TECHNICAL DATA

Technical references for FUJI terminal blocks

1. Range of applicaton This data applies to the industrial terminal blocks that are used for cable runs of 600 VAC (frequency: 50 or 60 Hz) max. or 600 VDC max.

2. Applicable standard JIS C 2811-1995 Industrial Terminal Brackets

3. Definitions of terms

- Unit: —— An insulated support for a metal terminal that is one of the components of a terminal block.
- End plate: —— An insulation support adjacent to each end of the unit.
- Metal terminal: —— A conductor that is one of the components of a terminal.
- Cover: —— A protective cover that is used for dust-proof and protection of a live part.
- Marking strip: —— A strip on which terminal numbers and the like are marked.
- Rail: —— A supporting rail that is used to assemble terminal blocks.
- End clamp: —— A fastening hardware that is used to secure the assembled terminal block on a rail.

4. Standard conditions for use The standard conditions for use are listed below. Use terminal blocks under these conditions unless otherwise specified.

- Ambient temperature: –5 to 40°C (without freezing)
- Relative humidity: 45 to 85%
- Altitude: 2,000 m max.
- Operating temperature: –25 to 50°C
- Storing temperature: –40 to 85°C

5. Ratings The rated insulation voltage is 250 V or 600 V AC or DC.

The rated applicable electric wires are shown in the table below:

Twisted wire mm²	0.5	0.75	1.25	2	3.5	5.5	8	14	22	38	60	100	150	200	250	325
Single wire mm	0.5	0.8	1	1.2	1.6	2										

6. Performance The basic performance of terminal blocks shall meet the following requirements.

(test conditions conform to JIS C 2811)

- Temperature increase: The temperature increase of a conductive part shall be 45°C max.
- Insulation resistance: The insulation resistance of each part shall be 20 MΩ min.
- Power-frequency withstand voltage: 2,000 V for 1 minute at rated insulation breakdown voltage of 250 V or 2,500 V for 1 minute at rated insulation breakdown voltage of 600 V shall be satisfied
- Impulse withstand voltage: The following reference voltage shall be applied in the standard waveform (1.2 / 50 μs) each 3 times for positive and negative.

Unit: V

Rated insulation voltage	Reference value for rated impluse withstand voltage	Test voltage and applicable altitude				
		Sea level	200m	500m	1,000m	2,000m
250	4,000	4,900	4,800	4,700	4,400	4,000
600	6,000	7,400	7,200	7,000	6,700	6,000

- Short-time withstand current test: Test current of 120 A per 1 mm² of the rated applicable electric wire shall be sent for 1 second.
- Heat cycle test: Test current shall be sent intermittently 125 times under the following conditions and then the temperature increase shall be measured.

Rated applicable electric wire	Twisted wire mm²	—	0.5	0.75	1.25	2	3.5	5.5	8	14	22	38	60	100	150	200	250	325
	Solid wire mm	0.5	0.8	1	1.2	1.6	2											
Test current A		6	11	25	30	43	58	76	98	140	180	255	345	470	625	740	880	1,050
Turning ON or OFF duration (minimum)		45										60			90			

- Strength test: For tightening strength, use a torque screwdriver or the like to gradually tighten a terminal screw and then apply the tightening torque indicated in the following table for 5 to 15 seconds. Loosen the terminal screw.

Nominal diameter of terminal screw mm	2.5	3	3.5	4	5	6	8	10	12	16
Tightening torque N-m	0.4	0.5	0.8	1.2	2.0	2.5 (3.0)	(6.0)	(10.0)	(14.0)	(25.0)

Remarks: The figures in parentheses indicate torque values as used for tightening without a screwdriver.

• Tensile stregnth test:

For tensile strength, the tensile force indicated in the following table shall be applied each once in two directions, the opposite direction of inserting an electric wire and the structurally least rigid direction.

Rated applicable electric wire	Twisted wire mm²	0.5 to 1.25	2 to 3.5	5.5 to 8	14 to 22	38 to 60	100	150	200 to 325
	Solid wire mm	0.5 to 1.2	1.6 to 2	—	—	—	—	—	—
Tensile force N		50	100	150	200	250	300 (351)	350 (427)	350 (578)

Remarks: The figures in parentheses indicate values as used when tensile force is applied in the opposite direction of inserting an electric wire.

• Vibration resistance test:

One of the combinations shown in the following table for a frequency range and double amplitude shall be used for the sweep vibration endurance test specified in JIC C0911.

Frequency range (Hz)	Double amplitude (mm)	
10 to 55	0.75	2 hours each in 3 axial directions, vertical, horizontal, and reciprocary directions.
	1.0	
	1.5	

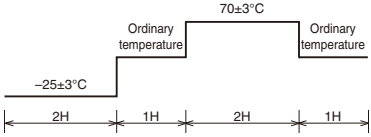
• Shock resistance test:

A terminal block shall be mounted in the standard state and then the impact indicated in the following table shall be given each 5 times for a total of 30 times in 6 directions, upward, downward, leftward, rightward, frontward, and rearward.

Maximum acceleration (m/s²)	Duration (mm)	Speed changes (m/s)
500	about 11	3.4

• Cold and heat-resistant tests:

A terminal block shall be maintained for 2 hours in a constant temperature bath of –25±3°C, allowed to stand for 1 hour at room temperature, maintained for 2 hours in a constant temperature bath of 70±3°C, and then allowed to stand at room temperature for 1 hour. Subsequently, the insulation resistance and power-frequency withstand voltage tests shall be conducted.



• Humidity resistance test:

A terminal block shall be maintained for 96 hours in a constant temperature bath controlled at temperature of 40±2°C and relative humidity of 90% to 95% and then taken out to a room at normal temperature. Within 5 minutes, the insulation resistance and power-frequency withstand voltage tests shall be conducted.