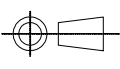
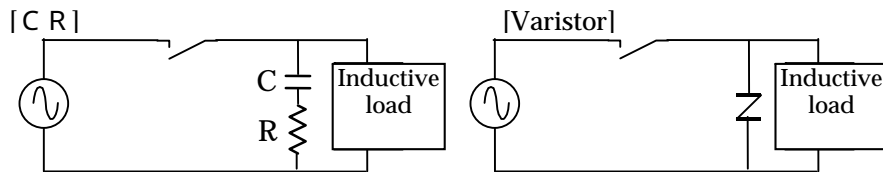


SP.NO.	Azbil Corporation				製品仕様書 SPECIFICATIONS			
	1. Model Number							
	Model Number		Voltage	Frequency	Flame Detector		Flame Response	
	FRS100C100#-2		AC100V	50/60Hz	C7035A, C7027A AUD100 Series		3 ± 1s *	
	FRS100C200#-2		AC200V					
	FRS100C300#-2		AC220V					
	FRS100C104#-2		AC100V				2s max *	
	FRS100C204#-2		AC200V					
	FRS100C304#-2		AC220V					
	FRS100Cxxx#-2		Noting : Standard D : Inspection certification provided T : Tropicalization treatment applied DT : Inspection certification provided and Tropicalization treatment applied					
		* : Flame voltage at 4.2V						
2. Electrical Specifications								
(1) Allowable Voltage		85 to 110% of rated voltage						
(2) Power Consumption		7W max.						
(3) Terminal and Electrical Ratings								
		Terminal No.	Circuit			Ratings		
Sub base *		1(R)	Power source			Rated voltage		
		2(S)	Power source ground side					
		3	Contact output common					
		4	Flame output (1K, 2K)			250VA		
		5(F)	Flame detector (Blue)					
		6(G)	Flame detector (White)					
		7	Start/stop input			Rated voltage		
		8	Start check output (1K)			250VA		
Relay		A *	Flame voltage measuring terminal (-)			DC0 to 5V		
		B *	Flame voltage measuring terminal (+)					
* : Use a instrument or recorder having more than 100k input impedance. Wiring shall be performed using 1V wire of min. 0.75mm ² cross sectional area and max. 10m each in wire length.								
9	00							
8	00							
7	00							
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PAGE	REV.	REV.	RECORD	DATE	BY	APPD.	Kuma	
							 尺度 SCALE 記入のない公差 TOL.UNLESS NOTED 検図 CHK Ishii 形番 MODEL FRS100CXXX-2 認可 APPD Yamada 名称 NAME Multi Burner Controller 日付 DATE 13-9-5 図番 NO. AD17560E 改番 REV 00 1/9	

- (4) Dielectric Strength
Device shall be capable of withstanding a potential of 1500VAC 50 or 60Hz for 1 minute, or 1800VAC for 1 second between each terminal and case without breakdown, except Terminal 5 and 6 for flame detector.
- (5) Insulation Resistance
Insulation resistance between each terminal and the case shall be more than 50M .
- (6) Thunder Lightning Surge
10KV,1.2/50μsec(JEC-187,surge impedance 75 min.) Connect the surge absorber between hot side of power terminal(terminal No.2) and earth.
Recommended Surge Absorber; Spec.No.10013 (83968019-001)
- (7) Life
100,000 cycles (at room temperature of 25 . and room humidity and rated voltage)

The cautions about contact transition
If inductive loads, such as a relay, are used for the contact output(terminal 3-4 or terminal 3-8) of this vessel, surge voltage will occur between points of contact. Surge voltage generates unevenness on a contact. And contact may carry out locking. When you implement the measure against surge voltage, please connect a serge killer to a load side. Since it becomes a cause by which return time becomes late when a serge killer is used, please be sure to use it after confirming by real load.
(The following is an example of a serge absorber)



- (8) Applicable Flame Detector
C7027A, C7035A, AUD100series
- (9) Flame voltage
Flame establishment; Flame voltage 1.0V max.
Flame - out response; Flame voltage 0.4V min.
- (10) Flame Response
Model table is referred to.
- (11) Flame Voltage Accuracy
±0.5V

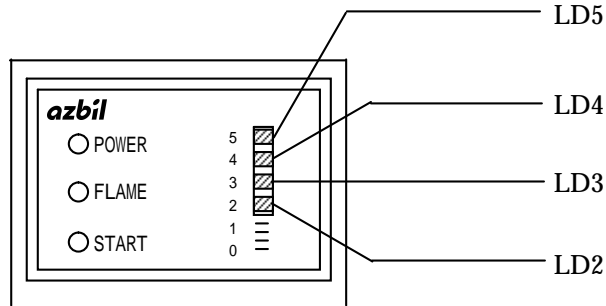
作成 DR. Kuma		尺度 SCALE ~	記入のない公差 TOL.UNLESS NOTED ~
検図 CHK Ishii	形番 MODEL	FRS100CXXX-2	
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(1 2) Flame voltage level

The following LED according to a flame voltage output is turned on.

- LD5 Flame voltage output $4.5V \pm 0.3V \sim$
- LD4 Flame voltage output $3.5V \pm 0.3V \sim 4.5V \pm 0.3V$
- LD3 Flame voltage output $2.5V \pm 0.3V \sim 3.5V \pm 0.3V$
- LD2 Flame voltage output $1.5V \pm 0.3V \sim 2.5V \pm 0.3V$



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3. Environmental Specifications

(1) Allowable Temperature

- 20 ~ 45 when more than 2 units mounted side by side
- 20 ~ 60 when single unit mounted

(2) Storage Temperature

- 20 ~ 70

(3) Allowable Humidity

- 90%RH at 40 (non-condensing)

(4) Mounting

Vertical mount only. Molded allow on the subbase shall point upward direction

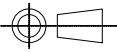
(5) Spacing for Mounting

Provide following min. spacing.

- Upward; 50mm min.
- Downward; 20mm min.
- Both sides; 20mm min.

4. Mounting Subbase

FRS50A100 (To be ordered separately)

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5. Operation

(1) Normal operation

【INPUT】

Start(-)

Flame signal F-G(-)

【OUTPUT】

Start check output(-)

Flame output(-)

【DISPLAY】

Power LED

Flame LED

Start Check LED

Flame failure response time

(2) False flame operation

【INPUT】

Start(-)

Flame signal F-G(-)

【OUTPUT】

Start check output(-)

Flame output(-)

【DISPLAY】

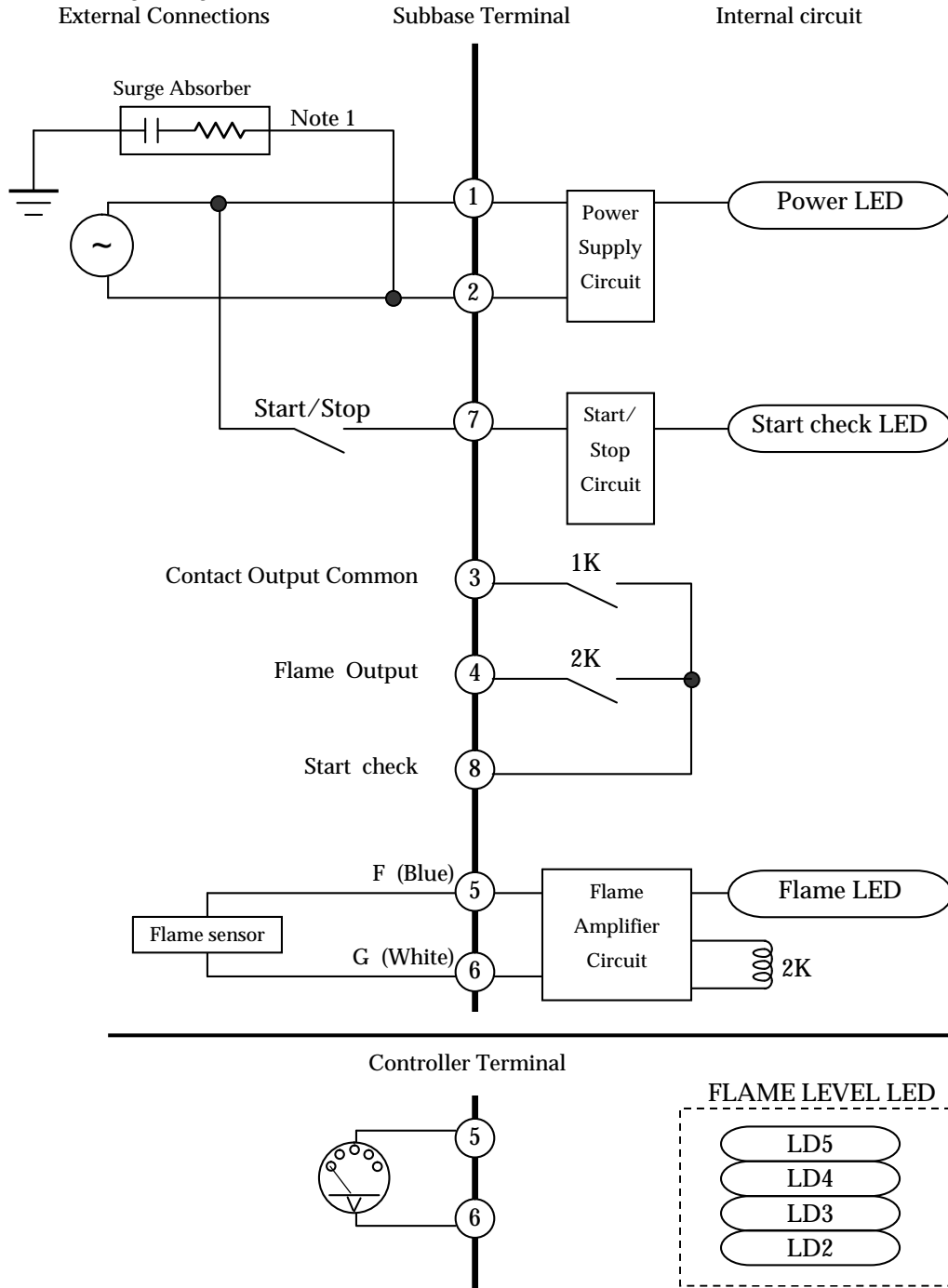
Power LED

Flame LED

Start Check LED

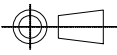
作成 DR. Kuma		尺度 SCALE ~	記入のない公差 TOL.UNLESS NOTED ~
検図 CHK Ishii	形 番 MODEL	FRS100CXXX-2	
認可 APPD Yamada	名 称 NAME	Multi Burner Controller	
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6. Wiring Diagram
External Connections



Note 1: Provide one surge absorber for multiple relays.

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認可 APPD Yamada	名称 NAME	Multi Burner Controller	
日付 DATE '13-9-5	図番 NO.	AD17560E	改番 REV 00 / 6 / 9

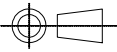
SP.NO.	Azbil Corporation				製品仕様書 SPECIFICATIONS			
		<p>7. Caution in use</p> <p>(1) Disconnect power supply before beginning wiring to terminals to prevent equipment damage or malfunction.</p> <p>(2) Be sure to check connections after wiring. Incorrect wiring can cause damage or malfunction.</p> <p>(3) Connect high tension cable of ignition transformer firmly. Contact failure may generate high-frequency wave noise and result in malfunction.</p> <p>(4) Keep power source line, high tension cable of ignition transformer and the flame detector wires separate form each other. Especially, high tension cable of ignition transformer must be wired solely and more than 10cm away form controller.</p> <p>(5) Do not install this product where,</p> <ul style="list-style-type: none"> • special chemicals or those vapors exist (ammonia, sulfur, chlorine, ethylene compound, acid, etc.) • Where it is exposed to water drops or dampness. • Where it is exposed to high temperatures. • Where vibration continues for an extended period of time. <p>(6) Do not use this product by ON/OFF control of power supply with jumper between start/stop input terminals(1-7). Start check may be skipped.</p> <p>(7) When DIN rail mounting is used, remove this product from the subbase and ship them by exclusive container. If shipped as assembled it may damage the products.</p> <p>(8) Be sure to provide minimum spacing 3-(5) for cooling and working space.</p> <p>(9) K2 relay-on (and flame LED lighting) may be carried out at the time of a power supply injection. Always provide a power supply to the terminal 1 and 2. Starting and stopping of this product should use terminal 7.</p> <p>(1 0) if this product is used in excess of its service life, failure may easily occur. Its life is the shorter of (1)100,000 relay ON-OFF cycles, or (2)ten years from the time specified by the production data code. This life was stipulated on the basis of relay and capacitor manufacturer's specifications, and its records of actual product life.</p> <ul style="list-style-type: none"> • Relay contacts ON/OFF operation - 100,000 times • Electrolytic capacitors - 1000 hour at 105-degree C <p>The life of electrolytic capacitor is ten years in the case of 25-degree C ambient air temperature. The life of the parts will become half, if ambient air temperature rises by 10 degrees C.</p>						
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					Kuma		~	~
					検図 CHK	形番	FRS100CXXX-2	
					Ishii	MODEL		
					認可 APPD	名称	Multi Burner Controller	
					Yamada	NAME		
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(1 1) The risk of the danger side failure cannot be removed completely, when it is used over a long period of time. The controller used for then years or more should stop use. And should exchange it for a new controller. The danger side failure has solder degradation and insulated decay of a printed circuit board. They has the possibility of ignition.

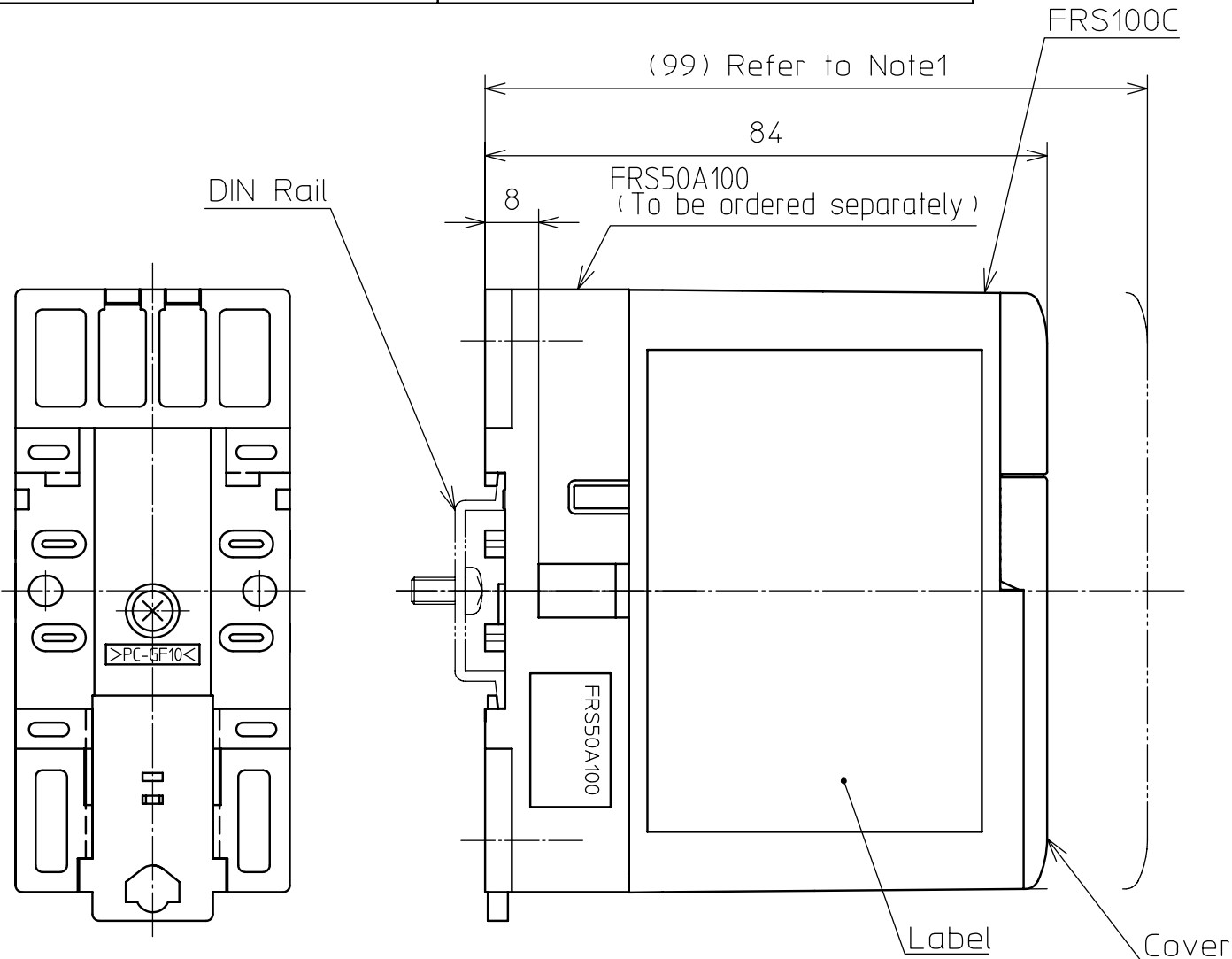
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検図 CHK Ishii	形 番 MODEL FRS100CXXX-2		
認可 APPD Yamada	名 称 NAME Multi Burner Controller		
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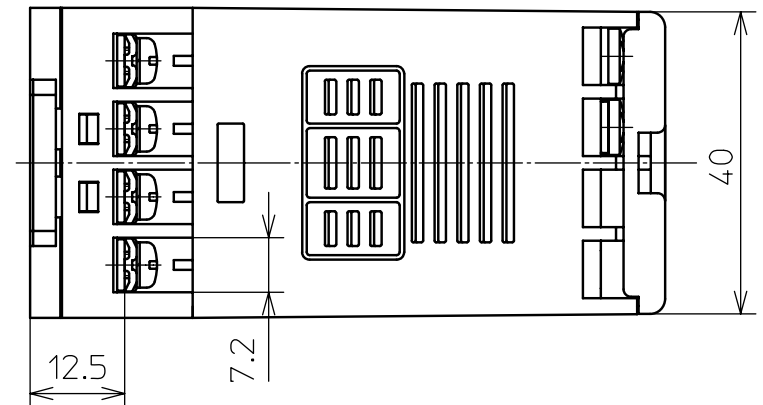
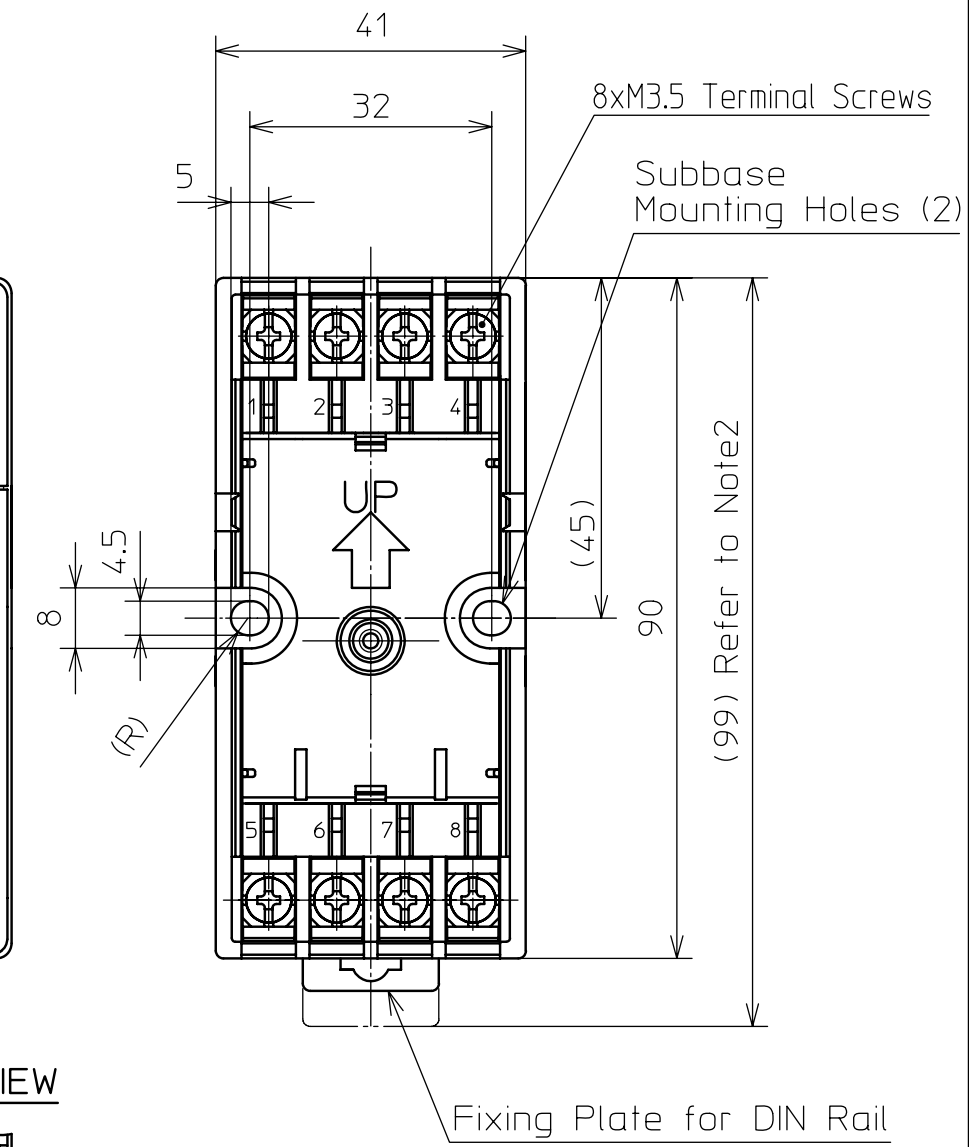
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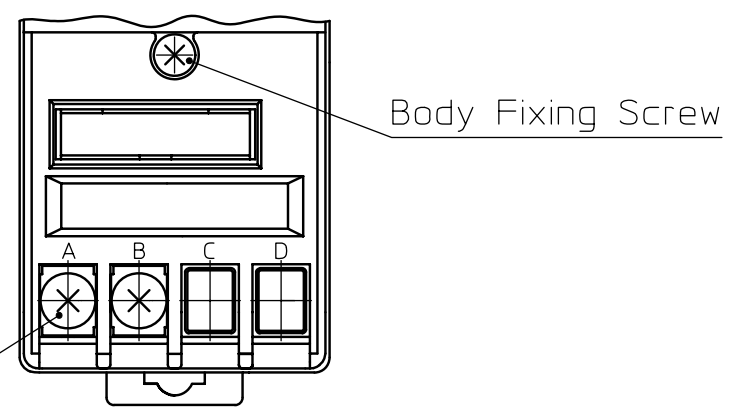
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FRS50A100 (FRONT VIEW WITHOUT RELAY)
Subbase To be ordered separately



COVER REMOVED VIEW



3. This drawing shows FRS100 assembled on FRS50A100.
2. Necessary dimension to release fixing plate.
Note1. Dimension required for mounting or removing the device.

作成DR. Y.Kumazawa	検図CHK. H.Aizawa	認可APPD. T.Yamada	日付DATE 13-9-5	来歴 RECORD	日付 DATE	担当 BY	検閲 APPD.	尺度SCALE 1:1	記入のない公差 TOL. UNLESS NOTED
形番 MODEL		名称 NAME		図番 NO.		改番REV.		FRS100CXXX-2	
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	Terms and Conditions					
	<p>We would like to express our appreciation for your purchase and use of Azbil Corporation's products. You are required to acknowledge and agree upon the following terms and conditions for your purchase of Azbil Corporation's products (system products, field instruments, control valves, and control products), unless otherwise stated in any separate document, including, without limitation, estimation sheets, written agreements, catalogs, specifications and instruction manuals.</p>					
	<p>1 Warranty period and warranty scope</p>					
	<p>1.1 Warranty period</p> <p>Azbil Corporation's products shall be warranted for one (1) year from the date of your purchase of the said products or the delivery of the said products to a place designated by you.</p> <p>In the case of products that Azbil Corporation has repaired for a fee, the repaired part only shall be warranted for three (3) months from the time of delivery to the location designated by the customer.</p>					
	<p>1.2 Warranty scope</p> <p>In the event that Azbil Corporation's product has any failure attributable to azbil during the aforementioned warranty period, Azbil Corporation shall, without charge, deliver a replacement for the said product to the place where you purchased, or repair the said product and deliver it to the aforementioned place.</p> <p>Notwithstanding the foregoing, any failure falling under one of the following shall not be covered under this warranty:</p> <ol style="list-style-type: none"> (1) Failure caused by your improper use of azbil product (noncompliance with conditions, environment of use, precautions, etc. set forth in catalogs, specifications, instruction manuals, etc.); (2) Failure caused for other reasons than Azbil Corporation's product; (3) Failure caused by any modification or repair made by any person other than Azbil Corporation or Azbil Corporation's subcontractors; (4) Failure caused by your use of Azbil Corporation's product in a manner not conforming to the intended usage of that product; (5) Failure that the state-of-the-art at the time of Azbil Corporation's shipment did not allow Azbil Corporation to predict; or (6) Failure that arose from any reason not attributable to Azbil Corporation, including, without limitation, acts of God, disasters, and actions taken by a third party. <p>Please note that the term "warranty" as used herein refers to equipment-only-warranty, and Azbil Corporation shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of Azbil Corporation's products.</p>					
	<p>2 Ascertainment of suitability</p> <p>You are required to ascertain the suitability of Azbil Corporation's product in case of your use of the same with your machinery, equipment, etc. (hereinafter referred to as "Equipment") on your own responsibility, taking the following matters into consideration:</p> <ol style="list-style-type: none"> (1) Regulations and standards or laws that your Equipment is to comply with. (2) Examples of application described in any documents provided by Azbil Corporation are for your reference purpose only, and you are required to check the functions and safety of your Equipment prior to your use. (3) Measures to be taken to secure the required level of the reliability and safety of your Equipment in your use <p>Although azbil is constantly making efforts to improve the quality and reliability of Azbil Corporation's products, there exists a possibility that parts and machinery may break down.</p> <p>You are required to provide your Equipment with safety design such as fool-proof design, *1 and fail-safe design *2 (anti-flame propagation design, etc.), whereby preventing any occurrence of physical injuries, fires, significant damage, and so forth. Furthermore, fault avoidance, *3 fault tolerance, *4 or the like should be incorporated so that the said Equipment can satisfy the level of reliability and safety required for your use.</p> <ol style="list-style-type: none"> *1. A design that is safe even if the user makes an error. *2. A design that is safe even if the device fails. *3. Avoidance of device failure by using highly reliable components, etc. *4. The use of redundancy. 					
	<p>3 Precautions and restrictions on application</p> <p>Azbil Corporation's products other than those explicitly specified as applicable (e.g. azbil Limit Switch For Nuclear Energy) shall not be used in a nuclear energy controlled area (radiation controlled area).</p> <p>Any Azbil Corporation's products shall not be used for/with medical equipment.</p> <p>The products are for industrial use. Do not allow general consumers to install or use any Azbil Corporation's product. However, azbil products can be incorporated into products used by general consumers. If you intend to use a product for that purpose, please contact one of our sales representatives.</p> <p>In addition, you are required to conduct a consultation with our sales representative and understand detail specifications, cautions for operation, and so forth by reference to catalogs, specifications, instruction manual, etc. in case that you intend to use azbil product for any purposes specified in (1) through (6) below.</p> <p>Moreover, you are required to provide your Equipment with fool-proof design, fail-safe design, anti-flame propagation design, fault avoidance, fault tolerance, and other kinds of protection/safety circuit design on your own responsibility to ensure reliability and safety, whereby preventing problems caused by failure or nonconformity.</p>					
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			<p>(1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals</p> <p>(2) For use of specific purposes, such as:</p> <ul style="list-style-type: none"> * Nuclear energy/radiation related facilities [For use outside nuclear energy controlled areas] [For use of Azbil Corporation's Limit Switch For Nuclear Energy] * Machinery or equipment for space/sea bottom * Transportation equipment [Railway, aircraft, vessels, vehicle equipment, etc.] * Antidisaster/crime-prevention equipment * Burning appliances * Electrothermal equipment * Amusement facilities * Facilities/applications associated directly with billing <p>(3) Supply systems such as electricity/gas/water supply systems, large-scale communication systems, and traffic/air traffic control systems requiring high reliability</p> <p>(4) Facilities that are to comply with regulations of governmental/public agencies or specific industries</p> <p>(5) Machinery or equipment that may affect human lives, human bodies or properties</p> <p>(6) Other machinery or equipment equivalent to those set forth in items (1) to (5) above which require high reliability and safety</p> <p>4 Precautions against long-term use</p> <p>Use of Azbil Corporation's products, including switches, which contain electronic components, over a prolonged period may degrade insulation or increase contact-resistance and may result in heat generation or any other similar problem causing such product or switch to develop safety hazards such as smoking, ignition, and electrification.</p> <p>Although acceleration of the above situation varies depending on the conditions or environment of use of the products, you are required not to use any Azbil Corporation's products for a period exceeding ten (10) years unless otherwise stated in specifications or instruction manuals.</p> <p>5 Recommendation for renewal</p> <p>Mechanical components, such as relays and switches, used for Azbil Corporation's products will reach the end of their life due to wear by repetitious open/close operations.</p> <p>In addition, electronic components such as electrolytic capacitors will reach the end of their life due to aged deterioration based on the conditions or environment in which such electronic components are used.</p> <p>Although acceleration of the above situation varies depending on the conditions or environment of use, the number of open/close operations of relays, etc. as prescribed in specifications or instruction manuals, or depending on the design margin of your machine or equipment, you are required to renew any Azbil Corporation's products every 5 to 10 years unless otherwise specified in specifications or instruction manuals.</p> <p>System products, field instruments (sensors such as pressure/flow/level sensors, regulating valves, etc.) will reach the end of their life due to aged deterioration of parts. For those parts that will reach the end of their life due to aged deterioration, recommended replacement cycles are prescribed. You are required to replace parts based on such recommended replacement cycles.</p> <p>6 Other precautions</p> <p>Prior to your use of Azbil Corporation's products, you are required to understand and comply with specifications (e.g., conditions and environment of use), precautions, warnings/cautions/notices as set forth in the technical documents prepared for individual Azbil Corporation's products, such as catalogs, specifications, and instruction manuals to ensure the quality, reliability, and safety of those products.</p> <p>7 Changes to specifications</p> <p>Please note that the descriptions contained in any documents provided by azbil are subject to change without notice for improvement or for any other reason.</p> <p>For inquires or information on specifications as you may need to check, please contact our branch offices or sales offices, or your local sales agents.</p> <p>8 Discontinuance of the supply of products/parts</p> <p>Please note that the production of any Azbil Corporation's product may be discontinued without notice.</p> <p>For repairable products, we will, in principle, undertake repairs for five (5) years after the discontinuance of those products. In some cases, however, we cannot undertake such repairs for reasons, such as the absence of repair parts. For system products, field instruments, we may not be able to undertake parts replacement for similar reasons.</p> <p>9 Scope of services</p> <p>Prices of Azbil Corporation's products do not include any charges for services such as engineer dispatch service. Accordingly, a separate fee will be charged in any of the following cases:</p> <ol style="list-style-type: none"> (1) Installation, adjustment, guidance, and attendance at a test run (2) Maintenance, inspection, adjustment, and repair (3) Technical guidance and technical education (4) Special test or special inspection of a product under the conditions specified by you <p>Please note that we cannot provide any services as set forth above in a nuclear energy controlled area (radiation controlled area) or at a place where the level of exposure to radiation is equivalent to that in a nuclear energy controlled area.</p>			
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