FATAR srl
KEY ACTION TECHNOLOGIES SINCE 1956

TP/9S

SYNTHESIZER ACTION KEYBOARD

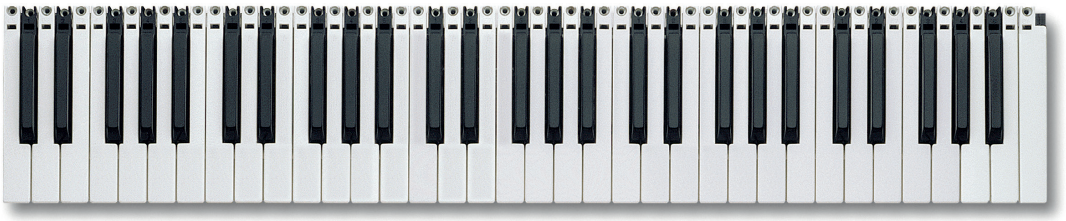


TABLE OF CONTENT

DEVICE SELECTION TABLE

PART	DESCRIPTION
6509xxxx	TP/9S
C(DF)	Contact Board with Forward Diodes

FEATURES

- 25-37-44-49-61-76 Synth action keyboard;
- Universal keyboard appliance;
- Keyboard endurance: 3 million times at fortissimo level;
- Temperature range:
  - Operation: -5° to +45 °C
  - Storage: -25° to +65 °C

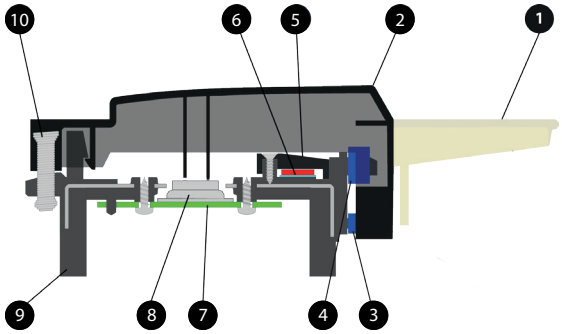
DESCRIPTION

The TP/9S keyboard produces a quick and light feel and works well for certain types of music and for playing a wide range of sounds. Due to its features, TP/9S is a universal keyboard for any kind of instrument: Synthesizers, Organs, Arrangers, Workstations and Controllers.

The keyboard is available in various configurations: 25, 37, 44, 49, 61 and 76 weighted or unweighted keys, dynamic rubber contacts and Monophonic aftertouch.

BLOCK DIAGRAM

Below is the block diagram of TP/9S keyboard where all its parts are showed

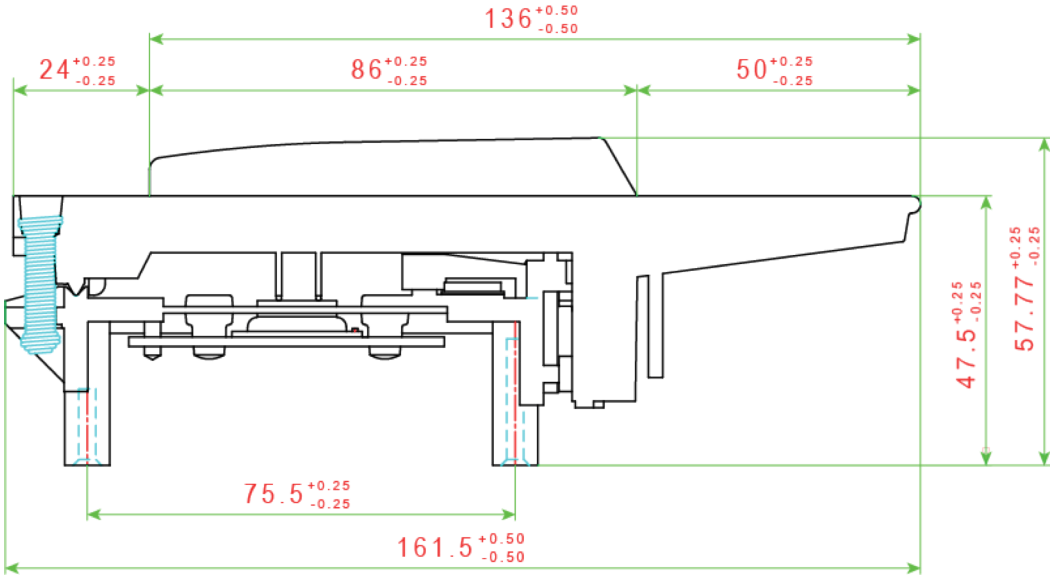


1. White key;
2. Black key;
3. White key rubber travel guide;
4. Black key rubber travel guide;
5. Aftertouch locker;
6. Aftertouch sensor + felt-foam pack;
7. PCB;
8. Rubber contact strip;
9. Frame (plastic + metal core);
10. Spring.

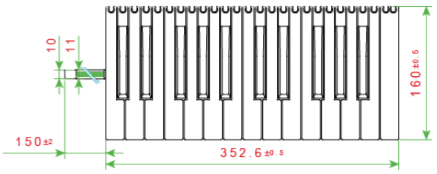
MECHANICAL CHARACTERISTICS

The TP/9S keyboard produces a quick and light feel and is very comfortable for a wide range of music styles.
The keyboard is made of plastic keys and uses springs to let the key return to its initial position. The frame is made by a special over-molding process to get a solid body with the flexibility of the polymer materials and the stability of the metal core.

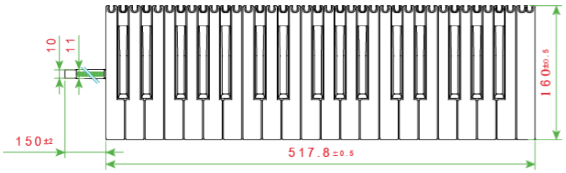
The TP/9S keyboard with his features comes in a compact size and it is adaptable to different uses in various types of cabinets.



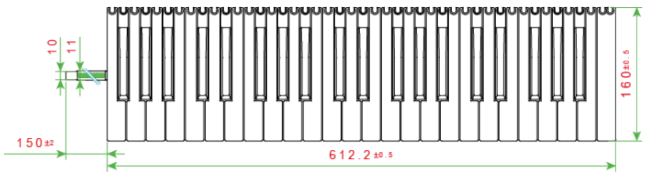
25 KEYS



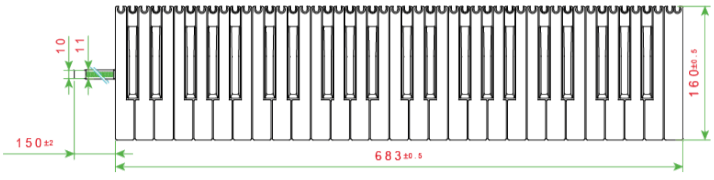
37 KEYS



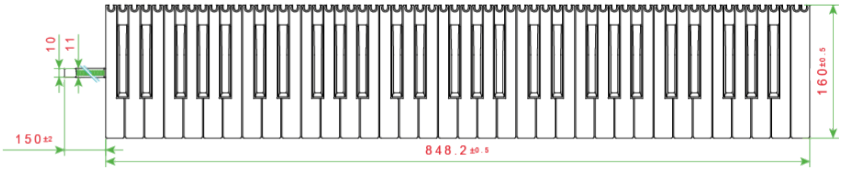
44 KEYS



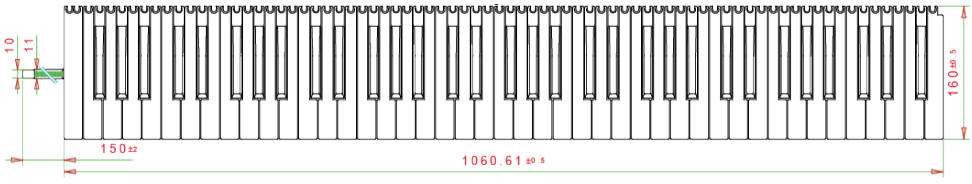
49 KEYS



61 KEYS



76 KEYS



DRILLING PATTERN

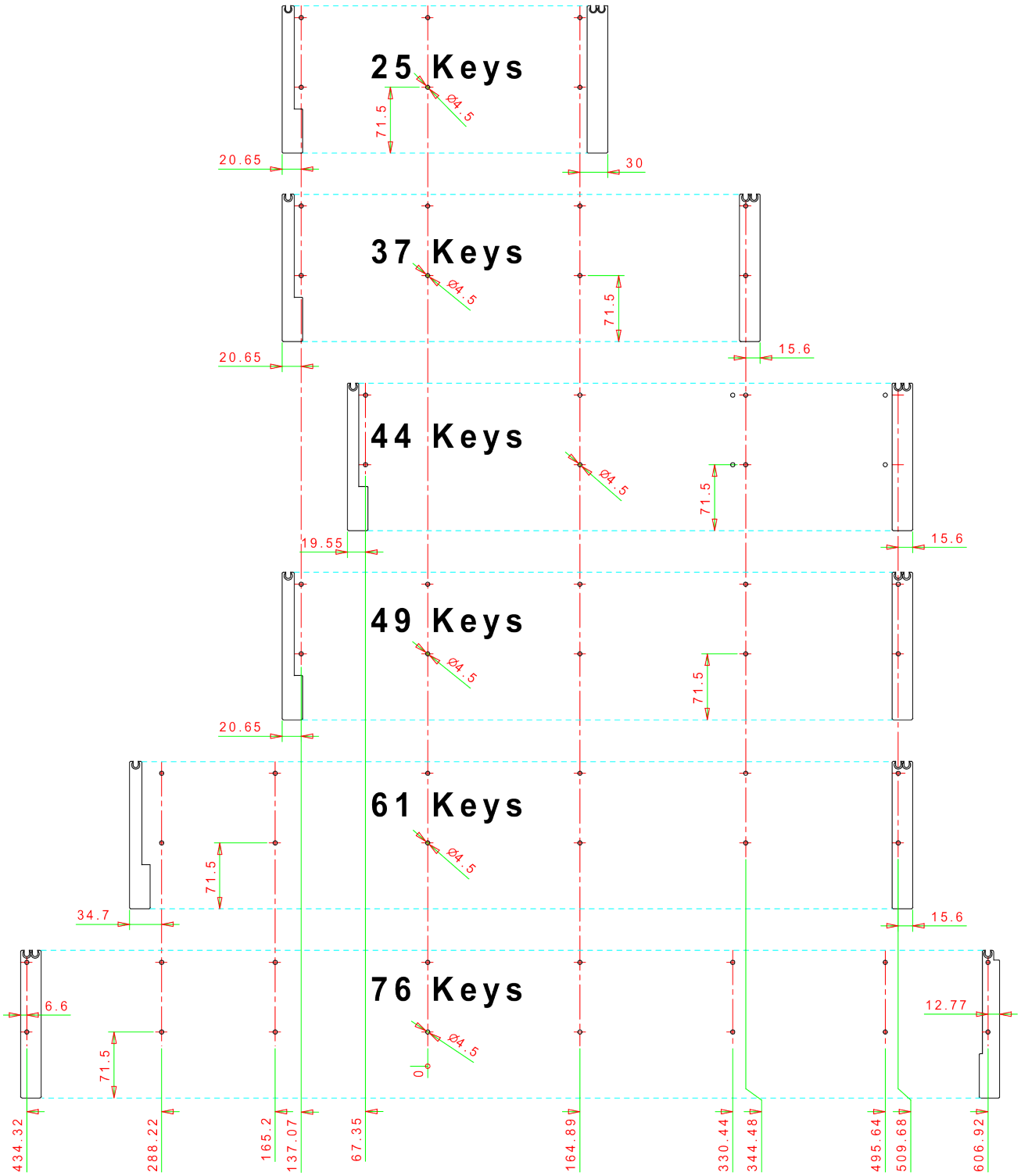


TABLE 1-1 PRESS FORCE OF KEY

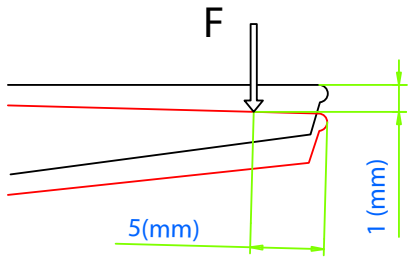
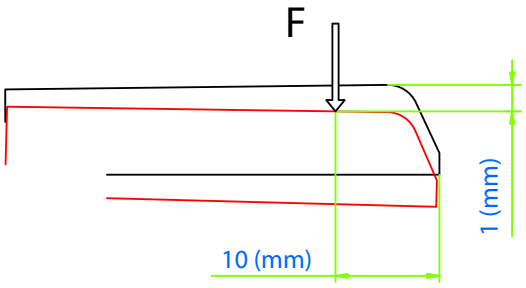
ITEM	CONDITION	STANDARD
Measured force on white key after 1mm of travel at 5 mm depth from the front.		F= 50 +/- 7 gr
Measured force on black key after 1mm of travel at 10mm depth from the front.		F = 50 +/- 7 gr

TABLE 1-2 CONTACT TRAVEL

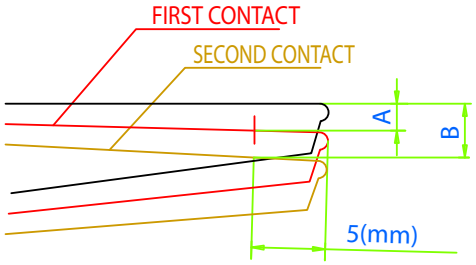
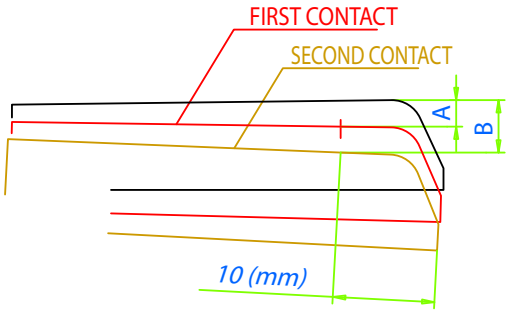
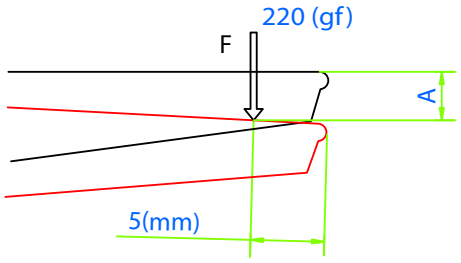
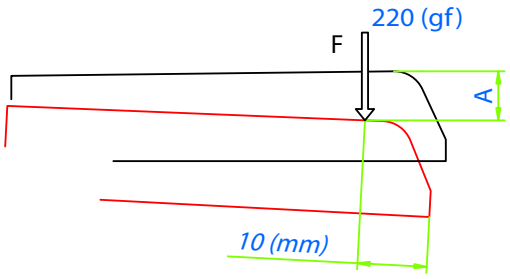
ITEM	CONDITION	STANDARD
WHITE KEY A: Travel at first contact B: Travel at second contact B-A: Gap between 1st and 2nd contact		A= 3.2 +/-0.8 mm Weight at A = 55 +/- 6 gr B = 6.5 +/- 0.8 mm Weight at B = 70 +/- 6 gr B – A = 3.3 +/- 0.5 mm
BLACK KEY A: Travel at first contact B: Travel at second contact B-A: Gap between 1st and 2nd contact		A= 2.0 +/-0.8 mm Weight at A = 60 +/- 6 gr B = 4.0 +/- 0.8 mm Weight at B = 85 +/- 6 gr B – A = 2.0 +/- 0.5 mm

TABLE 1-3 ENTIRE TRAVEL

ITEM	CONDITION	STANDARD
WHITE KEY F: Applied force on white key to go at maximum travel A: Measured travel of white key		A = 11.0 +/- 1.0 mm
BLACK KEY F: Applied force on black key to go at maximum travel A: Measured travel of black key		A = 6.3 +/- 1.0 mm

ELECTRICAL CHARACTERISTICS

TABLE 2-1 CONTACT RESISTANCE

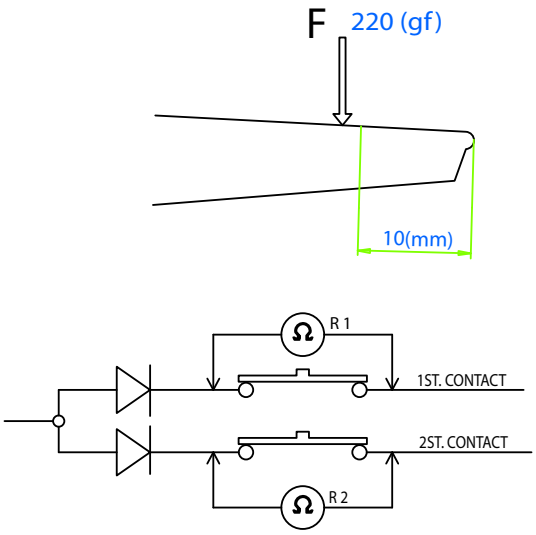
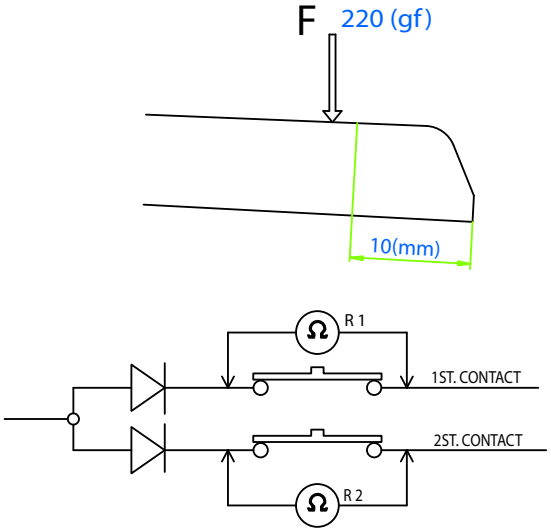
ITEM	CONDITION	STANDARD
WHITE KEY F: Applied force to go at maximum travel R1: Measured resistance of the first contact R2: Measured resistance of the second contact		R1: less than 100 ohm R2: less than 100 ohm
BLACK KEY F: Applied force to go at maximum travel R1: Measured resistance of the first contact R2: Measured resistance of the second contact		R1: less than 100 ohm R2: less than 100 ohm

TABLE 2-2 INSULATION RESISTANCE

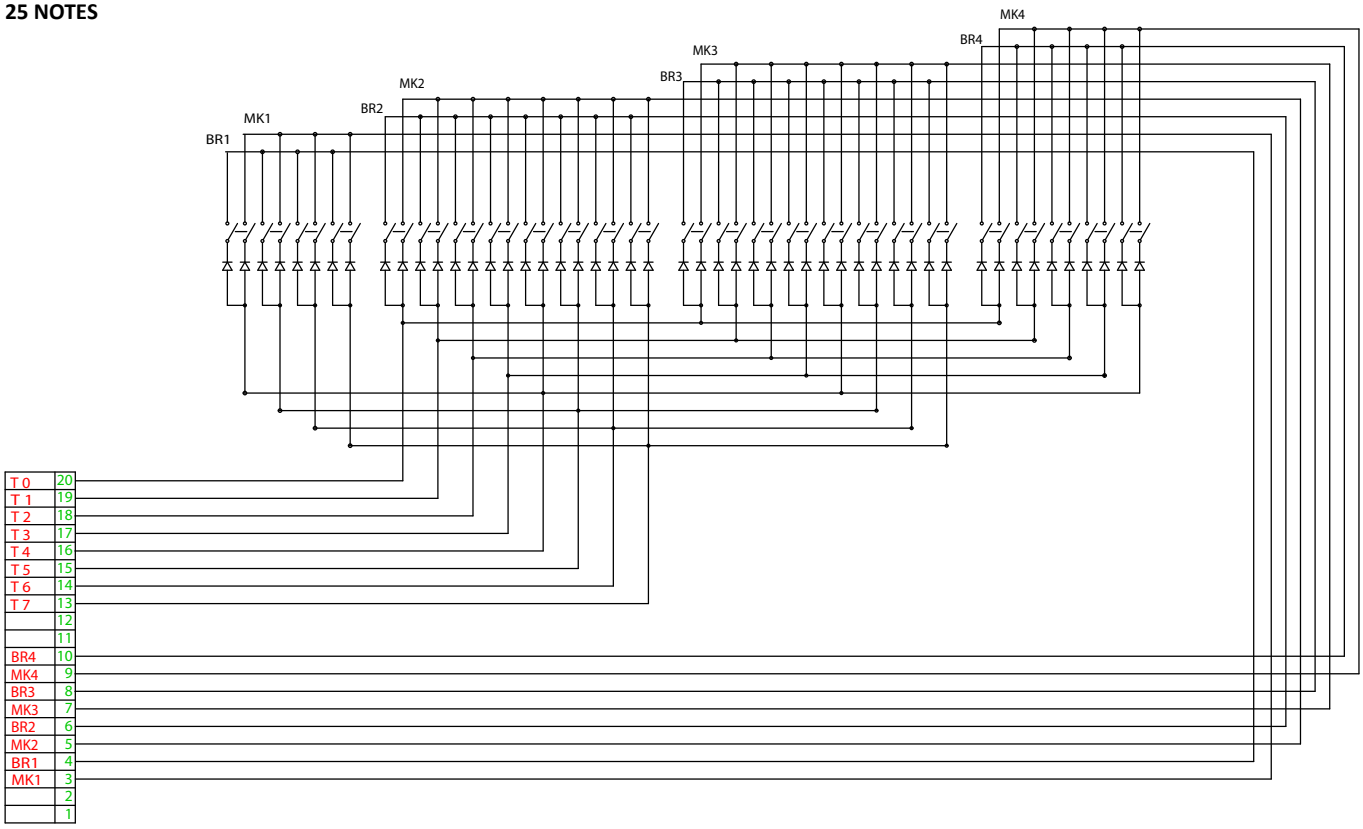
ITEM	CONDITION	STANDARD
Resistance of the open contacts	At 500 VDC	More than 100Mohm

TABLE 2-3 RATED VOLTAGE/CURRENT

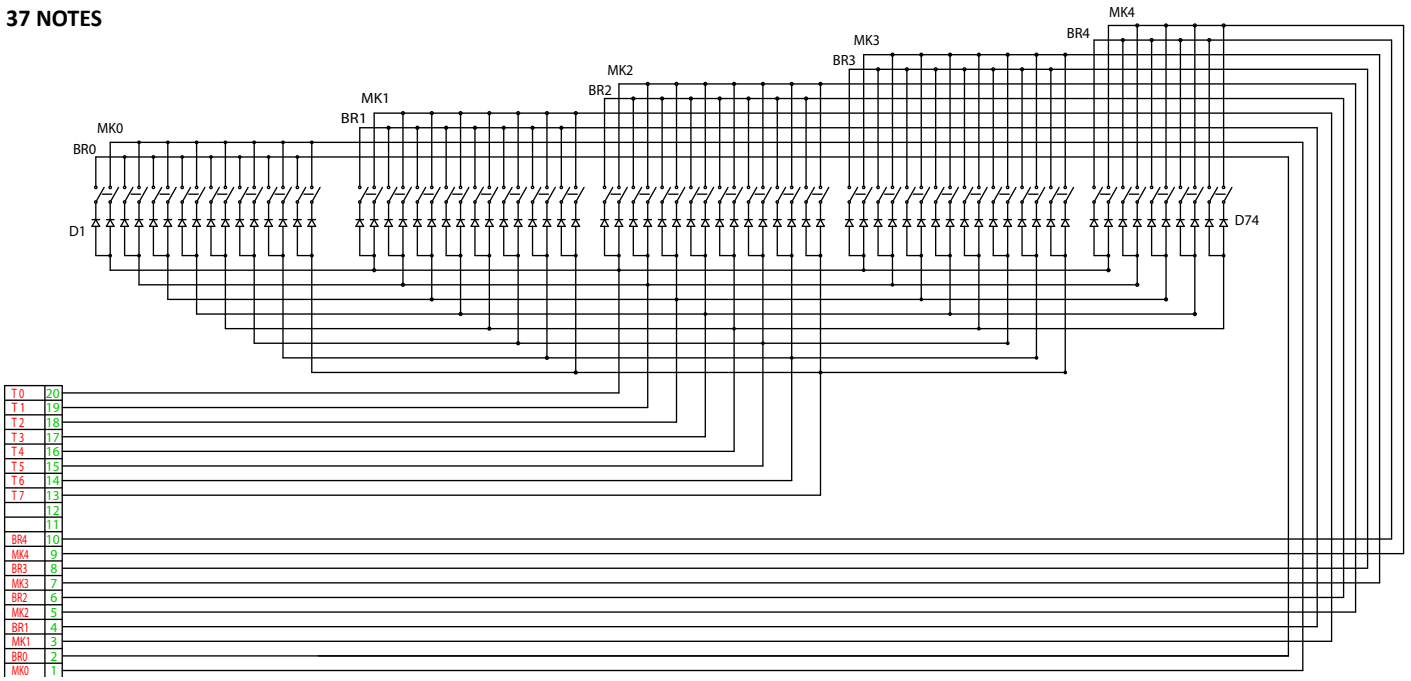
ITEM	CONDITION	STANDARD
Rated voltage/current		5V 10mA per line

ELECTRICAL CONNECTIONS

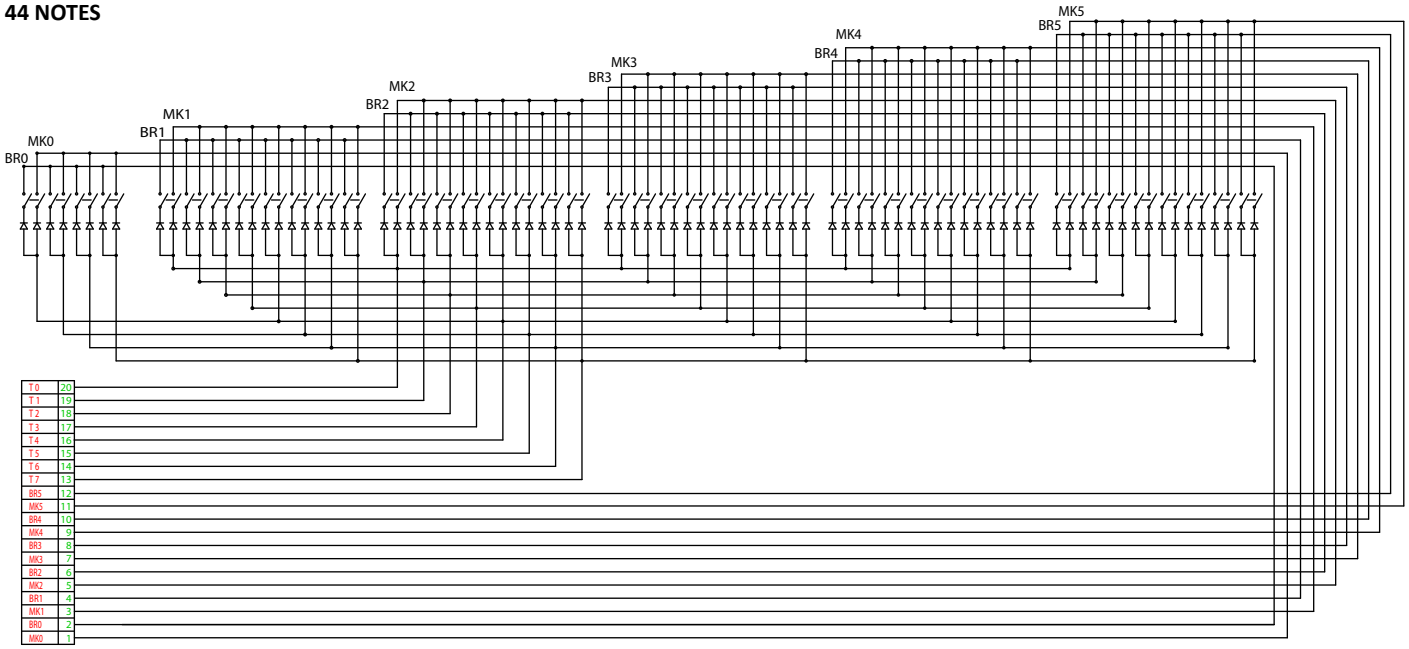
25 NOTES



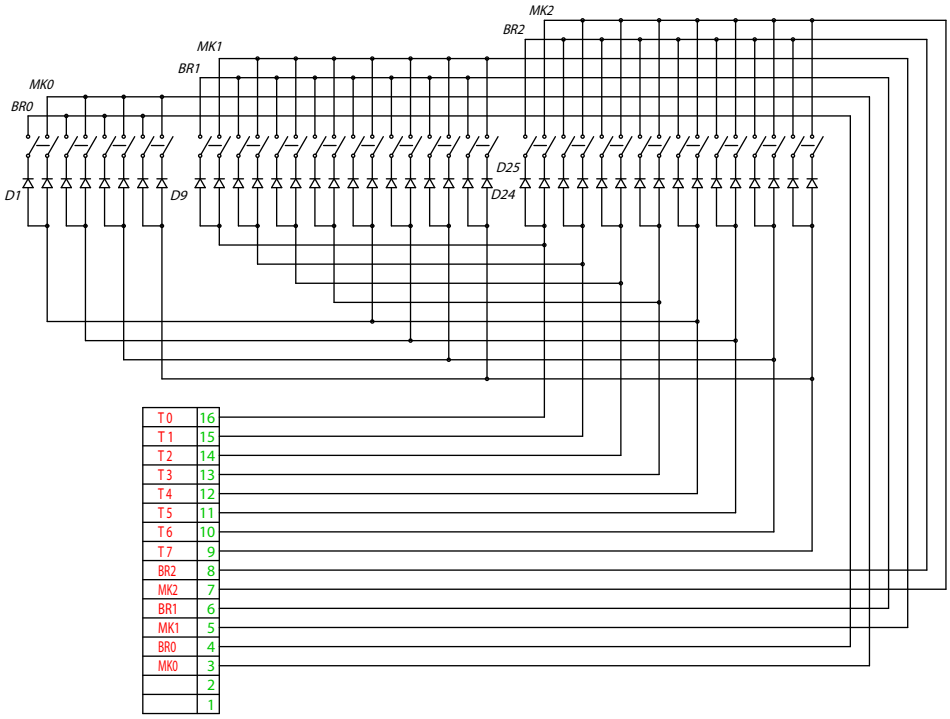
37 NOTES



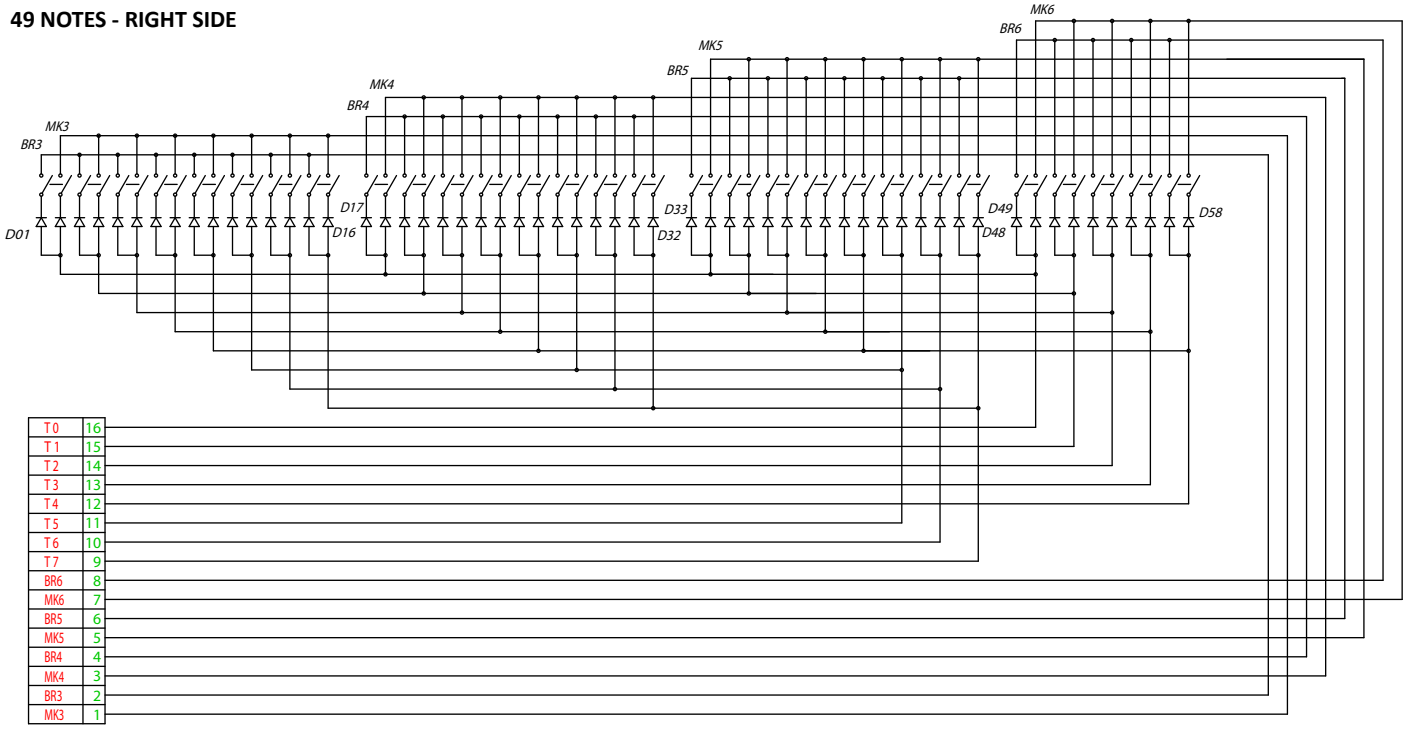
44 NOTES



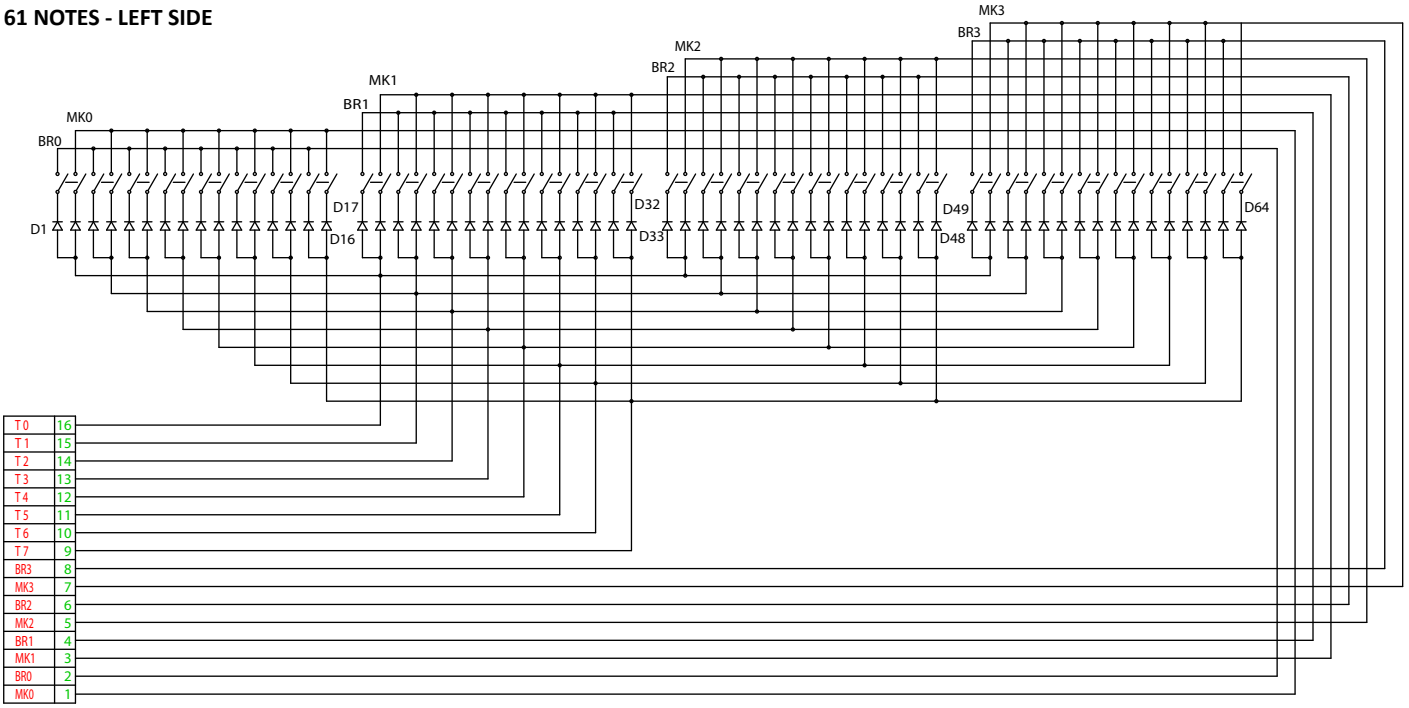
49 NOTES - LEFT SIDE



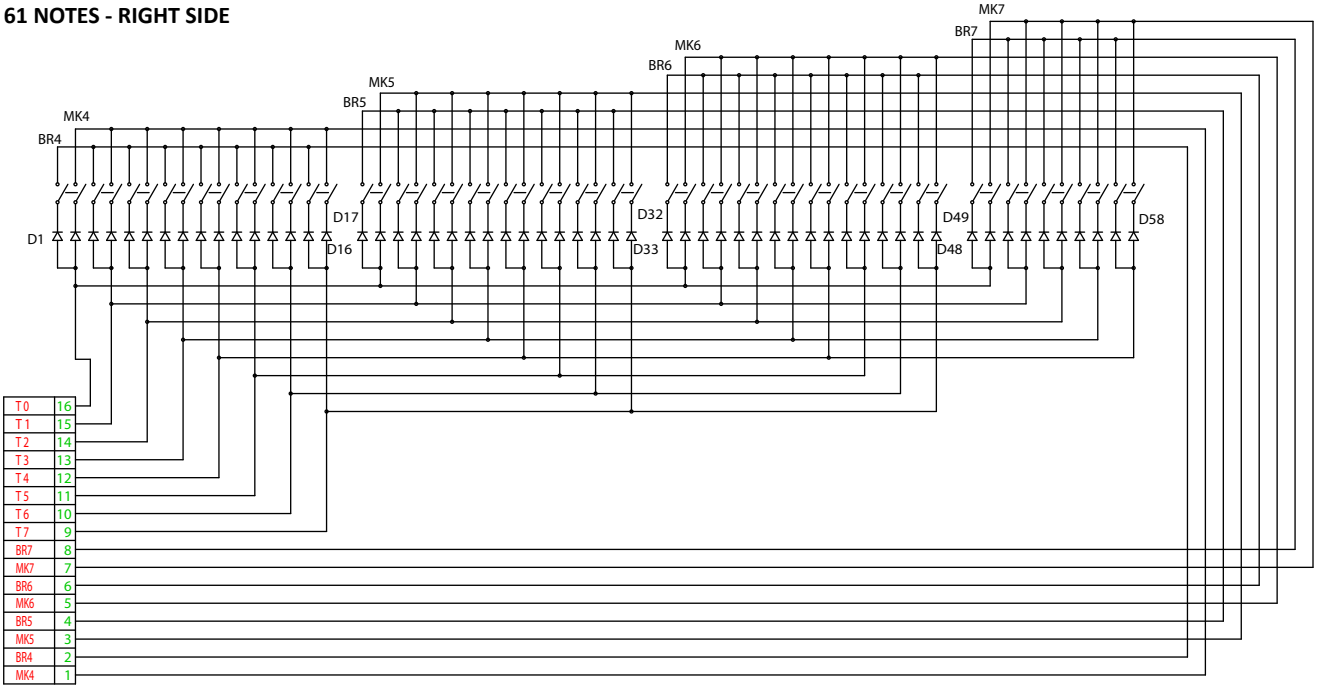
49 NOTES - RIGHT SIDE



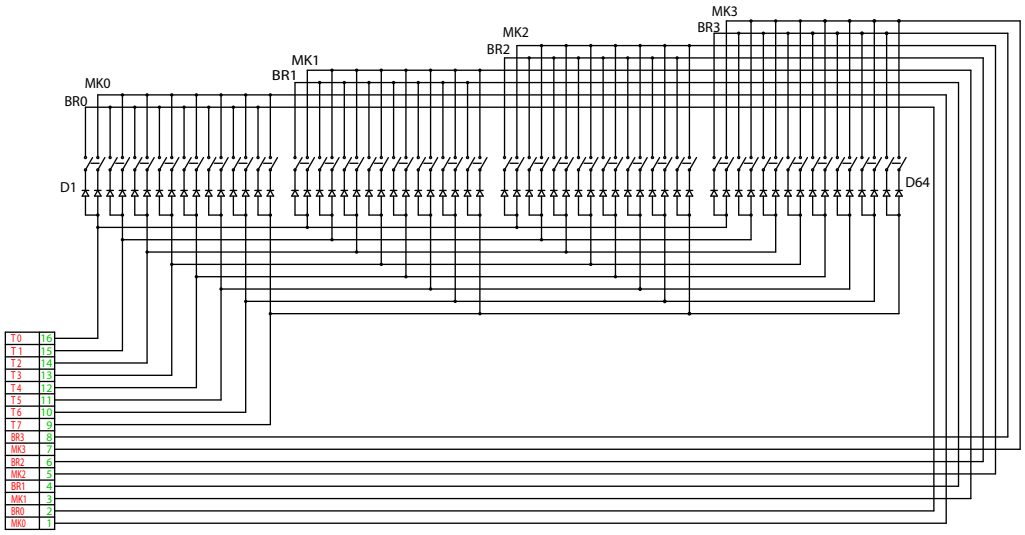
61 NOTES - LEFT SIDE



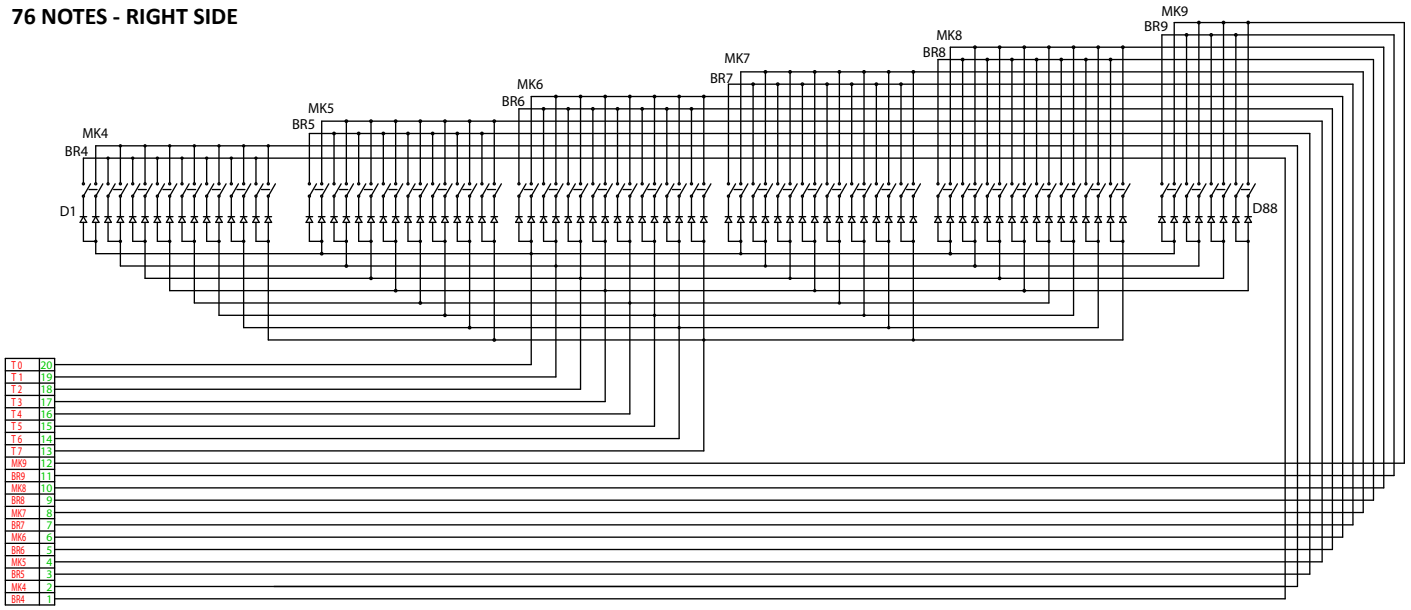
61 NOTES - RIGHT SIDE



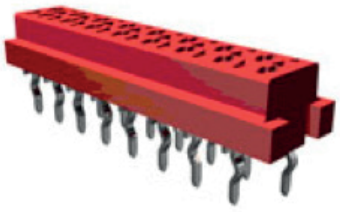
76 NOTES - LEFT SIDE



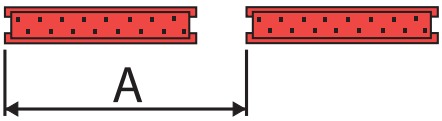
76 NOTES - RIGHT SIDE



CONNECTOR TYPE



Connector: Tyco/AMP Micro-Match
Type: Female-On-Board
Mount Angles: Vertical



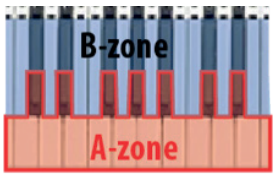
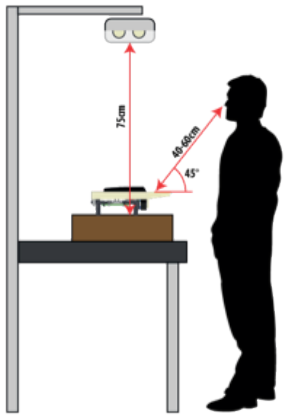
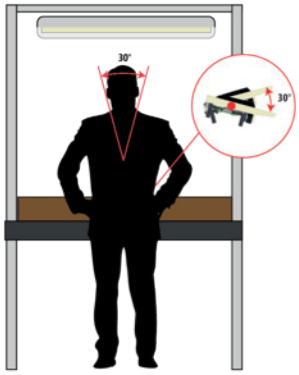
A: distance between connectors

Pin:

- 25 notes: 1x 20 vie
- 37 notes: 1x 20 vie
- 44 notes: 1x 20 vie
- 49 notes: 2x 16 vie
- 61 notes: 2 x 16vie
- 76 notes: 1 x 16vie and 2 x 20vie

COSMETIC INSPECTION

TEST CONDITIONS

Definition of appearance part	A-zone: important zone B-zone: not important zone	
Photometric condition	The light source must be cold and illuminate the keyboard vertically; Source: 2 x 36W/865 neon; Distance from top table: 75cm.	
Operator position	Distance between eyes and top keys surface: from 40 to 60 cm; View angle: 45° (approx.) Operator Visual Acuity: 1.00 decimal (including lens correction and no colour blindness).	
Proceedings	Check the A-zone varying the inclination of the keyboard by 30° and the inclination of the head by 30° as well; Test duration: 10sec max.	

APPEARENCE CRITERIA

TEST ITEM	TEST METHOD	ACC. CRITERIA		
Gap of adjacent white keys	Caliber	1.1 +/- 0.5mm		
Height tolerance of adjacent white keys	Ruler	≤ 0.50mm		
Scratches	Check by film	Scratches dimension	A-Zone	B-Zone
		≤ 0.8mm	2pcs	4pcs
		≤ 1.5mm	0pcs	2pcs
Contaminations	Check by film	Spot dimension	A-Zone	B-Zone
		≤ 0.3mm	2pcs	4pcs
		≤ 0.5mm	0pcs	3pcs
Colour	Visual	Not acceptable any visible colour variation between different keys		
Shrink	Visual	Not acceptable any visible shrink		

QC - INCOMING INSPECTION

SAMPLING PLAN

According to ISO2859, ANSI/ASQ Z1.4-2003, NF06-022, BS 6001, DIN 40080, use the following

- General Level I;
- AQL 1.5

INCOMING INSPECTION TEST

- Cosmetic Inspection;
- Measurement of the AFTERTOUCH values (TABLE 2-4);

QC - ASSEMBLY LINE INSPECTION

ASSEMBLY LINE QC

- 100% inspection;
- Play all the keys:
    - o Every key must play sound;
    - o Noise across the whole key must be consistent such that no one key sounds louder or quieter than any other. Noise character must remain consistent across the key.

CERTIFICATIONS

DECLARATION OF CONFORMITY

Fatar Srl

Zona Ind.le Squartabue

62019 Recanati MC Italy

Declares that this product complies with the following European Directives and related standards:

2006/95/EC		Low Voltage Directive
EN 60065	**1998**	Safety Requirement for Audio, Video and audio-visual apparatus for professional use
2004/108/EC		Electromagnetic Compatibility Directive (EMC)
EN 55103-1/E1	**1997**	Product Standard – Audio, Video and audio-visual apparatus for professional use, Electromagnetic compatibility of audio equipment: Emission
EN 55103-2/E1	**1997**	Product Standard – Audio, Video and audio-visual apparatus for professional use, Electromagnetic compatibility of audio equipment: Immunity

Technical files are maintained at corporate head-quarter of Fatar Srl, 62019 Recanati MC, Italy.
Above declarations are void by modification of the device without approval, or unauthorized servicing.

RoHS CONFORMITY

This is to certify that the product is RoHS compliant and meet the requirements and specified limits of restricted substances according 2002/95/EC directive.

WEEE

This product is marked with the WEEE symbol to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. The symbol indicates that this product should not be treated as household waste. It must be disposed and recycled as electronic waste. Please assist to keep our environment clean.

FATAR srl

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