

Data Sheet 9
TL-26332

U.S. Department of Labor

Mine Safety and Health Administration
Approval and Certification Center
765 Technology Drive
Triadelphia, West Virginia 26059



Approval No. 23-A150001-0
A&CC PAR No. 101900

April 10, 2015

ecom Instruments GmbH
Attention: Mr. Kevin Spence
Industriestraße 2
D - 97959 Assamstadt
Baden-Württemberg
Germany

Dear Mr. Spence:

The review of your application dated July 31, 2012, Company Code No. 300011 for the Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex, is complete.

The design of this equipment meets the applicable requirements of Title 30 Code of Federal Regulations, Part 23 (30 CFR Part 23) for use in gassy underground mines. We assign Approval No. 23-A150001-0 to the Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex.

The following apply to Approval No. 23-A150001-0:

- 1) You must build each Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex bearing this approval number according to the drawings and specifications on file at the MSHA Approval and Certification Center. A list of these drawings and specifications is enclosed.
- 2) The design of your approval plate is enclosed. All of the information on the approval plate must be legibly reproduced with permanent lettering on a wear resistant material. The approval plate must be prominently displayed on an exterior surface of each Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex.
- 3) You are not permitted to make changes to the design of this Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex without our approval.
- 4) We may require you to make changes to the design, or to modify the Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex in the field, in the interest of safety.
- 5) We have the right to revoke this approval, for cause, at any time.

- 6) The following requirements apply to this Permissible Ruggedized Handheld Computer Model i.roc Ci70 –Ex:
- a) The Model i.roc Ci70 –Ex is MSHA approved for use with the battery pack type AM Ci70 – Ex only.
 - b) The battery pack type AM Ci70–Ex must only be replaced in a fresh air location.
 - c) The Head Module must only be replaced in a fresh air location and must not be replaced by the user.
 - d) The Model i.roc Ci70–Ex battery pack must be charged:
 - i. using an ecom docking station designed for use with Model i.roc Ci70-Ex, and
 - ii. on the surface, unless the batteries are charged in accordance with the applicable regulations pertaining to battery-charging stations.
 - e) A minimum safe distance of 8 feet shall be maintained between the Model i.roc Ci70–Ex and any blasting circuits, explosives and detonators.
 - f) Only ecom type A00303xx SD memory cards (1, 2, 4, or 8GB) shall fitted to the Model i.roc Ci70–Ex.
 - g) No SIM card shall be fitted to the Model i.roc Ci70–Ex.

You will receive an invoice for the cost to process your application.

If you have any comments or questions relative to this letter, please contact Fawaz Akik at 304-547-2307 or akik.fawaz@dol.gov.

Sincerely,



Dennis L. Ferlich
Chief, Approval and Certification Center

Enclosures

cc: Files (TL-26332)
A&CC

MSHA:A&CC:FAkik:klb:04/07/15

Data Sheet 9

FILE COPY
SURNAME
<i>Jaworski</i>
<i>Hedrick</i>
<i>Z. M.</i>

DRAWING LIST

ecom Instruments GmbH
 Permissible Ruggedized Handheld Computer
 Model i.roc Ci70 –Ex
 Built According to Drawing No. 300011EX16A
 Approval No. 23-A150001-0
 Investigation No. TL-26332

<u>TITLE</u>	<u>DRAWING NO.</u>	<u>REV.</u>
Board connections	300011AD68A	04G
Charge characteristics	300011AD72A, Shts. 1-5	01G
Radiated power	300011AD74A, Shts. 1-10	02G
Encapsulation compound requirements of ACRI 2010 (Version 2009-07-02) clause 5.2	300011AD86A, Shts. 1-2	00G
Description LCD	300011AD108A, Shts. 1-6	01M
Description 1D Laser Module	300011AD110A, Shts. 1-5	01G
Distances MOLICEL ICP103450CA	300011AZ32A	00G
List of Documents for ecom i.roc Ci70	300011EX16A, Shts. 1-4	18G
Documentation Report Spark Safety MSHA	300011EX41A, Shts. 1-43	00G
Control Drawing i.roc Ci70 –Ex	300011EX42A	01G
i.roc Ci70 –Ex MSHA Markings	300011EX43A	00G
micro SD-Card 1GB, 2GB, 4GB, 8GB	300017AD10A, , Shts. 1-2	01M
System runtime P11-V-13	300011PB93A, Shts. 1-6	00G

PCB -: Battery

PCB, BATTERY	MSHA-145-534-004SCH	A01
PCB, BATTERY	MSHA-145-534-004	A01
PCB ASSY, BATTERY	MSHA-234-115-0400, Shts. 1-2	A01
Partlist BATTERY	300011EX06A, Shts. 1-3	02M
145-534-004-A-PCB Layout	300011EX21A, Shts. 1-4	00G

<u>TITLE</u>	<u>DRAWING NO.</u>	<u>REV.</u>
PCB -: MLB		
PCB, MLB	MSHA-145-528-002SCH, Shts. 1-19	B02
PCB, MLB	MSHA-145-528-002, Shts. 1-8	B01
PCB ASSY, MLB	MSHA-234-109-0200, Shts. 1-3	B01
Partlist MLB	300011EX13A, Shts. 1-14	03M
145-528-002-B-PCB Layout	300011EX19A, Shts. 1-12	00G
PCB -: POWER LIMITING		
PCB, POWER LIMITING	MSHA-145-591-000SCH	A01
PCB ASSY, POWER LIMITING	MSHA-234-189-0000, Shts. 1-2	A02
Partlist POWER LIMITING	300011EX05A, Shts. 1-2	02M
145-591-000-A-PCB Layout	300011EX20A, Shts. 1-4	00G
PCB -: KEYPAD, ALPHA- NUMERIC		
PCB, KEYPAD, ALPHA- NUMERIC	MSHA-145-579-000SCH, Shts. 1-2	A01
PCB ASSY, KEYPAD, ALPHA- NUMERIC	MSHA-234-174-0000, Shts. 1-2	A01
Part list KEYPAD, ALPHA- NUMERIC	300011EX07A, Shts. 1-2	02M
145-579-000-A-PCB Layout	300011EX22A, Shts. 1-4	00G
PCB -: KEYPAD, NUMERIC		
PCB, KEYPAD, NUMERIC	MSHA-145-529-001SCH, Shts. 1-2	A01
PCB ASSY, KEYPAD, NUMERIC	MSHA-234-110-0100, Shts. 1-2	A01
Partlist KEYPAD, NUMERIC	300011EX08A, Shts. 1-2	02M
145-529-001-A-PCB Layout	300011EX23A, Shts. 1-4	00G
PCB -: LCD INTERFACE		
PCB, LCD INTERFACE	MSHA-145-582-001SCH, Shts. 1-5	A02

<u>TITLE</u>	<u>DRAWING NO.</u>	<u>REV.</u>
PCB ASSY, LCD INTERFACE	MSHA-234-179-0100, Shts. 1-2	A01
Partlist LCD INTERFACE	300011EX09A, Shts. 1-6	02M
145-582-001-A-PCB Layout	300011EX24A, Shts. 1-6	00G

PCB -: SIDE BUTTON

PCB, SIDE BUTTON	MSHA-145-592-003SCH	A01
PCB ASSY, SIDE BUTTON	MSHA-234-191-0300	A02
Partlist SIDE BUTTON	300011EX10A	02M
145-592-003-A-PCB Layout	300011EX25A, Shts. 1-2	00G

PCB -: FLEX, SCAN BUTTON

FLEX, SIDE SCAN BUTTON	MSHA-120-182-000SCH	A01
FLEX ASSY, SIDE SCAN BUTTON	MSHA-220-122-0000, Shts. 1-2	A02
120-182-000-A-PCB Layout	300011EX26A, Shts. 1-2	00G
Partlist Flex, Side Scan Button	300011EX32A	02M

PCB -: COZUMEL FAST SCAN HANDLE BOARD

COZUMEL SCAN HANDLE BD LINE2	MSHA-145-414-001SCH	B01
COZUMEL FAST SCAN HANDLE BOARD	MSHA-234-123-0100	A02
Part list COZUMEL FAST SCAN HANDLE BOARD	300011EX11A	01M
145-414-001-B-PCB Layout	300011EX27A, Shts. 1-2	00G

PCB, I/O

PCB, I-O	MSHA-145-629-000SCH	A01
PCB ASSY, I/O	MSHA-234-248-0000	A01
145-629-000-A-PCB Layout	300011EX28A, Shts. 1-4	00G
Partlist I-O	300011EX31A	01M

PCB -: CAP, END

PCB, CAP, END	MSHA-145-556-000SCH	A01
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<u>TITLE</u>	<u>DRAWING NO.</u>	<u>REV.</u>
145-556-000-A-PCB Layout	300011EX29A, Shts. 1-2	00G
300011LP08 interface board AB		
Schematic	300011SP08A, Shts. 1-2	01M
Mounting (Top)	300011BA08A	00M
Mounting (Bottom)	300011BB08A	00M
Layout (Top)	300011YA08A	00M
Layout (Bottom)	300011YB08A	00M
Layout (Route2)	300011YC08A	00M
Layout (Route3)	300011YD08A	00M
Layout (Route14)	300011YE08A	00M
Layout (Route15)	300011YF08A	00M
Partlist Interface Board AB	300011SL08A	02M
300011LP03 Scanner board		
Schematic	300011SP03A, Shts. 1-2	04M
Mounting (Top)	300011BA03A	04M
Layout (Top)	300011YA03A	04M
Layout (Bottom)	300011YB03A	04M
Layout (Route2)	300011YC03A	04M
Layout (Route15)	300011YD03A	04M
Partlist Scanner Board	300011SL03A	04M
PCB,GALILEO		
PCB,GALILEO, ABGN,OSP FINISH	MSHA-145-523-000SCH, Shts. 1-3	A01
PCB ASSY, GALILEO,ABGN, OSP	MSHA-234-252-0000	A02
Partlist GALILEO	300011EX33A, Shts. 1-3	01M
234-252-0000-A-PCB Layout	300011EX34A, Shts. 1-6	00G

<u>TITLE</u>	<u>DRAWING NO.</u>	<u>REV.</u>
Mechanical Drawings		
SN-SE955-CA	300011AZ02A	02M
Overview BTRY Pack ASSY	300011AZ05A, Shts. 1-4	04M
Overview LCD Module Assembly	300011AZ06A	02M
Overview Electronic Assembly Main	300011AZ07A, Shts. 1-3	06M
Material assessment i-roc Ci70- Ex	300011AZ12A	00G
KIT, HH UNIT, NUMERIC, UNPOTTED	300011AZ25A	00M
KIT, HH UNIT, QWERTY, UNPOTTED	300011AZ26A	00M
BTRY PACK ASSY, UNPOTTED	300011AZ27A	01M
LCD MODULE ASSEMBLY	300011AZ28A	00M
ELECTRONIC ASSEMBLY, MAIN	300011AZ29A	00M
Minimum Isolation P4, J4	300011EX37A, Shts. 1-2	01G
FRAME, LOWER	MSHA-644-069	D00
FRAME, UPPER	MSHA-644-070	F00
FRAME, DISPLAY	MSHA-644-071	D00
Test reports		
Determination of the speaker inductance SCM-09C-J	300011PB10A, Shts. 1-3	01M
Encapsulation Compound		
QSi1550	300011DB10A	01G

ecom Instruments GmbH

Permissible Ruggedized Handheld Computer
Model i.roc Ci70 –Ex



Approval No. 23-A150001-0

**TESTED FOR INTRINSIC SAFETY IN
METHANE-AIR MIXTURES ONLY**

WARNING:

1. See Control Drawing 300011EX42A