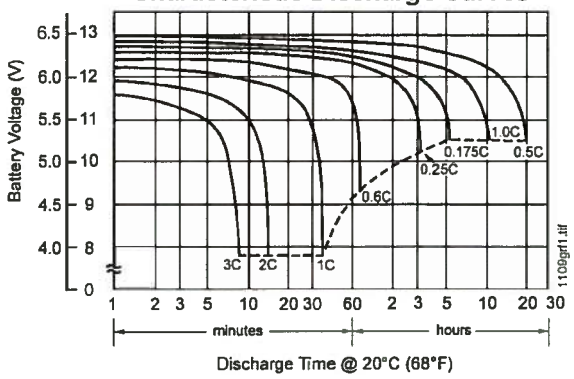
Ordering Information

BAT-1250-BP: 10-unit bulk pack of BAT-1250 (12 V 5 AH)
BAT-1270-BP: 5-unit bulk pack of BAT-1270 (12 V 7 AH)
BAT-12120-BP: 4-unit bulk pack of BAT-12120 (12V 12 AH)
BAT-12180-BP: 2-unit bulk pack of BAT-12180 (12 V 18 AH)
BAT-12260-BP: 2-unit bulk pack of BAT-12260 (12 V 26 AH)
BAT-12550: single battery (12 V 55 AH)
BAT-121000: single battery (12 V 100 AH)

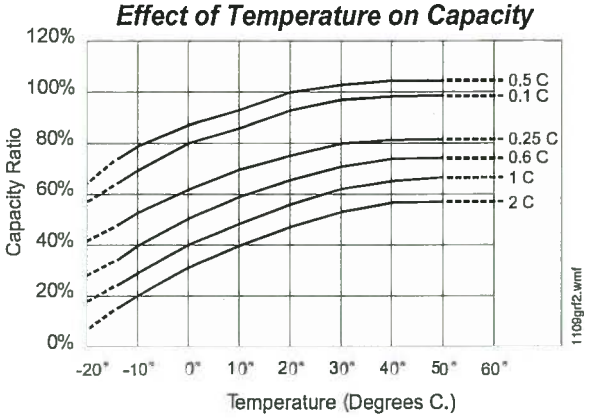
Part Number Reference & Specifications

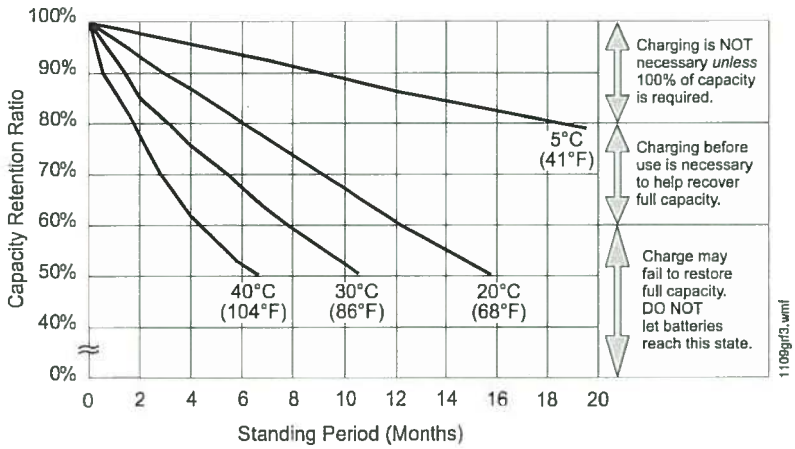
Part Number	Power Sonic Part Number	Battery Description			DIMENSIONS									
		Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.		Width		Depth		Height		Height over terminal		Weight	
					in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.
BAT-1250	PS-1250	12	5	sealed	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
BAT-1270	PS-1270	12	7	sealed	5.95	151	2.56	65	3.7	94	3.86	98	4.8	2.18
BAT-12120	PS-12120	12	12	sealed	5.95	151	3.86	98	3.7	94	3.94	100	7.92	3.59
BAT-12180	PS-12180	12	18	sealed	7.13	181	2.99	76	6.57	167	6.57	167	12.6	5.8
BAT-12260	PS-12260	12	26	sealed	6.56	167	6.97	177	4.92	125	4.92	125	17	7.71
BAT-12550	PS-12250	12	55	sealed	9.04	230	654	138	8.2	208	8.98	228	36	16.33
BAT-121000	PS-121000	12	100	sealed	12	305	6.6	168	8.2	208	8.98	228	68	30.84

Characteristic Discharge Curves

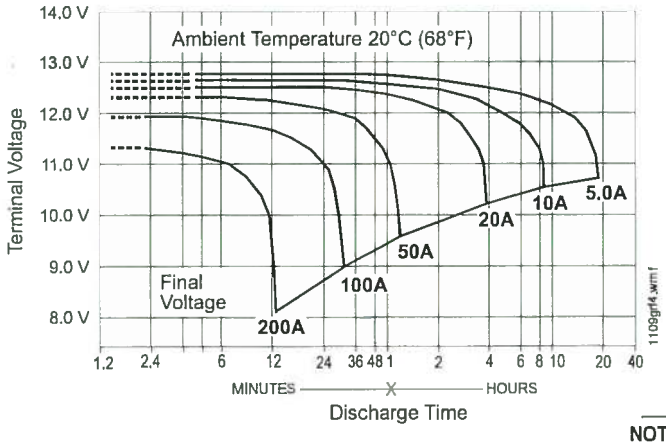


Effect of Temperature on Capacity





at left: PS-121000 Shelf-Life and Storage



at left: PS-121000 Discharge Characteristics

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ISO-6(A)

Six Fault Isolator Module

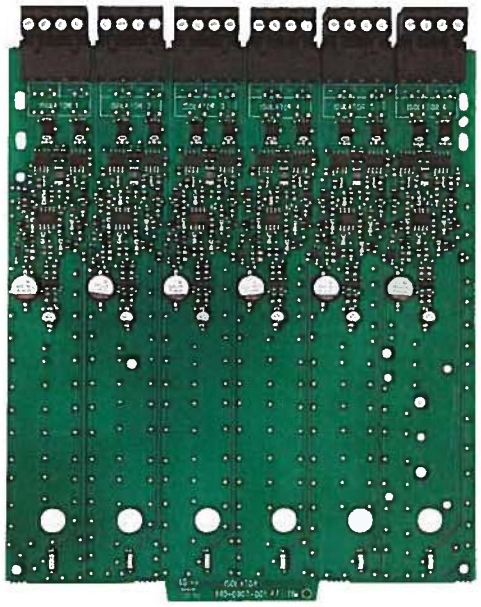
NOTIFIER® by Honeywell

Intelligent Addressable Devices

General

The ISO-6(A) Six Fault Isolator Module provides six equivalent circuits that will allow a portion of the communications loop to continue operating when a short circuit occurs on that loop. An amber LED indicator will blink in the normal state for each of the six inputs and will latch on during a short circuit condition. The module will automatically restore the communications loop to normal condition when the short circuit is removed.

The ISO-6 Six Isolator Module is an automatic switch that opens when the line voltage drops below four volts. Isolator modules should be spaced between groups of sensors or modules in a loop to protect the rest of the loop. If a short occurs between any two isolators, then both isolators immediately switch to an open circuit state and isolate the devices between them. The remaining units on the loop continue to fully operate.



Features

- Removable 12 to 18 AWG plug-in terminal blocks.
- Individual LED status indicators.
- Six individual, Class B isolator circuits.
- Mount up to two modules in BB-XP enclosure (optional).
- Mount up to six modules on a CHS-6 chassis in a CAB-4/CAB-3 series, EQ series, or BB-25 cabinet.
- Mounting hardware included.

Applications

The ISO-6 Fault Isolator Modules should be spaced between groups of sensors in an SLC to protect the rest of the loop. Use to isolate short circuit problems within a section of a loop so that other sections can continue to operate normally. The ISO-6 supports a maximum of 25 devices between isolators.

When more than 100 Isolator Modules are connected to an SLC loop, the address capacity of the loop is reduced by two (2) addresses for every isolator device in excess of 100.

Specifications

Normal Operating Voltage: 15-32 VDC.

Stand-By Current: 450 µA per circuit, 2.7 mA all circuits.

Maximum Current Draw: 17 mA per circuit in isolation, 102 mA with all circuits in isolation.

Temperature Range: 32° F to 120° F (0° C to 49° C).

Humidity: 10% to 85% non-condensing.

Dimensions: 6.8"H x 5.8"W x 1.0"D.

Shipping weight: 1.1 lb. (0.50 kg) including packaging.

Mounting Options: CHS-6 Chassis, BB-XP Cabinet, BB-25 Cabinet, CAB-4 Series Cabinet, EQ Series Cabinet.

Wire Gauge: 12 AWG (3.31 mm²) to 18 AWG (0.821 mm²).

Compatible Devices: See the documentation for your panel, and the *Device Compatibility Document*.

Agency Listings and Approvals

The listings and approvals below apply to ISO-6 components. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S3705.
- FM Approved.
- CSFM: 7300-1653-0234.

Product Line Information

ISO-6: Six Isolator Module.

ISO-6A: ULC-listed version of ISO-6.

BB-XP: Optional cabinet for one or two modules. **Door Dimensions:** 9.234" (23.454 cm) wide (9.484" [24.089 cm] including hinges), x 12.218" (31.0337 cm) high, x 0.672" (1.7068 cm) deep. **Backbox Dimensions:** 9.0" (22.860 cm) wide (9.25" [23.495 cm] including hinges), x 12.0" (30.480 cm) high x 2.75" (6.985 cm). **Chassis Dimensions** (installed): 7.150" (18.161 cm) wide overall x 7.312" (18.5725 cm) high interior overall x 2.156" (5.4762 cm) deep overall.

BB-25: Optional cabinet for up to six modules mounted on CHS-6 chassis (below). **Door Dimensions:** 24.0" (60.96 cm) wide x 12.632" (32.0852 cm) high, x 1.25" (3.175 cm) deep, hinged at bottom. **Backbox Dimensions:** 24.0" (60.96 cm) wide x 12.550" (31.877 cm) high x 5.218" (13.2537 cm) deep.

CHS-6: Chassis, mounts up to six modules in a CAB-4 Series cabinet (see DN-6857), EQ Series cabinet (see DN-60229), or BB-25 cabinet.

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NBG-12LX

Addressable Manual Pull Station

NOTIFIER® by Honeywell

Intelligent/Addressable Devices

General

The Notifier NBG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface for any Notifier intelligent control panel except FireWarden series panels, and the NSP-25 panel. Because the NBG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word "ACTIVATED" appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Up to 99 NBG-12LX stations per loop on CLIP protocol loops.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol loops.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

Construction

Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC loop current:** 375 µA.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**

The NBG-12LX
Addressable Manual Pull Station

Installation

The NBG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the NBG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word "ACTIVATED" (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 on FlashScan® systems, 1 – 99 on CLIP systems).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or 4"

(10.16 cm) square electrical box, and shall be installed within the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch.. Manual stations shall provide address setting by use of rotary decimal switches.

The loop poll LED shall be clearly visible through the front of the station. The LED shall flash while in the normal condition, and stay steadily illuminated when in alarm.

Product Line Information

NBG-12LX: Dual-action addressable pull station. Includes key locking feature.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17021: Keys, set of two.

NY-Plate: New York City trim plate

Agency Listings and Approvals

In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL / CUL Listed:** S692 (listed for Canadian and non-Canadian applications)
- **MEA:** 67-02-E
- **CSFM:** 7150-0028:0199
- **FDNY:** COA #6038 (NFS2-640), COA #6058 (NFS2-3030)
- **BSMI:** CI313066760047
- **U.S. Coast Guard:** 161.002/23/3 (AFP-200); 161.002/27/3 (AM-2020/AFP-1010; 161.002/42/1 (NFS-640)
- **Lloyd's Register:** 02/6007 (NFS-640); 94/60004 (E2) (AFP-200); 03/60011 (E1); 07/60007 (NFS2-3030)
- **FM** Approved

Patented: U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S.A.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

FAPT-851(A)

Acclimate® Plus™ Multi-Sensor
Low-Profile Intelligent Detector

NOTIFIER® by Honeywell

Intelligent/Addressable Devices

General

The Notifier FAPT-851(A) Acclimate® Plus™ detector is an intelligent, addressable, multi-sensing, low-profile detector designed for use with Notifier Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs).

The Acclimate Plus detector uses a combination of photoelectric and thermal sensing technologies to increase immunity to false alarms. Unlike traditional intelligent detectors, the Acclimate Plus detector has a microprocessor in the detector head that processes alarm data. As a result, the Acclimate Plus detector adjusts its sensitivity automatically, without operator intervention or control panel programming.

Areas where the Acclimate Plus detector is especially useful include office complexes, schools, college campuses, manufacturing and industrial facilities, and anywhere else the use of a particular area may change. The Acclimate Plus detector automatically adjusts its sensitivity to the environment.

FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed to greatly enhance the speed of communication between analog intelligent devices and compatible systems. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of earlier designs.

Features

- Automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based, combination photo and thermal technology.
- Compatible with all Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs).
- Addressable-analog communication.
- Sleek, low-profile design.
- Two-wire SLC connection.
- Rotary, decimal addressing (1-99 on CLIP systems, 1-159 on FlashScan systems).
- Addresses can be viewed and changed without electronic programmers.
- Dual bi-color LED design provides 360° viewing angle.
- LEDs lock red when in alarm. In FlashScan, LEDs flash green in standby for normal condition.
- Built-in tamper-resistant feature.
- Constructed of off-white fire-resistant plastic, designed to commercial standards, and offers an attractive appearance.
- SEMS screws for wiring of the separate base.
- Several base options, including relay, isolator, and sounder.
- Built-in functional test switch activated by external magnet.
- Listed to UL 268.
- Capable of heat-only alarm mode, enabled by a special command from the panel. Smoke alarms are ignored.
- Low-temperature signal at 45°F +/– 10°F (7.22°C +/– 5.54°C).

FAPT-851 with B210.png

FAPT-851(A) in B210LP(A) Base

Specifications

Sensitivity: *auto-adjusting levels*: 1 to 2%/ft. and 2 to 4%/ft. with classic CLIP systems; 1 to 2, 2 to 3, and 3 to 4%/ft. with systems; *fixed-sensitivity levels:* 1, 2, and 4%/ft. with classic CLIP systems; 0.5, 1, 2, 3, and 4%/ft. with FlashScan systems.

Size: 2.0" (5.3 cm) high; base determines diameter.

- **B210LP(A):** 6.1" (15.5 cm) diameter.
- **B501(A):** 4.1" (10.4 cm) diameter.
- **B200S(A):** 6.875" (17.46 cm) diameter.
- **B200SR(A):** 6.875" (17.46 cm) diameter.
- **B224RB(A):** 6.2" (15.748 cm) diameter.

Shipping weight: 5.2 oz. (147 g).

Operating temperature: 0°C to 38°C (32°F to 100°F).

UL-Listed velocity range: 0 – 4000 ft./min. (1219.2 m/min.), suitable for installation in ducts.

Relative humidity: 10% – 93% noncondensing.

Thermal sensing rating: fixed-temperature setpoint 135°F (57°C).

ELECTRICAL SPECIFICATIONS

Voltage range: 15 – 32 volts DC peak.

Standby current (max. avg.): 300 µA.

Loop resistance: 50 ohms maximum; varies according to control panel used. Refer to panel installation manuals.

LED current (max.): 6.5 mA @ 24 VDC ("ON").

Installation

The FAPT-851(A) plug-in detector uses a separate base to simplify installation, service, and maintenance. A special tool allows maintenance personnel to plug-in and remove detectors without using a ladder. Suitable mounting base boxes include:

- 4.0" (10.16 cm) square box.
- 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box.
- Single-gang box (except relay or isolator base).

NOTE: *The FAPT-851(A) detector has the unique ability to adjust sensitivity according to the environment, based on heat and smoke levels. Avoid installing these detectors in locations that are susceptible to rapid and high temperature changes. An example of an incorrect application would be near or in line with the output of a self-contained heater.*

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. *Consult factory for latest listing status.*

- **UL Listed:** S1115.
- **ULC Listed:** S1115.
- **MEA Listed:** 225-02-E.
- **FM Approved.**
- **CSFM:** 7272-0028:0206.
- **U.S. Coast Guard:** 161.002/42/1 (NFS-640); 161.002/50/0 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).
- **Lloyd's Register:** 11/600013 (NFS2-640, NFS-320/NFS-320C, excluding B210LP(A)).
- **Maryland State Fire Marshal:** Permit # 2122.

Ordering Information

NOTE: *"A" suffix indicates ULC Listed model.*

FAPT-851: Low-profile intelligent multi-sensor detector.

FAPT-851A: Same as FAPT-851 but with ULC Listing.

INTELLIGENT BASES

NOTE: *"A" suffix indicates ULC Listed model.*

NOTE: *For details about intelligent bases and their mounting, see DN-60054.*

B210LP(A): Plug-in detector base; standard U.S. flanged low-profile mounting base.

B210LPBP: Bulk pack of B210LP; package contains 10.

B501(A): Flangeless mounting base.

B501BP: Bulk pack of B501; package contains 10.

B200S(A): Intelligent, programmable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone.

B200SR(A): Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

B224RB(A): Relay base Screw terminals: up to 14 AWG (2.0 mm^2). Relay type Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

B224BI(A): Isolator base. Maximum: 25 devices between isolator bases.

ACCESSORIES

F110: Retrofit flange to convert B210LP to match the B710LP profile, or to convert older high-profile bases to low-profile.

F110BP: Bulk pack of F110; package contains 15.

F210: Replacement flange for B210LP(A) base.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B210LP(A) and B501(A) bases only.

SMB600: Surface mounting kit for use with B210LP(A).

M02-04-00: Test magnet.

M02-09-00: Test magnet with telescoping handle.

XR2B: Detector removal tool. Allows installation and/or removal of FlashScan® Series detector heads from base in high ceiling installations.

T55-127-010: Detector removal tool without pole.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

FST-851(A) Series

Intelligent Thermal (Heat) Detectors with FlashScan®

NOTIFIER® by Honeywell

Intelligent / Addressable Devices

General

Notifier FST-851(A) Series intelligent plug-in thermal detectors with integral communication has features that surpass conventional detectors. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector locations. FST-851(A) Series thermal detectors use an innovative thermistor sensing circuit to produce 135°F/57°C fixed-temperature (FST-851/A) and rate-of-rise thermal detection (FST-851R/A) in a low-profile package. FST-851H(A) provides fixed high-temperature detection at 190°F/88°C. These thermal detectors provide effective, intelligent property protection in a variety of applications. FST-851(A) Series detectors are compatible with Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs).

FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed by Notifier Engineering that greatly enhances the speed of communication between analog intelligent devices and certain NOTIFIER systems. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of earlier designs.

Features

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Rate-of-rise model (FST-851R/A), 15°F (8.3°C) per minute.
- Factory preset fixed temperature at 135°F (57°C); high-temperature model fixed at 190°F (88°C).
- Addressable by device.
- Compatible with FlashScan® and CLIP protocol systems.
- Rotary, decimal addressing (1-99 on CLIP systems, 1-159 on FlashScan systems).
- Two-wire SLC connection.
- Visible LEDs "blink" every time the unit is addressed.
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Integral communications and built-in device-type identification.
- Remote test feature from the panel.
- Built-in functional test switch activated by external magnet.
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1).
- Low standby current.
- Backward-compatible.
- Built-in tamper-resistant feature.
- Designed for direct-surface or electrical-box mounting.
- Sealed against back pressure.
- Plugs into separate base for ease of installation and maintenance. Separate base allows interchange of photoelectric, ionization and thermal sensors.
- SEMS screws for wiring of the separate base.
- Constructed of off-white fire-resistant plastic, designed to commercial standards, and offers an attractive appearance.

B210-2251.jpg

FST-851(A) in B210LP(A) Base

- 94-5V plastic flammability rating.
- Remote LED output connection to optional RA100Z(A) remote LED annunciator.
- Optional sounder, relay, and isolator bases.
- Optional flanced surface mounting kit.

Specifications

Size: 2.1" (5.3 cm) high; base determines diameter.

- **B210LP(A):** 6.1" (15.5 cm) diameter.
- **B501(A):** 4.1" (10.4 cm) diameter.
- **B200S(A):** 6.875" (17.46 cm) diameter.
- **B200SR(A):** 6.875" (17.46 cm) diameter.
- **B224RB(A):** 6.2" (15.748 cm) diameter.
- **B224BI(A):** 6.2" (15.748 cm) diameter.

Shipping weight: 4.8 oz. (137 g).

Operating temperature range: FST-851(A) Series, FST-851R(A): –20°C to 38°C (–4°F to 100°F); FST-851H(A): –20°C to 66°C (–4°F to 150°F).

Detector spacing: UL approved for 50 ft. (15.24 m) center to center. FM approved for 25 x 25 ft. (7.62 x 7.62 m) spacing.

Relative humidity: 10% – 93% noncondensing.

Thermal ratings: fixed-temperature setpoint 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C).

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak.

Standby current (max. avg.): 300 µA @ 24 VDC (one communication every 5 seconds with LED enabled).

LED current (max.): 6.5 mA @ 24 VDC ("ON").

Applications

Use thermal detectors for protection of property. For further information, go to systemsensor.com for manual I56-407-00, Applications Manual for System Smoke Detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Installation

The FST Series plug-in intelligent thermal detectors use a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector. A special tool allows maintenance personnel to plug in and remove detectors without using a ladder

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DN-60054*.

***NOTE:** 1) Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring. **2)** When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.*

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document.In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. *Consult factory for latest listing status.*

- **UL Listed:** S747.
- **ULC Listed:** S6978.
- **MEA Listed:** 383-02-E.
- **FM Approved.**
- **CSFM:** 7270-0028:0196.
- **BSMI:** CI313066760025.
- **CCCF:** Certif. # 2004081801000018.
- **U.S. Coast Guard:** 161.002/42/1 (NFS-640); 161.002/50/0 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).
- **Lloyd's Register:** 11/600013 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).

Product Line Information

***NOTE:** "A" suffix indicates ULC Listed model.*

FST-851: Intelligent thermal detector. Must be mounted to one of the bases listed below.

FST-851A: Same as FST-851 but with ULC Listing.

FST-851R: Intelligent thermal detector with rate-of-rise feature.

FST-851RA: Same as FST-851R but with ULC Listing.

FST-851H: Intelligent high-temperature thermal detector.

FST-851HA: Same as FST-851H but with ULC Listing.

INTELLIGENT BASES

***NOTE:** "A" suffix indicates ULC Listed model.*

***NOTE:** For details about intelligent bases and their mounting, see DN-60054.*

B210LP(A): Standard U.S. flanged low-profile mounting base.

B210LPBP: Bulk pack of B210LP; package contains 10.

B501(A): Standard European flangeless mounting base.

B501BP: Bulk pack of B501; package contains 10.

B200S(A): Addressable Intelligent, programmable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone.

B200SR(A): Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

B224RB(A): Intelligent relay base. Screw terminals: up to 14 AWG (2.0 mm²). Relay type: Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

B224BI(A): Intelligent isolator base. Isolates SLC from loop shorts. Maximum: 25 devices between isolator bases; see Note 2 under Installation.

ACCESSORIES

F110: Retrofit flange to convert B210LP(A) to match the B710LP(A) profile, or to convert older high-profile bases to low-profile.

F110BP: Bulk pack of F110; package contains 15.

F210: Replacement flange for B210LP(A) base.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B210LP(A) and B501(A) bases only.

SMB600: Surface mounting kit, flanged.

M02-04-00: Test magnet.

M02-09-00: Test magnet with telescoping handle.

XR2B: Detector removal tool. Allows installation and/or removal of FlashScan® Series detector heads from base in high ceiling installations. Includes T55-127-010.

T55-127-010: Detector removal tool without pole.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

FCM-1(A) & FRM-1(A) Series

Control and Relay Modules

NOTIFIER® by Honeywell

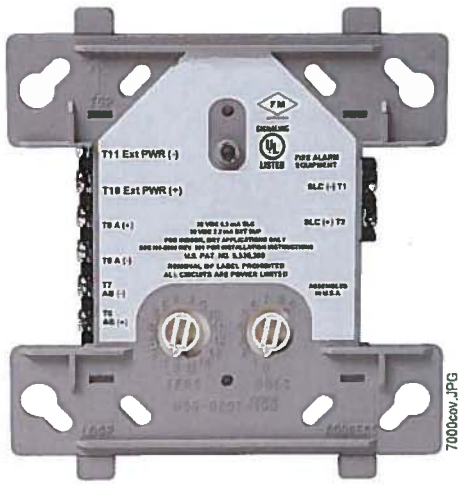
Intelligent / Addressable Devices

General

FCM-1(A) Control Module: The FCM-1(A) Addressable Control Module provides Notifier intelligent fire alarm control panels a circuit for Notification Appliances (horns, strobes, speakers, etc.). Addressability allows the FCM-1(A) to be activated, either manually or through panel programming, on a select (zone or area of coverage) basis.

FRM-1(A) Relay Module: The FRM-1(A) Addressable Relay Module provides the system with a dry-contact output for activating a variety of auxiliary devices, such as fans, dampers, control equipment, etc. Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed by NOTIFIER Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other designs.



FCM-1(A)

Features

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry and relay powered directly by two-wire SLC loop. The FCM-1(A) module requires power (for horns, strobes, etc.), or audio (for speakers).
- Integral LED "blinks" green each time a communication is received from the control panel and turns on in steady red when activated.
- LED blink may be deselected globally (affects all devices).
- High noise immunity (EMF/RFI).
- The FCM-1(A) may be used to switch 24-volt NAC power, audio (up to 70.7 Vrms).
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address 01– 159 for FlashScan loops, 01 – 99 for CLIP mode loops.
- Speaker, and audible/visual applications may be wired for Class B or A (Style Y or Z).

Applications

The FCM-1(A) is used to switch 24 VDC audible/visual power, high-level audio (speakers). The FRM-1(A) may be programmed to operate dry contacts for applications such as door holders or Air Handling Unit shutdown, and to reset four-wire smoke detector power.

NOTE: *Refer to the SLC Manual (PN 51253) for details regarding releasing applications with the FCM-1(A). Refer to the FCM-1-REL datasheet (DN-60390) for new FlashScan® releasing applications.*

Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address (01-159).
- The FCM-1(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM-1(A) provides two Form-C dry contacts that switch together.

Operation

Each FCM-1(A) or FRM-1(A) uses one of 159 possible module addresses on a SLC loop (99 on CLIP loops). It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit (NAC). The LED blinks with each poll received. On command, it activates its internal relay. The FCM-1(A) supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the FCM-1(A) will disconnect the supervision and connect the external power supply in the proper polarity across the load device. The disconnection of the supervision provides a positive indication to the panel that the control relay actually turned ON. The external power supply is always relay isolated from the communication loop so that a trouble condition on the external power supply will never interfere with the rest of the system.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a module and a sensor address.

Specifications for FCM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 350 µA direct poll, 375 µA group poll with LED flashing, 485 µA Max. (LED flashing, NAC shorted.)

Maximum NAC Line Loss: 4 VDC.

External supply voltage (between Terminals T10 and T11): Maximum (NAC): Regulated 24 VDC; Maximum (Speakers): 70.7 V RMS, 50W.

Drain on external supply: 1.7 mA maximum using 24 VDC supply; 2.2 mA Maximum using 80 VRMS supply.

Max NAC Current Ratings: For class B wiring system, the current rating is 3A; For class A wiring system, the current rating is 2A.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Specifications for FRM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 230 µA direct poll; 255 µA group poll.

EOL resistance: not used.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635
- **ULC:** S3705 (A version only)
- **FM Approved**
- **CSFM:** 7300-0028:0219
- **MEA:** 14-00-E
- **FDNY:** COA #6067, #6065

Contact Ratings for FRM-1(A)

Current Rating	Maximum Voltage	Load Description	Application
3 A	30 VDC	Resistive	Non-Coded
2 A	30 VDC	Resistive	Coded
.9 A	110 VDC	Resistive	Non-Coded
.9 A	125 VDC	Resistive	Non-Coded
.5 A	30 VDC	Inductive (L/R=5ms)	Coded
1 A	30 VDC	Inductive (L/R=2ms)	Coded
.3 A	125 VAC	Inductive (PF=0.35)	Non-Coded
1.5 A	25 VAC	Inductive (PF=0.35)	Non-Coded
.7 A	70.7 VAC	Inductive (PF=0.35)	Non-Coded
2 A	25 VAC	Inductive (PF=0.35)	Non-Coded

***NOTE:** Maximum (Speakers): 70.7 V RMS, 50 W*

Product Line Information

***NOTE:** "A" suffix indicates ULC Listed model.*

FCM-1(A): Intelligent Addressable Control Module.

FRM-1(A): Intelligent Addressable Relay Module.

A2143-20: Capacitor, required for Class A (Style Z) operation of speakers.

SMB500: Optional Surface-Mount Backbox.

CB500: Control Module Barrier — required by UL for separating power-limited and non-power limited wiring in the same junction box as FCM-1(A).

***NOTE:** For installation instructions, see the following documents:*

- *FCM-1(A) Installation document I56-1169.*
- *FRM-1(A) Installation document I56-3502.*
- *Notifier SLC Wiring Manual, document 51253.*

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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We try to keep our product information up-to-date and accurate.
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www.notifier.com

SpectrAlert® Advance

Selectable Output Notification Appliances

NOTIFIER® by Honeywell

Audio/Visual Devices

General

SpectrAlert® Advance selectable-output horns, strobes and horn/strobes are rich with features guaranteed to cut installation times and maximize profits. The SpectrAlert Advance series of notification appliances is designed to simplify your installations, with features such as: plug-in designs, instant feedback messages to ensure correct installation of individual devices, and eleven field-selectable candela settings for wall and ceiling strobes and horn/strobes.

More specifically, when installing Advance products, first attach a universal mounting plate to a four-inch square, four-inch octagon, or double-gang junction box. The two-wire mounting plate attaches to a single-gang junction box.

Then, connect the notification appliance circuit wiring to the SEMS terminals on the mounting plate.

Finally, attach the horn, strobe, or horn/strobe to the mounting plate by inserting the product's tabs in the mounting plate's grooves. The device will rotate into position, locking the product's pins into the mounting plate's terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

SpectrAlert Advance products allow you to choose:

- 12 or 24 volts.
- 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, or 185 candela by way of a rear-mounted slide switch and front viewing window.
- Horn tones and volume by way of a rotary switch.

The SpectrAlert Advance series includes outdoor notification appliances. Outdoor strobes and horn/strobes (two-wire and four-wire) are available for wall or ceiling. Outdoor horns are available for wall only. All System Sensor outdoor products are rated between –40°C and 66°C in wet or dry applications.

Models available:

- Indoor wall-mount: horn, strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Indoor ceiling-mount: strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Outdoor wall-mount: horn, strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Outdoor ceiling-mount: strobe, 2-wire horn/strobe, 4-wire horn/strobe.

Features

- Plug-in design.
- Same mounting plate for wall- and ceiling-mount units.
- Shorting spring on mounting plate for continuity check before installation.
- Captive mounting screw.
- Tamper-resistance capability.
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela.
- Outdoor wall and ceiling products.
- Outdoor products rated from –40°C and 66°C.

Indoor Ceiling Horn/Strobe

Outdoor Ceiling Strobe

Indoor Wall Horn/Strobe

Indoor Ceiling Strobe

Indoor Wall Horn

Outdoor Wall Strobe

- Outdoor products rainproof per UL50 (NEMA 3R) and weatherproof per NEMA 4X, IP56
- Minimal intrusion into the backbox.
- Horn rated at 88+ dbA at 16 volts.
- Rotary switch for tone selection.
- Three horn volume settings.
- Electrically compatible with existing SpectrAlert products.

Engineering Specifications

SpectrAlert Advance horns, strobes, and horn/strobes mount to a standard 10.16 x 10.16 x 3.81 cm backbox, 10.16 cm octagonal backbox, or a double-gang backbox. Two-wire products mount to a single-gang 5.08 x 10.16 x 4.763 cm backbox. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 0°C and 49°C from a regulated DC, or full-wave-rectified, unfiltered power supply. Strobes and horn/strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.

STROBE

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to CAN/ULC S5512 and shall be approved for fire protective service. The strobe shall be wired

as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

HORN/STROBE COMBINATION

The horn/strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to CAN/ULC S5512 and shall be approved for fire protective service. The horn/strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a Temporal 3 pattern and a Non-Temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn/strobe models shall operate on a coded or non-coded power supply.

OUTDOOR PRODUCTS

SpectrAlert Advance outdoor horns, strobes and horn/strobes shall be listed for outdoor use by ULC and shall operate between –40°C and 66°C. The products shall be listed for use with a System Sensor outdoor/weatherproof backbox with half-inch and three-fourths-inch conduit entries.

SYNCHRONIZATION MODULE

The module shall be a System Sensor Sync•Circuit MDL3RA or MDL3WA listed to ULC and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at Temporal 3. Also, while operating the strobes, the module shall silence the horns on horn/strobe models over a single pair of wires. The module shall mount to a 11.906 x 11.906 x 5.398 cm backbox. The module shall also control two Style Y (class B) circuits or one Style Z (Class A) circuit. The module shall synchronize multiple zones. Daisy-chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Operating Specifications

- **Standard operating temperature:** 0°C to 49°C.
- **K Series operating temperature:** –40°C to 66°C.
- **Humidity range:** 10% to 93% non-condensing (indoor products).
- **Strobe flash rate:** 1 flash per second.
- **Nominal voltage:** regulated 12 VDC/FWR or regulated 24 VDC/FWR. ***NOTE:*** *Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.*
- **Operating voltage range:** 8 V to 17.5 V (12 V nominal); or 16 V to 33 V (24 V nominal). ***NOTE:*** *P, S, PC, and SC products will operate at 12 V nominal only for 15 cd and 15/75 cd.*
- **Input terminal wire gauge:** 12 to 18 AWG (3.31 to 0.821 mm²).
- **Ceiling-mount dimensions (including lens):** 17.3 cm diameter x 6.4 cm deep.
- **Wall-mount dimensions (including lens):** 14.2 cm H x 11.9 cm W x 6.4 cm D.
- **Horn dimensions:** 14.2 cm H x 11.9 cm W x 3.3 cm D.

Agency Listings and Approvals

The listings and approvals below apply to SpectrAlert Advance Selectable Output Notification Devices. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S4011
- **ULC Listed:** S5512
- **FM Approved**
- **MEA:** 452-05-E
- **CSFM:** 7125-1653:0186 (indoor strobes); 7125-1653:0188 (horn strobes, chime strobes); 7135-1653:0189 (horns, chimes)

Strobe Current Draw, ULC Maximum (mA RMS)

Candela		8 – 17.5 V		16 – 33 V	
		DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	N/A	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

Horn Current Draw, ULC Maximum (mA RMS)

Sound Pattern	dB	8 – 17.5 V		16 – 33 V	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-temporal	High	57	56	69	75
Non-temporal	Medium	42	50	60	69
Non-temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

Horn and Horn/Strobe Rotary Switch Setting

Setting	Repetition Rate	dB Level
1	Temporal horn	High
2	Temporal horn	Medium
3	Temporal horn	Low
4	Normal horn	High
5	Normal horn	Medium
6	Normal horn	Low
7*	Externally coded	High
8*	Externally coded	Medium
9*	Externally coded	Low

**NOTE:* *Settings 7, 8, and 9 are not available on 2-wire horn/strobe.*

Horn and Horn/Strobe Output (dBA)

Switch Position	Sound Pattern	dB	8 – 17.5 V		16 – 33 V	
			DC	FWR	DC	FWR
1	Temporal	High	96	93	101	99
2	Temporal	Medium	89	89	95	95
3	Temporal	Low	86	87	91	92
4	Non-temporal	High	90	86	96	93
5	Non-temporal	Medium	82	82	90	89
6	Non-temporal	Low	79	80	86	86
7*	Coded	High	90	87	96	93
8*	Coded	Medium	82	82	90	89
9*	Coded	Low	78	80	86	86

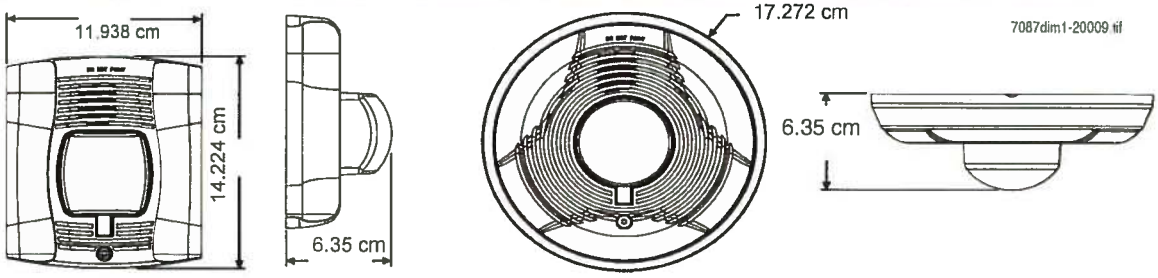
**NOTE:* *Settings 7, 8, and 9 are not available on 2-wire horn/strobe.*

Two-Wire Horn/Strobe, *STANDARD* Candela Range (15 – 115 cd), ULC Maximum Current Draw (mA RMS)

Input, Sound Pattern, dB Level	8 – 17.5 V		16 – 33 V						
	15	15/75	15	15/75	30	75	95	110	115
Input, Temporal, High	137	147	79	90	107	176	194	212	218
Input, Temporal, Medium	132	144	69	80	97	157	182	201	210
Input, Temporal, Low	132	143	66	77	93	154	179	198	207
Input, Non-temporal, High	141	152	91	100	116	176	201	221	229
Input, Non-temporal, Medium	133	145	75	85	102	163	187	207	216
Input, Non-temporal, Low	131	144	68	79	96	156	182	201	210
Input, Temporal, High	136	155	88	97	112	168	190	210	218
Input, Temporal, Medium	129	152	78	88	103	160	184	202	206
Input, Temporal, Low	129	151	76	86	101	160	184	194	201
Input, Non-temporal, High	142	161	103	112	126	181	203	221	229
Input, Non-temporal, Medium	134	155	85	95	110	166	189	208	216
Input, Non-temporal, Low	132	154	80	90	105	161	184	202	211

Two-Wire Horn/Strobe, *HIGH* Candela Range (135 – 185 cd), ULC Maximum Current Draw (mA RMS)

Input	16 – 33 V				Input	16 – 33 V			
	135	150	177	185		135	150	177	185
Temporal, High	245	259	290	297	Temporal, High	215	231	258	265
Temporal, Medium	235	253	288	297	Temporal, Medium	209	224	250	258
Temporal, Low	232	251	282	292	Temporal, Low	207	221	248	256
Non-temporal, High	255	270	303	309	Non-temporal, High	233	248	275	281
Non-temporal, Medium	242	259	293	299	Non-temporal, Medium	219	232	262	267
Non-temporal, Low	238	254	291	295	Non-temporal, Low	214	229	256	262



Ordering Information

Model	Description	Model	Description
WALL HORN/STROBES		*CEILING HORN/STROBES*	
P2RA	2-wire horn/strobe, standard cd, red.	PC2RKA	2-wire horn/strobe, standard cd, red, outdoor.
P2RHA	2-wire horn/strobe, high cd, red.	PC2RHKA	2-wire horn/strobe, high cd, red, outdoor.
P2RKA	2-wire horn/strobe, standard cd, red, outdoor	PC2WA	2-wire horn/strobe, standard cd, white.
P2RHKA	2-wire horn/strobe, high cd, red, outdoor.	PC2WHA	2-wire horn/strobe, high cd, white.
P2WA	2-wire horn/strobe, standard cd, white.	PC4RKA	4-wire horn/strobe, standard cd, red, outdoor.
P2WHA	2-wire horn/strobe, high cd, white.	PC4RHKA	4-wire horn/strobe, high cd, red, outdoor.
P4RA	4-wire horn/strobe, standard cd, red.	PC4WA	4-wire horn/strobe, standard cd, white.
P4RHA	4-wire horn/strobe, high cd, red.	PC4WHA	4-wire horn/strobe, high cd, white.
P4RKA	4-wire horn/strobe, standard cd, red, outdoor.	*HORNS*	
P4RHKA	4-wire horn/strobe, high cd, red, outdoor.	HRA	Horn, red.
P4WA	4-wire horn/strobe, standard cd, white.	HRKA	Horn, red, outdoor.
P4WHA	4-wire horn/strobe, high cd, white.	HWA	Horn, white.
ACCESSORIES		*WALL STROBES*	
BBS-2A	Backbox skirt, wall, red.	SRA	Strobe, standard cd, red.
BBSW-2A	Backbox skirt, wall, white.	SRHA	Strobe, high cd, red.
BBSC-2A	Backbox skirt, ceiling, red.	SRKA	Strobe, standard cd, red, outdoor.
BBSCW-2A	Backbox skirt, ceiling, white.	SRHKA	Strobe, high cd, red, outdoor.
WTPA	Flush mount, weatherproof plate, red	SWA	Strobe, standard cd, white.
WTPWA	Flush mount, weatherproof plate, white	SWHA	Strobe, high cd, white.
TR-HSA	Trim Ring, Red, package of 5	*CEILING STROBES*	
TRW-HSA	Trim Ring, White, package of 5	SCRKA	Strobe, standard cd, red, outdoor.
TRC-HSA	Trim Ring Ceiling, Red, package of 5	SCRHKA	Strobe, high cd, red, outdoor.
TRCW-HSA	Trim Ring Ceiling, White, package of 5	SCWA	Strobe, standard cd, white.
		SCWHA	Strobe, high cd, white.

NOTE: *For strobes and horn/strobes, add suffix "-F" for French or "-B" for Bilingual.*

NOTE: **"High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings.*

NOTE: *All outdoor models ("K(A)" suffix) include a plastic weatherproof backbox.*

NOTE: *Add "-R" to models for weatherproof replacement device (no back box included). Only for use with weatherproof outdoor flush mounting plate, WTPA and WTPWA.*

NOTE: *Add "P" to model for plain housing (No "FIRE" marking on the cover.)*

For more information, contact Notifier.
(888) 289-1114
10 Whitmore Road
Woodbridge, Ontario L4L 7Z4
www.notifier.com