



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx SIM 13.0005 Issue No: 2 Certificate history:  
Status: **Current** Page 1 of 4 [Issue No. 2 \(2014-12-05\)](#)  
Date of Issue: **2014-12-05** [Issue No. 1 \(2013-08-06\)](#)  
[Issue No. 0 \(2013-05-22\)](#)

Applicant: **Jatco (Australia) Pty Ltd t/a Applied Resolution Technologies**  
Lot 521 Sullivans Road  
YAMBA NSW 2464  
**Australia**

Electrical Apparatus: **Mining and Tunnel Lasers, Models: SLX-635P, SLX-635S, SLX-515S,  
SLM-635S, SLM-515S, BLX-635, BLX-635S and BLX-515S**

*Optional accessory:*

Type of Protection: **ia**

Marking:  
Ex ia I  
or  
Ex ia II B T\*  
\* T rating T1, T3 or T4 dependant on batteries used (Refer Annex)  
IECEX SIM 13.0005

*Approved for issue on behalf of the IECEx  
Certification Body:*

Geoffrey Barnier

*Position:*

Principal Engineer - Certification

*Signature:  
(for printed version)*

*Date:*

5 December 2014

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**Safety in Mines Testing and Research Station (Simtars)**  
2 Smith Street  
REDBANK QLD 4301  
Australia





# IECEX Certificate of Conformity

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Date of Issue: 2014-12-05 Page 2 of 4  
Manufacturer: **Jatco (Australia) Pty Ltd t/a Applied Resolution Technologies**  
Lot 521 Sullivans Road  
YAMBA NSW 2464  
**Australia**

Additional Manufacturing  
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0  
**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

[AU/SIM/ExTR13.0003/00](#)      [AU/SIM/ExTR13.0003/01](#)      [AU/SIM/ExTR13.0003/02](#)

#### Quality Assessment Report:

[AU/SIM/QAR10.0001/05](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The SL- and BL-series of Mining and Tunnel Lasers is a self-contained apparatus powered by a non-rechargeable battery pack consisting of alkaline cells in either AA-size, C-size or D-size options. Various configuration options allow the lasers to be used with removable or non-removable battery packs. In laser configurations fitted with non-removable battery packs, power to the laser circuitry is limited by a fuse located in the laser head. In removable battery pack configurations, the fuse is located in the battery pack. Fuses are not replaceable by the user.

Refer Annex for equipment configuration.

**CONDITIONS OF CERTIFICATION: NO**



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Issue 1:

- Addition of new battery modules SB-AAA, BB-CC, BB-CCC and BB-CCCCC.
- Addition of bronze/brass adaptors to modularize battery packs.
- Other minor mechanical changes.

### Issue 2:

- Addition of 6-cell removable battery packs using previously certified AA-, C- or D-type cells
- Addition of adapter fittings to extend range of laser head / battery module combinations
- Substitution of fuses with shorting link in laser heads fitted with removable battery packs
- Change to lower resistance fuse types
- Increase in resistance of resistor R1 on LCLNichia circuit board
- Alternative on/off switch for BLX-type lasers using C-cell battery packs
- Dimensional changes to BLXS laser-head housing
- Documentation changes and corrections

### Annex:

[IECEx SIM 13.0005-2 Annex.pdf](#)



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## Manufacturer's documents:

### Issue 2:

Drawing No	Subject	Rev.	Date
8	BLX Laser head assembly	1.5	6/11/14
12	BLX-Full 3 x D-Cell version	1.5	17/9/14
40	Fuse information	1.6	6/11/14
62	ARTLPL fuse board and battery contact circuit top	2.5	6/11/14
64	SLX, SLM & BLX Fuse definitions	2.60	6/11/14
69	ARTLF fuse and battery contact circuit Segregation descriptions	1.2	17/9/14
70	ARTLF fuse board	2.4	6/11/14
72	SLX and BLX circuit segregation issues	1.4	17/9/14
202	Modular IECEx Battery Pack SB-AA	1.2	17/10/14
203	SLX-635S and BLX-635S Laser Drive Circuits	2.40	17/09/14
205	Battery Body Subassembly	1.3	26/11/14
207	Battery Common body 2 D cells	1.1	26/11/14
217	Battery contact and fuse cutaway	1.2	17/10/14
233	SLM-635M laser head	1.1	17/9/14
234	Modular IECEx Laser : SLM-635S + SB-AA	1.2	17/9/14
238	SLMENG1 : Product Engraving battery module	1.4	26/11/14
242	Battery contact and fuse components	1.2	7/11/14
245	Engraving detail SLX-515S	1.2	26/11/14
248	SLX-515S Module internals	1.1	16/10/14
249	SLXS-515 module	1.1	17/9/14

(Drawing list continued next page)

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Drawing No	Subject	Rev.	Date
254	SLX-515S & BLX-515S GREEN Laser Drive Circuits	2.30	17/09/14
255	LCL Nichia diode laser driver	1.2	17/9/14
256	LCL Nichia diode laser driver	1.2	17/9/14
262	BLXSFull	1.1	7/11/14
263	ART SLX-515S LASER Parts List/BOM	2.2	26/11/14
264	BLX-635S and/or BLX-515S laser module	1.2	17/9/14
266	BLXS-Assembly	1.1	17/9/14
283	BLX-Full2 : 2 x D cell version	1.1	17/9/14
309	SLX-515S laser body internals	1.1	9.10.2014
310	SLX-515S Laser Level Body	1.1	9/10/14
314	LCLNichia Green Laser Driver	1.1	15/09/14
319	ART SLM-515S LASER & SLB-AAAAA Parts List/BOM	1.2	6/11/2014
321	SLM-515M laser head	1.1	17/9/14
322	Modular IECEx Laser : SLM-515S + SB-AAAAA	1.2	9.10.14
323	5 x AA and 6 x AA cell SLM battery housing	1.1	9/10/14
324	Modular IECEx Battery Pack SB-AAAAA	1.2	17/10/14
335	ART LASER PRODUCTS INVENTORY : BLX-515S	2.2	6/11/2014
351	SLM-515S GREEN Laser Drive Circuits	2.40	17/10/14
352	SLM-635S Laser Drive Circuits	2.40	17/10/14
356	BLXSRange	1.4	-
357	BLX-635S AND BLX-515S Battery Body Engraving Details	1.1	26/11/14

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Drawing No	Subject	Rev.	Date
358 (7 Pages)	Scheduled Docs	1.7	26/11/2014
361	LaserRange2	1.2	-
363	Modular IECEx Battery Pack SB-AAA	1.1	17/10/14
364	Modular IECEx Laser : SLM-635S + SB-AAA	1.1	17/9/14
365	BLXSFull	1.1	17/9/14
366	BLXSAdaptor	1.1	17/9/14
367	LaserRange3 C-cells	1.2	7/11/14
396	Removable Battery MODULE cross-reference	6	17/10/14
397	Laser Subassembly cross-reference	4	6/11/2014
398	Configurations.doc	5	26/11/14
399	LCLNichiatop2	1.0	18/9/14
400	LCLNichiabott2	1.0	18/9/14
401	BLXS-C-Adaptor2	1.0	/9/14
402	3-cell part of 5-cell body	1.0	8/10/14
403	Battery body for 2 x D-cell extension	1.1	26/11/14
404	BLXB-D-Adaptor part 1	1.0	9/10/14
405	LaserRange4 C 6-cells	1.1	7/11/14
406	Battery body for 5 x D-Cells	1.0	8/10/14
407	3 x D-cell battery Body	1.0	8/10/14
408	BLXB-D-Adaptor part2	1.0	9/10/14
409	BBB-3, 5, 6D assembly	1.1	26/11/14

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Drawing No	Subject	Rev.	Date
410	BLXB-D-Adaptor	1.0	8/10/14
412	BLXSWITCHC1	1.0	9/10/14
413	BLXSWITCHC1	1.0	9/10/14
414	Battery body upgrade	1.0	9/10/14
415	Battery body upgrade	1.0	9/10/14
416	Modular IECEx Battery Pack SB-6A	1.1	16/10/14
417	Battery body for 3 x D-Cell extension	1.1	26/11/14

## Issue 1:

Drawing No	Subject	Rev.	Date
358 (6 pages)	Scheduled Docs	1.3	18/07/2013
217	Battery contact and fuse cutaway	1.1	13/7/13
238	SLMENG1: Product Engraving battery module	1.3	13/7/13
328	BLXL-010-1 hex laser head C-cells	1.1	13/7/13
340	BLXL-010-2 hex laser head D-cell	1.1	13/7/2013
361	LaserRange2	1.0	8/7/13
362	Sensor and SLM battery housing	1.0	8/7/13
363	Modular IECEx Battery Pack SB-AAA	1.0	8/7/13
364	Modular IECEx Laser : SLM-635S + SB-AAA	1.0	8/7/13
366	BLXSAdaptor	1.0	8/7/13
367	LaserRange3 C-cells	1.0	8/7/13
368	Modular IECEx Battery Pack BB-CC	1.0	13/7/13

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Drawing No	Subject	Rev.	Date
369	Modular IECEx Battery Pack BB-CCC	1.0	13/7/13
370	Modular IECEx Battery Pack BB-CCCC	1.0	13/7/13
371	BLXS-C-Adaptor	1.0	13/7/13
372	SLMENG8 : Product Engraving C battery module	1.1	18/7/13

## Issue 0:

Drawing No	Subject	Rev.	Date
358	Scheduled Docs	1.1	16/05/2013
5	Battery contact Isolator : Laser head	1.3	16/8/12
7	Possible Battery Configurations by User	1.2	16/8/12
8	BLX Laser head assembly	1.3	17/8/12
9	BLX Laser Battery pack 3 x D	1.4	16/5/13
10	BLX-635 Laser Head Engraving Details	1.4	15/4/13
11	BLX Battery Pack Engraving Details	1.4	15/4/13
12	BLX-Full 3 x D-Cell version	1.4	17/8/12
13	BLX-635 Laser Head	1.4	17/8/2012
14	BLX laser module	1.1	17/8/12
17	SWITCH CONTACT AND ISOLATOR FOR BLX635	1.2	16/8/12
18	SWITCH ISOLATOR FOR BLX635	1.1	16.8.12
19	SWITCH ASSEMBLY FOR BLX635	1.1	16/8/12
24	Laser holder	1.2	17/8/12
26	M40 thread definitions	1.1	16/8/12

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Drawing No	Subject	Rev.	Date
31	ART SLX-635P LASER Parts List/BOM	2.0	26/4/13
35	Output Window	1.1	14/8/2012
37	SLX Laser head assembly	1.5	25/4/13
38	SLX Laser head assembly	1.2	14/8/12
39	Potting compound and coating information	1.2	13/12/12
40	Fuse Information : all lasers	1.3	15/4/13
41	Laser modular assembly	1.2	14/8/12
42	Diode housing 9mm	1.2	16/8/12
43	XY adjustment housing fused module	1.2	25/11/2012
44	Battery Contact spring	1.1	14/8/12
45	Switch assembly	1.3	14/8/12
46	Laser switch body	1.1	14/8/12
47	Switch knob	1.1	14/8/12
48	Switch contact	1.1	14/8/12
49	Switch isolator	1.1	14/8/12
50	Laser Level Body	1.3	14/8/12
51	SLX-635P laser body internals	1.3	14/8/12
52	Laser Level Vial Cover	1.1	14/8/12
53	JATCO SLX-635P Laser Cross sections	1.4	14/8/12
55	Engraving Detail : Face #2 Manufacturer Detail	1.4	15/4/13
56	Engraving Detail : Face #3 IECEx ia compliance information	1.4	15/4/13

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Drawing No	Subject	Rev.	Date
58	JATCO SLX-635P Laser	1.3	14/8/12
62	ARTLPL fuse board and battery contact circuit top	2.2	15/4/13
63	SLX -635P & BLX -635 Laser Drive Circuits	1.70	25/04/2013
64	SLX & BLX Fuse definitions	2.20	25/4/13
65	LCL001AT Laser drive circuit	1.2	13/12/2012
66	Laser Pulse Circuit 3 kHz	1.1	13/12/2012
67	ARTLCL-001 Laser drive circuit Bottom Layer	1.1	14/8/12
68	ARTLCL laser drive circuit top layer	1.1	14/8/12
69	ARTLF fuse and battery contact circuit Segregation descriptions	1.1	14/8/12
70	ARTLF fuse board	2.1	14/8/12
71	Potting compound and coating information	1.2	15/4/13
72	SLX and BLX circuit segregation issues	1.3	25/4/13
175	ART LASER PRODUCTS INVENTORY : BLX-635	1.0	16/05/2013
193	ART LASER PRODUCTS INVENTORY : BLX-635S	2.1	16/05/2013
194	Output Window	1.2	17/8/12
195	Battery contact and fuse	1.1	15/4/13
196	Battery contact and fuse	1.1	15/4/13
197	ISOLATOR FOR BLX switches	1.0	17/12/12
202	Modular IECEx battery Pack SB-AA	1.1	16/5/13
203	SLX-635S and BLX-635S Laser Drive Circuits	2.3	25/04/2013
204	COMPLETE 2 X D-CELL BATTERY MODULE	1.1	16/5/13

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Drawing No	Subject	Rev.	Date
205	Battery Body Subassembly	1.2	16/8/12
206	Body Detail showing flats	1.1	16/8/12
207	Battery Common body 2 D cells	1.0	16/8/12
208	Body Detail showing flats	1.1	16/8/12
209	Window locking Ring	1.1	16/8/12
210	Window holding Ring	1.1	16/8/12
211	Diode housing 5.6mm	1.1	15/4/13
212	Diode housing short BLX	1.0	16/8/12
213	Diode Collimating lens for BLX	1.0	16/8/12
214	Laser holder	1.2	16/8/12
215	SWITCH BODY FOR BLX635	1.3	16/8/12
216	SWITCH KNOB FOR BLX635	1.2	1/9/2010
217	Battery contact and fuse cutaway	1.0	16/8/12
218	Sensor and SLM battery housing	1.0	16/8/12
219	LPL circuit top	1.1	15/4/13
220	LPL circuit bottom side	1.0	3/9/12
221	New circuit assembly Laser driver/pulse/fuse	1.0	3/9/12
223	Engraving detail SLX-635S	1.1	16/4/13
224	Engraving detail SLX-635S	1.1	16/4/13
225	ART SLX-635S LASER Parts List/BOM	2.1	26/04/2013
227	SLX-635S laser cross section	1.0	5/09/2012

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Drawing No	Subject	Rev.	Date
228	SLX-635S Laser Level Body	1.0	5/09/2012
229	SLX-635S laser body internals	1.0	5/09/2012
230	SLX-635S Module internals	1.0	5/9/2012
231	XY adjustment housing fused module	1.0	30/8/2012
233	SLM-635M laser head	1.0	16/12/2012
234	Modular IECEx Laser : SLM-635S + SB-AA	1.1	16/5/13
235	SLM-635M laser head	1.0	5/9/2012
236	ART SLM -635S LASER & SLB-AA Parts List/BOM	1.1	16/05/2013
238	SLMENG1: Product Engraving battery module	1.1	16/4/13
239	Certification Information : SLM-635S and SLM-515S heads	1.1	16/4/13
241	Battery contact and fuse	1.0	16/8/12
242	Battery contact and fuse components	1.1	16/4/13
243	Plastic Insert for battery contact SB-AA	1.0	6/9/12
244	Engraving detail SLX-515S	1.1	16/4/13
245	Engraving detail SLX-515S	1.1	16/4/13
247	SLX-515S laser cross section	1.0	15/12/2012
248	SLX-515S Module internals	1.0	15/12/2012
249	SLXS-515 module	1.0	14/12/12
250	SLX-515S Laser head assembly	1.0	14/9/12
254	SLX -515S & BLX-515S GREEN Laser Drive Circuits	2.20	15/04/2013
255	LCL Nichia diode laser driver	1.1	16/4/13

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256	LCL Nichia diode laser driver	1.1	16/4/13
260	Circuit board orientation	1.0	15/12/12
262	BLXSFull	1.0	16/12/2012
263	ART SLX-515S LASER Parts List/BOM	2.1	16/4/13
264	BLX-635S and/or BLX-515S laser module	1.1	25/4/13
266	BLXS-Assembly	1.0	8/9/12
267	Diode housing short BLX	1.1	31/12/12
268	SLXS module	1.0	14/12/12
282	BLX-635 Laser Head	1.0	11/9/2012
283	BLX-Full2 : 2 x D-Cell version	1.0	12/9/2012
284	SLX635S Laser head assembly	1.0	14/9/12
299	LCL Nichia diode laser driver	1.1	16/4/13
309	SLX-515S laser body internals	1.0	15/12/2012
310	SLX-515S Laser Level Body	1.0	15/12/2012
314	LCLNichia Green Laser Driver	1.0	15/12/2012
319	ART SLM-515S LASER & SLB-AAAAA Parts List/BOM	1.1	16/05/2013
321	SLM-515M laser head	1.0	16/12/2012
322	Modular IECEx Laser : SLM-515S + SB-AAAAA	1.1	16/05/13
323	5 x AA cell SLM battery housing	1.0	16/8/12
324	Modular IECEx Battery Pack SB-AAAAA	1.1	16/5/13
325	BLX-515S battery body	1.1	15/4/13

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Drawing No	Subject	Rev.	Date
326	BLX-635S battery body	1.0	16/12/12
327	BLX-635S battery body	1.0	16/12/12
328	BLXL-010-1 hex laser head C-cells	1.0	12/9/2012
329	SWITCH BODY FOR BLX-635S/BLX-515S	1.1	16/4/13
330	SWITCH ASSEMBLY FOR BLX-635S and BLX-515S	1.1	16/4/13
331	Window holder/lens adjustor Ring	1.0	17/12/12
335	ART LASER PRODUCTS INVENTORY : BLX-515S	2.1	16/05/2013
336	SLX Battery isolation washer	1.0	17/12/12
337	BLX Battery isolation washer	1.0	17/12/12
338	BLX Battery isolation washer	1.0	18/12/12
339	BLX-515S battery body	1.1	16/5/13
340	BLXL-010-2 hex laser head D-cell	1.0	18/12/2012
345	BLX-635S Laser Head Engraving Details	1.0	7/1/13
346	BLX-635S Laser Head Engraving Details	1.1	16/4/13
347	BLX-515S Laser Head Engraving Details	1.2	25/4/13
348	SLX-515S laser body internals	1.0	14/1/13
349	SLX-515S Laser Level Body	1.0	14/1/13
350	SLX-515S laser body internals	1.0	14/1/13
351	SLM -515S GREEN Laser Drive Circuits	2.20	16/04/2013
352	SLM-635S Laser Drive Circuits	2.20	16/04/2013
353	Engraving Detail: Face #4 Warning battery replacement	1.0	15/4/13

(Drawing list continued next page)

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Drawing No	Subject	Rev.	Date
354	Diode housing 5.6mm	1.0	15/4/13
355	SH-03MBA window head	1.0	15/4/13
356	BLXSFull	1.2	26/4/13
357	BLX-635S AND BLX-515S Battery Body Engraving Details	1.0	26/4/13

**Equipment:**

**Issue 2:**

### Configuration options

Laser Head:	SLX-635P	BLX-635	SLX-635S	SLX-515S	SLM-635S	SLM-515S	BLX-635S	BLX-515S
62 mA fuse	*	*	*				*	
80 mA fuse				*				*
Pulse modulation			*	*	*	*	*	*
Green laser				NDG1216E (10 mW)		NDG1216E (10 mW)		NDG1216E (10 mW)
Red laser	HL6354MG (5 mW) or HL6358MG (10mW)	HL6358MG (10 mW)	HL6354MG (5 mW) or HL6358MG (10mW)		HL6354MG (5 mW) or HL6358MG (10mW)		HL6358MG (10 mW)	
<b>Permanent Battery Pack</b>								
2 x AA size	*		*					
5 x AA size				*				
2 x C size							*	
3 x C size							*	
5 x C size								*
<b>Modular Battery Pack</b>								
SB-AA 451.062 fuse					*		*	
SB-AAA 451.062 fuse					*		*	
SB-AAAA 451.080 fuse						*		*
SB-6A 242.080 fuse						*		*
BB-CC 451.062 fuse					*		*	
BB-CCC 451.062 fuse					*		*	

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# IECEX Certificate of Conformity

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Laser Head:	SLX-635P	BLX-635	SLX-635S	SLX-515S	SLM-635S	SLM-515S	BLX-635S	BLX-515S
BB-CCCC 451.080 fuse						*		*
BB-6C 242.080 fuse						*		*
BB-DD 451.062 fuse		*			*		*	
BB-DDD 451.062 fuse		*			*		*	
BB-DDDDD 451.080 fuse						*		*
BB-6D 242.080 fuse						*		*

## Battery types, temperature classification for each model

Model Number	Permitted Battery type & number	Temperature Classification
SLX-635P	Panasonic Industrial LR6XW AA size 2ea	T3
BLX-635	Panasonic Industrial LR20XW D size 2ea or 3ea	T3
SLX-635S	Panasonic Industrial LR6XW AA size 2ea	T3
SLX-515S	Panasonic Industrial LR6XW AA size 5ea	T1
SLM-635S	Panasonic Industrial LR6XW AA size 2ea or 3ea	T3
	Panasonic Industrial LR14XW C size 2ea or 3ea	T4
	Panasonic Industrial LR20XW D size 2ea or 3ea	T3
SLM-515S	Panasonic Industrial LR6XW AA size 5ea or 6ea	T1
	Panasonic Industrial LR14XW C size 5ea or 6ea	T1
	Panasonic Industrial LR20XW D size 5ea or 6ea	T1
BLX-635S	Panasonic Industrial LR6XW AA size 2ea or 3ea	T3
	Panasonic Industrial LR14XW C size 2ea or 3ea	T4
	Panasonic Industrial LR20XW D size 2ea or 3ea	T3
BLX-515S	Panasonic Industrial LR6XW AA size 5ea or 6ea	T1
	Panasonic Industrial LR14XW C size 5ea or 6ea	T1
	Panasonic Industrial LR20XW D size 5ea or 6ea	T1

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## Issue 1:

### Battery configuration and Temperature Rating added

Model Number	Permitted Battery type & number	Temperature Classification
SLM-635S	Panasonic Industrial LR6XW AA size 3ea	T3
	Panasonic Industrial LR14XW C size 2ea or 3ea	T4
SLM-515S	Panasonic Industrial LR14XW C size 5ea	T1
BLX-635S	Panasonic Industrial LR6XW AA size 2ea or 3ea	T3
	Panasonic Industrial LR14XW C size 2ea or 3ea	T4
BLX-515S	Panasonic Industrial LR6XW AA size 5ea or Panasonic Industrial LR14XW C size 5ea	T1

### Additional Information:

The batteries can only be removed or replaced in a non-hazardous area.

Battery packs SB-AA, SB-AAA, SB-AAAAA, BB-CC, BB-CCC, BB-CCCCC, BB-DD, BB-DDD and BB-DDDDD are of the modular types and can be removed from the laser head in the hazardous area.

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