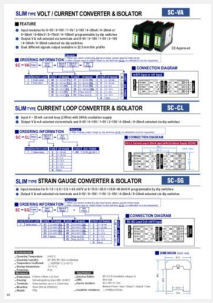
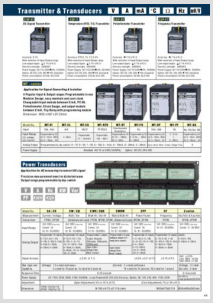
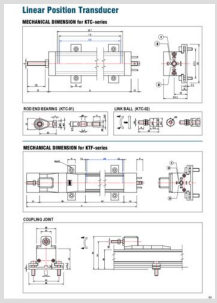
HQ Heating Sdn. Bd.





Others Golink Transmitter & Transducer

Linear Position Transducer



HUMIDITY/TEMPERATURE TRANSMITTER TRH-300 series

TRH-300 series utilizes a thin-film polymer capacitor to sense relative humidity, and a thin-film RTD to accurately sense temperature. The sensing element's multilayer dust, dirt, oil and common environmental chemicals.

- Fast, Stable & Accurate
- Watertight and dust-tight
- Compact size, easy mounting
- Excellent long-term stability
- Wide input voltage range (12~40Vdc)
- Available with either current or voltage output
- On-site, Zero & Span calibration

Model No.	Description
TRH-301	Temperature Transmitter
TRH-302	Humidity Transmitter
TRH-303	Humidity & Temperature Transmitter
Mounting Type	W By Wall Mounting
	D By Duct Mounting
	S Separated with lead-wire Type

Dimension: (mm)

W Type (For Wall Mounting) D Type (Duct Mounting) S Type (Separated with lead-wire type)

* Used by 3-4mm or 1/8" Screw for mounting

SPECIFICATION

Measurement Range	0~100% RH 0~100℃ (-20~+80℃, 0~50℃, -40~+60℃ also is available)
Accuracy (At 25℃)	±2% RH, ±.3℃
Long-term Stability	Better than 1% RH per year (Typical)
Temp. Compensation	±0.008% RH/℃ (0%or@50% RH)
Response	< 15 seconds (90% at +25℃ in moving air at 0.5M/S)
Sensors	Humidity: Thin-film capacitor Temperature: RTD-Pt100Ω IEC751
Output	Humidity: 4~20mA (2-wire) Temperature: 4~20mA (2-wire), scalable *Option available for Input Signal output 0~1V, 0~5V, 0~10V or 1~5V
Supply Voltage	12~40V DC
Max. Pressure	2.5kg/cm²
Housing	ABS plastic watertight enclosure (IP65)
Connections	Liquid-tight nylon, cable bushing ø5~10mm cables
Ambient Temperature	-40 ~ +60℃ (-40 ~ +140℉)
Weight	Approx. 150g

CALIBRATION & WIRING

VR1: Span Adjustment for Humidity
VR2: Zero Adjustment for Humidity
VR3: Span Adjustment for Temperature
VR4: Zero Adjustment for Temperature
CN1: Sensor Input
CN2: Output Humidity
CN3: Output Temperature

TRH Temp. & Humidity Transmitter (Golink)

Tx Temperature Transmitter (Golink)

2-wire in-head Temperature Transmitter

The **2-wire in-head temperature transmitter** is based on Microprocessor with flexibility for accepting the signal mV, Pt100 and a variety of Thermocouples. It delivers a scalable linear 4~20mA output current proportional to the sensor temperature.
Available option for a user-friendly configuration software is provided for parameter setup including sensor type, temperature range, filter ... etc.

SPECIFICATION

Sensor Input	Type - Description	Accuracy (Inc. Range)
Thermocouple	Type J / K / R / S / T / N / E, according to IEC60584 (T3-80), Impedance: 1MΩ	< 0.3%
Pt100	2 or 3-wire connection (Connect terminal 2 & 3 for 2-wire Sensor), Excitation 180mA R= 0.00385 according to IEC 60751 (T3-80)	0.2%
Voltage	0 ~ 50mVdc, Impedance: 1MΩ	0.2%

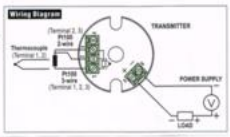
Response Time: <100ms.
Output: 2-wire 4~20mA, linear with respect to the measured temperature
Resolution: 0.004mA (12bits)
Power Supply: 12~35Vdc across the transmitter
Max. Load (RL): RL(max.) = (Vdc-12) / 0.02 (Ω) Vdc = Power supply voltage
Operation Temperature & Humidity: -40 to 85°C, 0 to 90% RH
Electromagnetic compatibility: EN 50081-2, EN 50082-2
Housing: ABS plastic (Dimension: Dia.44mm x Height 25mm)
No isolation between the sensor and the 4~20mA loop.
Internal protection against polarity inversion, cold junction compensation for the thermocouple.

ORDER CODE

TX- [ ] → Required Range

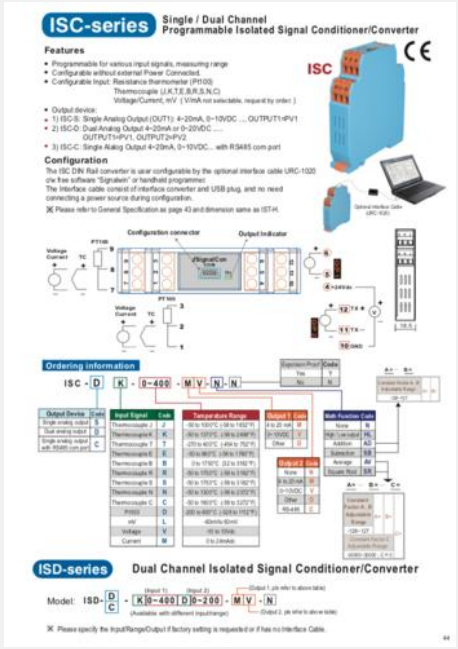
CODE	Sensor Type - Range	Min. Measurement Size	Required Range
K	Thermocouple K: 0~1370°C	100°C	
J	Thermocouple J: 0~760°C	100°C	
R	Thermocouple R: 0~1760°C	400°C	
S	Thermocouple S: 0~1760°C	400°C	
T	Thermocouple T: 0~400°C	100°C	
N	Thermocouple N: 0~1300°C	100°C	
E	Thermocouple E: 0~700°C	100°C	
D	Pt100: -20~100°C	40°C	
L	Voltage: 0~50mV	5mV	

Wiring Diagram



IST Isolated Temperature Transmitter (Golink)

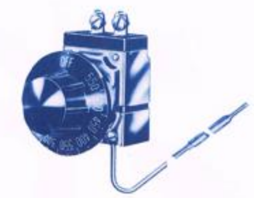
ISC & ISD Isolated Signal Transmitter (Golink)



Simmerstat (Sunvic)

Thermostat-Stem type

Thermostat (Robertshaw)



ROBERTSHAW

COMMERCIAL ELECTRIC THERMOSTATS

B-10 COMMERCIAL DIRECT ACTING

MODEL NO.	RANGE °C	CAPILLARY LENGTH	BULB SIZE	MATERIAL	KNOB	ELECTRICAL RATING
B-10	50-300	36"	98.4x9.5	Nickle Plated	263-8	20amp at 115VAC resistive load
B-10	15-120	48"	114.3x9.5	Copper	266-2	15amp at 115VAC resistive load

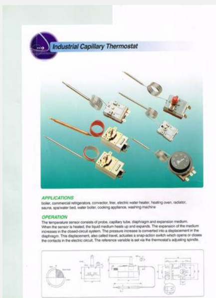
EA-5

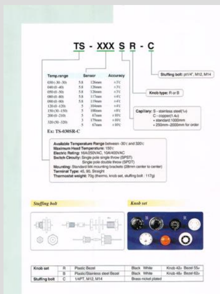
MODEL NO	RANGE	TYPE TERMINALS	MOUNTING SCREWS	CAPILLARY & BULB COATING	STUFFING BOX	DIALS+ AVAILABLE	SHAFT (STEM) SPECIFICATIONS
EA5-008-48	15°-120°C	screw	yes	none	none	5-120°C 60-250° F 1 to 10	1. Length, 20.64 (13/16") 2. Diameter, 6.35/6.35mm (.248/.250") 3. Flat height, 4.70/4.75mm (.185/.187") 4. Flat Position, Down at off
EA5-340-48	50°-300°C	screw	yes	tin zinc	none	50-300°C 150-550°F 1 to 10	

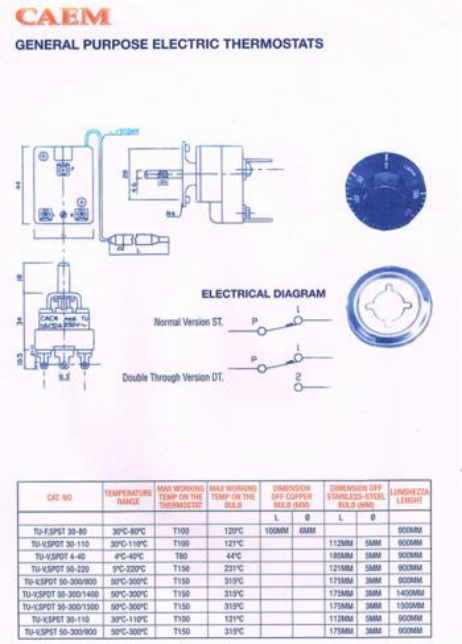
EA-9

MODEL NO	RANGE	TYPE TERMINALS	MOUNTING SCREWS	CAPILLARY & BULB COATING
EA9-910-01	120°C-450°C	screw	yes	none

Thermostat (Rainbow)







CAEM

GENERAL PURPOSE ELECTRIC THERMOSTATS

ELECTRICAL DIAGRAM

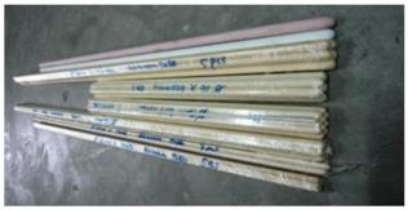
Normal Version ST.

Double Through Version DT.

CAT. NO	TEMPERATURE RANGE	MAX WORKING TEMP ON THE THERMOSTAT	MAX WORKING TEMP ON THE BULB	DIMENSION OFF COPPER BULB (MM)		DIMENSION OFF STAINLESS-STEEL BULB (MM)		LUNGHEZZA LENGHT
				L	Ø	L	Ø	
TU-F.SPST 30-80	30°C-80°C	T100	120°C	100MM	6MM			900MM
TU-V.SPDT 30-110	30°C-110°C	T100	121°C			112MM	5MM	900MM
TU-V.SPDT 4-40	4°C-40°C	T80	44°C			180MM	5MM	900MM
TU-V.SPDT 50-220	5°C-220°C	T150	231°C			121MM	5MM	900MM
TU-V.SPDT 50-300/900	50°C-300°C	T150	315°C			175MM	3MM	900MM
TU-V.SPDT 50-300/1400	50°C-300°C	T150	315°C			175MM	3MM	1400MM
TU-V.SPDT 50-300/1500	50°C-300°C	T150	315°C			175MM	3MM	1500MM
TU-V.SPST 30-110	30°C-110°C	T100	121°C			112MM	5MM	900MM
TU-V.SPST 50-300/900	50°C-300°C	T150	315°C			175MM	3MM	900MM

Thermostat (CAEM)

Ceramic C.O.E Protective Tube



Close one end CERAMIC(max1,600cel)

TYPE	OD (mm)	ID (mm)	LENGTH (mm)
CERAMIC	6	4	600
CERAMIC	6	4	1,000
CERAMIC	12	8	1,500
CERAMIC	15	11	600
CERAMIC	15	11	1,000
CERAMIC	17	13	600
CERAMIC	17	13	1,000

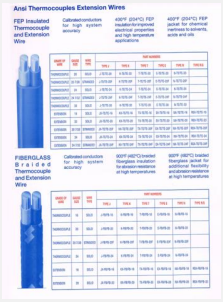
ALUMINA(max1,800cel) Tube

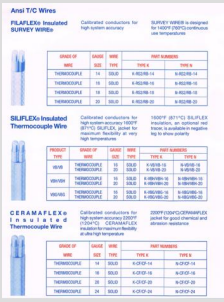
TYPE	OD (mm)	ID (mm)	LENGTH (mm)
ALUMINA	8	4	1,000
ALUMINA	10	6	1,000
ALUMINA	12	8	600
ALUMINA	12	8	1,200
ALUMINA	16	12	500
ALUMINA	16	12	750
ALUMINA	16	12	1,000
ALUMINA	16	12	1,200
ALUMINA	17	13	1,000
ALUMINA	20	16	1,000

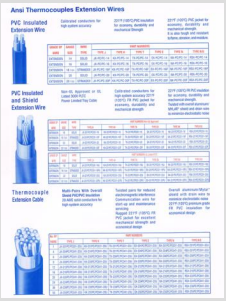
Above are standard size and available stock

Thermowell Pocket (Golink)

Thermocouple & Extension Wire (PMC) / (OMEGA)

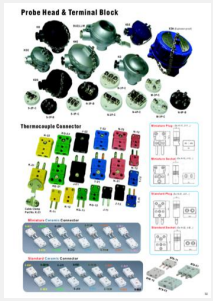


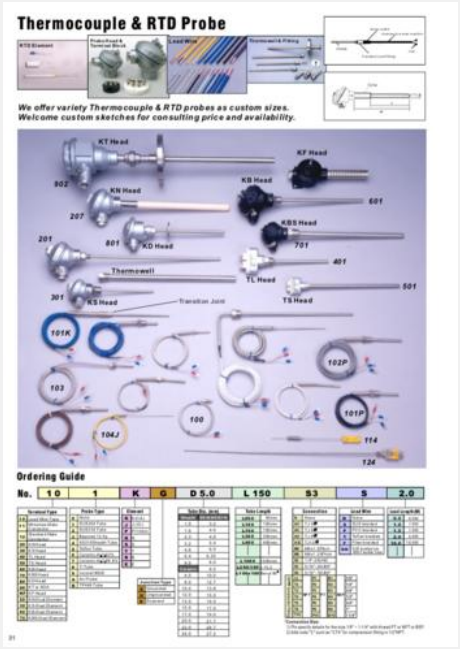




Thermocouple & Extension Wire (DAIKO)

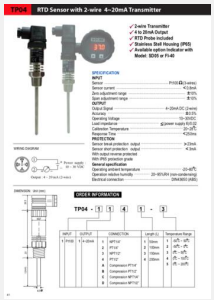
Thermocou[ple Connector & Accessories

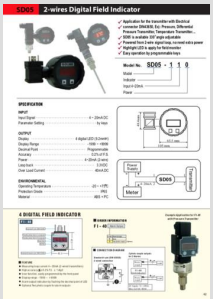




Thermocouple & RTD Probe (GOLINK)(HQ)

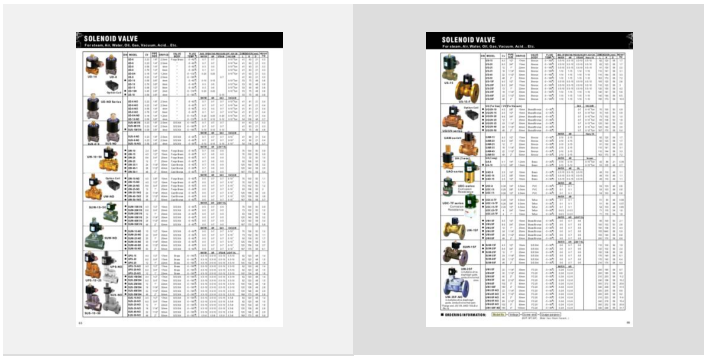
RTD With Field Indicator/Transmitter (Golink)



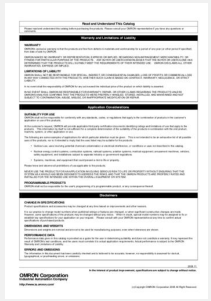


Hand held Temperature Probe (Golink)

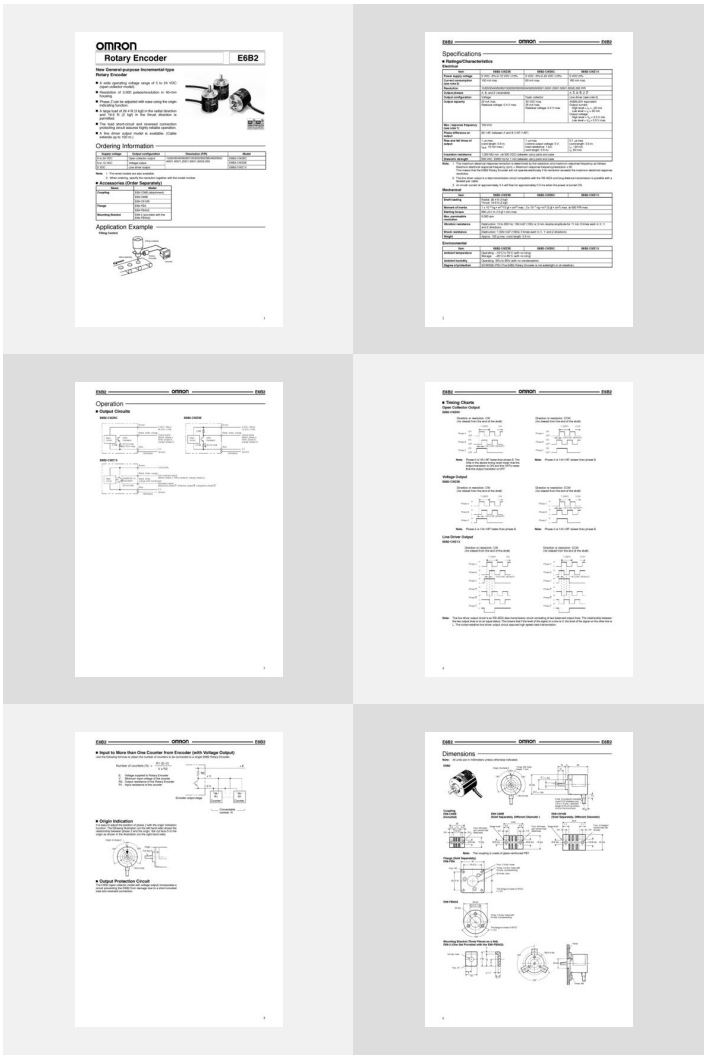
Solenoid Valve



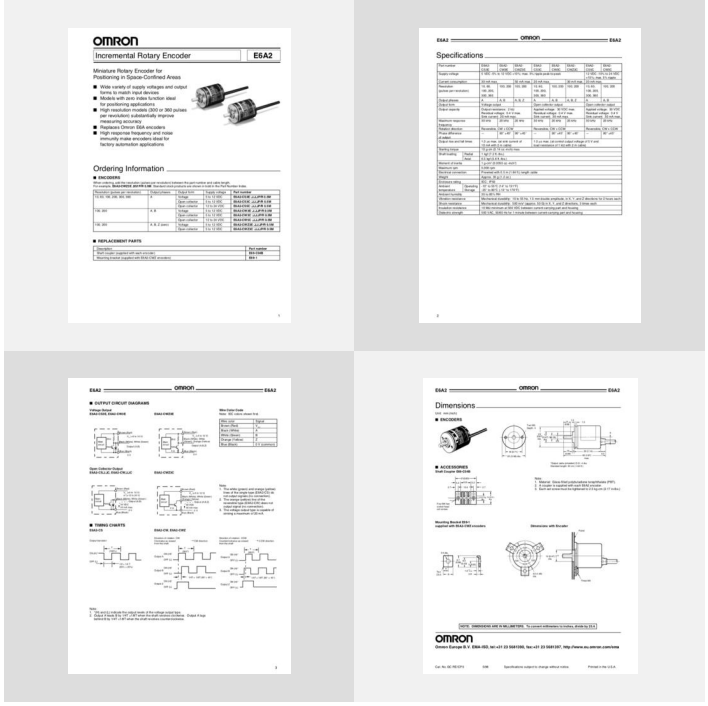
E6C2-C Encoder (Omron)



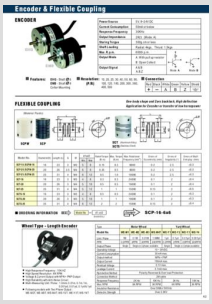
E6B2 Encoder (Omron)



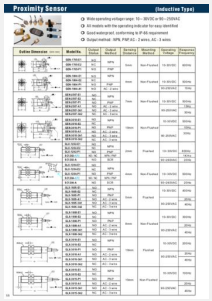
E6A2 Encoder (Omron)

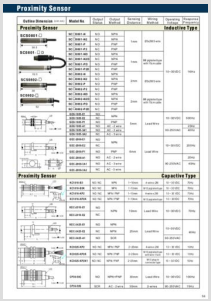


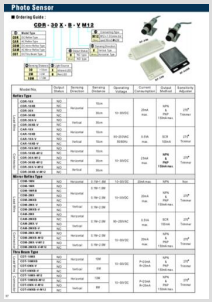
Encoder (Golink)



Proximity / Photo & Mark Sensor







S/S Ring Cable Lug

Plug & Socket

Cloth-Fibreglass,Teflon

OPEN BOTH END CERAMIC TUBE (Max temperature=1,500cel)

OD (mm)	ID (mm)	LENGTH (mm)
20.5	11	1,500
25	15	1,500
30	20	1,500
35	25	1,500
40	30	1,200

Above are standard size and available stock

Ceramic Tube-Open End

Sleeving

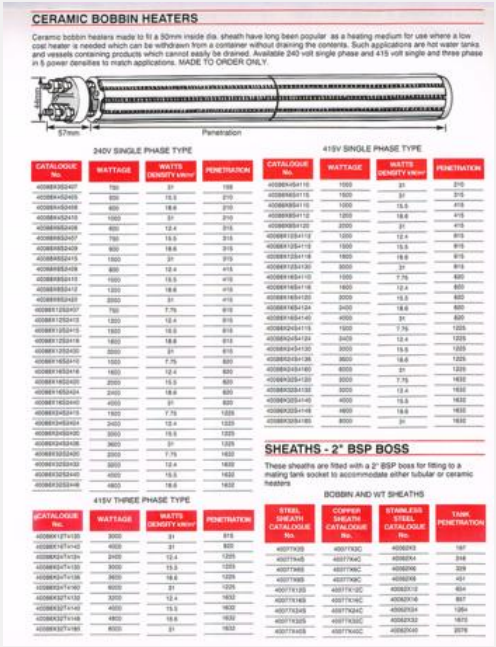
Silicon Rubber & Teflon Heater Cable(200 cel)

Fibreglass Heater Cable (600cel)

Fibreglass Heater Cable (400cel)

Fibreglass Heater Cable (200cel)

Ceramic Bobbin Heater



CERAMIC BOBBIN HEATERS

Ceramic bobbin heaters made to fit a 50mm inside dia. sheath have long been popular as a heating medium for use where a low cost heater is needed which can be withdrawn from a container without draining the contents. Such applications are hot water tanks and vessels containing products which cannot easily be drained. Available 240 volt single phase and 415 volt single and three phase in 5 power densities to match applications. MADE TO ORDER ONLY.

87mm

Penetration

240V SINGLE PHASE TYPE

CATALOGUE No.	WATTAGE	WATTS DENSITY kW/m²	PENETRATION
4008BX352407	750	31	159
4008BX452405	900	15.5	210
4008BX452406	900	18.6	210
4008BX452410	1200	31	210
4008BX652408	900	12.4	315
4008BX652407	750	15.5	315
4008BX652409	900	18.6	315
4008BX652415	1500	31	315
4008BX652409	900	12.4	415
4008BX652410	1200	15.5	415
4008BX652412	1200	18.6	415
4008BX652407	2000	31	415
4008BX1252407	750	7.75	615
4008BX1252413	1200	12.4	615
4008BX1252415	1500	15.5	615
4008BX1252418	1800	18.6	615
4008BX1252430	3000	31	615
4008BX1652410	1200	7.75	820
4008BX1652416	1600	12.4	820
4008BX1652420	2000	15.5	820
4008BX1652424	2400	18.6	820
4008BX1652440	4000	31	820
4008BX2452413	1500	7.75	1225
4008BX2452424	2400	12.4	1225
4008BX2452430	3000	15.5	1225
4008BX2452436	3600	31	1225
4008BX3252400	2000	7.75	1632
4008BX3252432	3200	12.4	1632
4008BX3252440	4000	15.5	1632
4008BX3252448	4800	18.6	1632

415V SINGLE PHASE TYPE

CATALOGUE No.	WATTAGE	WATTS DENSITY kW/m²	PENETRATION
4008BX454110	1000	31	210
4008BX654115	1500	31	315
4008BX654110	1000	15.5	415
4008BX654112	1200	18.6	415
4008BX654120	2000	31	415
4008BX1254112	1200	12.4	615
4008BX1254115	1500	15.5	615
4008BX1254118	1800	18.6	615
4008BX1254130	3000	31	615
4008BX1654110	1000	7.75	820
4008BX1654116	1600	12.4	820
4008BX1654120	2000	15.5	820
4008BX1654124	2400	18.6	820
4008BX1654140	4000	31	820
4008BX2454115	1500	7.75	1225
4008BX2454124	2400	12.4	1225
4008BX2454130	3000	15.5	1225
4008BX2454136	3600	18.6	1225
4008BX2454160	6000	31	1225
4008BX3254120	3000	7.75	1632
4008BX3254132	3200	12.4	1632
4008BX3254148	4800	18.6	1632
4008BX3254185	6000	31	1632

415V THREE PHASE TYPE

CATALOGUE No.	WATTAGE	WATTS DENSITY kW/m²	PENETRATION
4008BX12T4135	3000	31	615
4008BX16T4140	4000	31	820
4008BX24T4124	2400	12.4	1225
4008BX24T4130	3000	15.5	1225
4008BX24T4136	3600	18.6	1225
4008BX24T4160	6000	31	1225
4008BX32T4132	3200	12.4	1632
4008BX32T4140	4000	15.5	1632
4008BX32T4148	4800	18.6	1632
4008BX32T4185	6000	31	1632

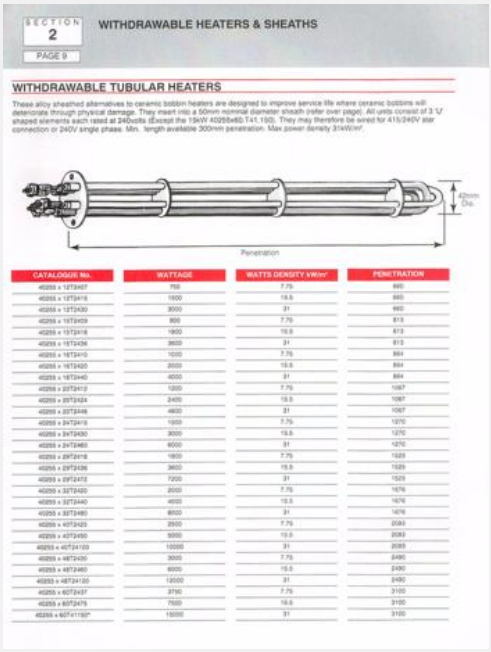
SHEATHS - 2" BSP BOSS

These sheaths are fitted with a 2" BSP boss for fitting to a mating tank socket to accommodate either tubular or ceramic heaters

BOBBIN AND WT SHEATHS

STEEL SHEATH CATALOGUE No.	COPPER SHEATH CATALOGUE No.	STAINLESS STEEL CATALOGUE No.	TANK PENETRATION
4007TX35	4007TX3C	4008ZX3	197
4007TX45	4007TX4C	4008ZX4	318
4007TX65	4007TX6C	4008ZX6	329
4007TX85	4007TX8C	4008ZX8	451
4007TX125	4007TX12C	4008ZX12	604
4007TX165	4007TX16C	4008ZX16	857
4007TX245	4007TX24C	4008ZX24	1264
4007TX325	4007TX32C	4008ZX32	1672
4007TX485	4007TX40C	4008ZX40	2076

WithdrawableTubular Heater



SECTION 2

PAGE 9

WITHDRAWABLE HEATERS & SHEATHS

WITHDRAWABLE TUBULAR HEATERS

These alloy sheathed alternatives to ceramic bobbin heaters are designed to improve service life where ceramic bobbins will deteriorate through physical damage. They insert into a 50mm nominal diameter sheath (refer over page). All units consist of 3 'U' shaped elements each rated at 240volts (Except the 15kW 4025BxBD.T41.150). They may therefore be wired for 415/240V star connection or 240V single phase. Min. length available 300mm penetration. Max power density 31kW/m².

Penetration

CATALOGUE No.	WATTAGE	WATTS DENSITY kW/m²	PENETRATION
4025S x 12T3407	750	7.75	660
4025S x 12T3415	1500	15.5	660
4025S x 12T3430	3000	31	660
4025S x 16T3409	900	7.75	813
4025S x 15T3418	1800	15.5	813
4025S x 15T3436	3600	31	813
4025S x 16T3410	1200	7.75	864
4025S x 16T3420	2000	15.5	864
4025S x 16T3440	4000	31	864
4025S x 22T3412	1200	7.75	1067
4025S x 22T3424	2400	15.5	1067
4025S x 22T3448	4800	31	1067
4025S x 24T3418	1800	7.75	1270
4025S x 24T3430	3000	15.5	1270
4025S x 24T3460	6000	31	1270
4025S x 29T3418	1800	7.75	1533
4025S x 29T3436	3600	15.5	1529
4025S x 29T3472	7200	31	1529
4025S x 32T3420	2000	7.75	1676
4025S x 32T3440	4000	15.5	1676
4025S x 32T3480	8000	31	1676
4025S x 40T3425	2500	7.75	2083
4025S x 40T3450	5000	15.5	2083
4025S x 40T34100	10000	31	2083
4025S x 48T3430	3000	7.75	2490
4025S x 48T3460	6000	15.5	2490
4025S x 48T34120	12000	31	2490
4025S x 60T3437	3750	7.75	3100
4025S x 60T3475	7500	15.5	3100
4025S x 60T41150*	15000	31	3100

Washing Machine Heater

BURCO Wash Boiler Heater

SUS316 Wash Boiler Heater

DIY Tubular Heater

HQ HEATING SDN.BHD.
No. 69, Jalan Laksamana 6, Off Jalan Sungai Jati,Taman Sentosa,
41200 Klang, Selangor Darul Ehsan, Malaysia
Tel: 603-51627111; Fax : 603-51627011
Email:hqheating69@gmail.com ; Website:hqheating.com.my

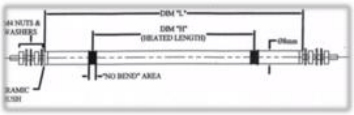
DO-IT-YOURSELF TUBULAR ELEMENTS

FEATURES

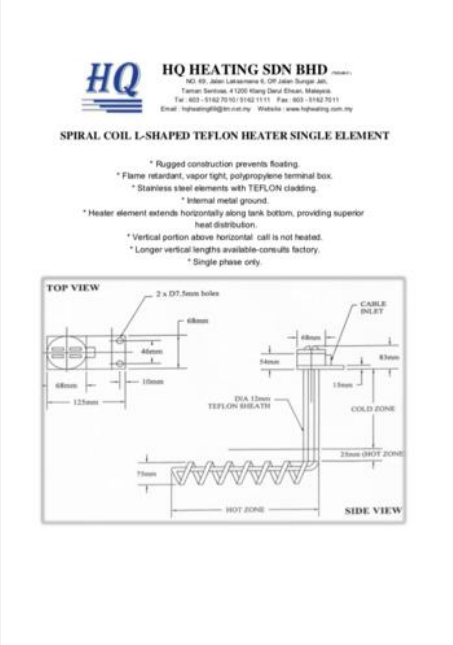
-Annealed straigth length elements designed for on-site bending and fitting of matching compression bushes.
-Ideal for custom-built work,short runs,prototypes and repairs to existing equipment.
-Ex-stock units to be used to overcome need for "one-off"special elements

TYPE F

INCOLOY 800 sheated elments for air heating in ovens,cabinets an forced air heating systems Max. ambient temperature 300 C. Also suited to water heating in bainmarie and other situations where boil dry can occur.



" TYPE F " INCOLOY 800-55K W/m² (35 W/m²)			
CAT NO.	WATTS	DIM. "L"	DIM "H"
DIY05F	500	520	360
DIY10F	1000	890	725
DIY12F	1200	1025	865
DIY15F	1500	1250	1085
DIY18F	1800	1460	1300
DIY20F	2000	1610	1450
DIY24F	2400	1900	1740
DIY30F	3000	2335	2175
DIY35F	3500	2700	2540
DIY40F	4000	3000	2840



Teflon Immersion Heater

Fibreglass Heating Tape 100W/M

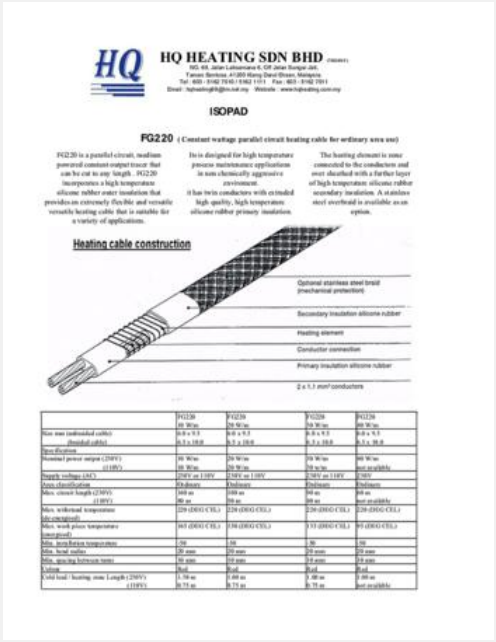
HO HEATING SDN BHD

ISOPAD

FG260

FG260 Silicon Rubber Heating Tape

FG220 Silicon Rubber Heating Tape



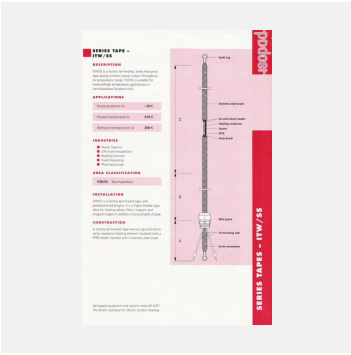
HQ HEATING SDN BHD

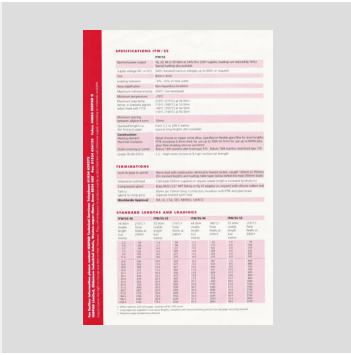
ISOPAD

FG220 (Constant wattage parallel circuit heating cable for ordinary area use)

Heating cable construction

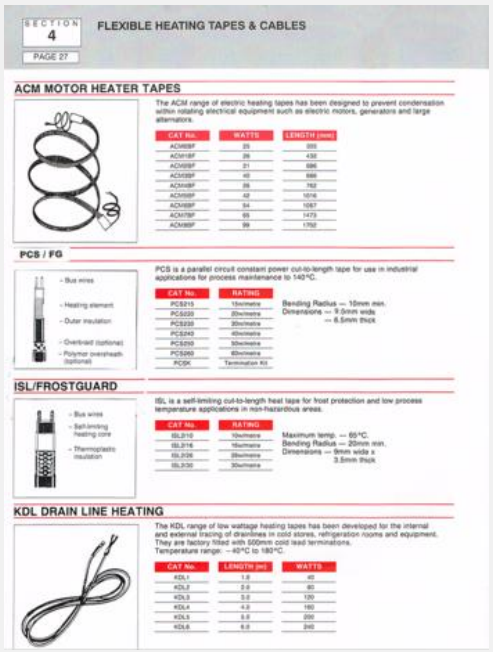
	FG230	FG220	FG250	FG230
	40 W/m	20 W/m	50 W/m	40 W/m
Size mm (individual cable)	6.0 x 9.5	6.0 x 9.5	6.0 x 9.5	6.0 x 9.5
(braided cable)	8.5 x 10.0	8.5 x 10.0	8.5 x 10.0	8.5 x 10.0
Specification				
Nominal power output (230V)	40 W/m	20 W/m	50 W/m	40 W/m
(110V)	10 W/m	20 W/m	50 w/m	not available
Supply voltage (AC)	230V or 110V	230V or 110V	230V or 110V	230V
Area classification	Ex-theory	Ordinary	Ordinary	Ordinary
Max. circuit length (230V)	360 m	180 m	90 m	90 m
(110V)	90 m	90 m	90 m	not available
Max. withstand temperature (de-energised)	220 (DOG CEL)	220 (DOG CEL)	220 (DOG CEL)	220 (DOG CEL)
Max. work piece temperature (energised)	165 (DOG CEL)	130 (DOG CEL)	135 (DOG CEL)	95 (DOG CEL)
Min. installation temperature	-50	-50	-50	-50
Min. bend radius	20 mm	20 mm	20 mm	20 mm
Min. spacing between runs	50 mm	50 mm	50 mm	20 mm
Unheated lead	Red	Red	Red	Red
Cold lead / heating zone Length (230V)	1.50 m	1.00 m	1.00 m	1.00 m
(110V)	0.75 m	0.75 m	0.75 m	not available





ITW/SS Heating Tape

Flexible Heating Tape



SECTION 4

PAGE 27

FLEXIBLE HEATING TAPES & CABLES

ACM MOTOR HEATER TAPES

The ACM range of electric heating tapes has been designed to prevent condensation within rotating electrical equipment such as electric motors, generators and large alternators.

CAT No.	WATTS	LENGTH (mm)
ACM08F	25	330
ACM18F	28	432
ACM28F	31	686
ACM38F	40	686
ACM48F	35	762
ACM58F	42	1016
ACM68F	54	1067
ACM78F	65	1473
ACM88F	99	1752

PCS / FG

PCS is a parallel circuit constant power cut-to-length tape for use in industrial applications for process maintenance to 140°C.

- Bus wires
- Heating element
- Outer insulation
- Overbraid (optional)
- Polymer oversheath (optional)

CAT No.	RATING
PCS215	15w/metre
PCS220	20w/metre
PCS230	30w/metre
PCS240	40w/metre
PCS250	50w/metre
PCS260	60w/metre
PCSK	Termination Kit

Bending Radius — 10mm min.
Dimensions — 9.0mm wide
— 6.5mm thick

ISL/FROSTGUARD

ISL is a self-limiting cut-to-length heat tape for frost protection and low process temperature applications in non-hazardous areas.

- Bus wires
- Self-limiting heating core
- Thermoplastic insulation

CAT No.	RATING
ISL210	10w/metre
ISL216	16w/metre
ISL226	26w/metre
ISL230	30w/metre

Maximum temp. — 65°C.
Bending Radius — 20mm min.
Dimensions — 9mm wide x
3.5mm thick

KDL DRAIN LINE HEATING

The KDL range of low wattage heating tapes has been developed for the internal and external tracing of drainlines in cold stores, refrigeration rooms and equipment. They are factory fitted with 600mm cold lead terminations.
Temperature range: –40°C to 180°C.

CAT No.	LENGTH (m)	WATTS
KDL1	1.0	40
KDL2	2.0	80
KDL3	3.0	120
KDL4	4.0	160
KDL5	5.0	200
KDL6	6.0	240

Silicon Rubber Sheet Heater

2"BSP 75W/INSQ

HQ HEATING SDN BHD (702140-U)

NO. 49, Jalan Laksamana 6, Off Jalan Sungai Jati,
Taman Sentosa, 41200 Klang Darul Ehsan, Malaysia.
Tel : 603 - 5162 7010 / 5162 1111 Fax : 603 - 5162 7511
Email : hqheatingsdn@gmail.com Website : www.hqheating.com.my

2" BSP (S/STEEL) SCREW IN IMMERSION HEATERS 75W/IN² (116KW/M²)

Use in water heating or steam boiler where space is confined for High Watt Density Series.

DELTA CONNECTION (75W / IN²)

MODEL	VOLTAGE	WATT	IMMERSION LG
SIHA-D3P415V X 6KW - 270	3P415V	6KW	270MM
SIHA-D3P415V X 9KW - 380	3P415V	9KW	380MM
SIHA-D3P415V X 12KW - 500	3P415V	12KW	500MM
SIHA-D3P415V X 15KW - 620	3P415V	15KW	620MM
SIHA-D3P415V X 18KW - 740	3P415V	18KW	740MM
SIHA-D3P415V X 21KW - 860	3P415V	21KW	860MM

HQ HEATING SDN.BHD.

2" BSP (S/STEEL) SCREW IN IMMERSION HEATERS 25W/IN² (39KW/M²)

Low watt density sheath loading for use when heat sensitive solutions are being heated or where build up of solid on the elements sheath is likely.

Example : -

Oils or caustic solution heating.

* Heaters are provide with Bakelite Terminal Cover. *

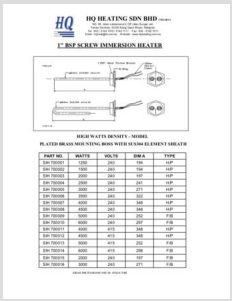
STAR CONNECTION (25W / IN²)			
MODEL	VOLTAGE	WATT	IMMERSION LG
SHA- SBP415V X 2KW - 270	3P415V	2KW	270MM
SHA- SBP415V X 3KW - 380	3P415V	3KW	380MM
SHA- SBP415V X 4KW - 500	3P415V	4KW	500MM
SHA- SBP415V X 5KW - 620	3P415V	5KW	620MM
SHA- SBP415V X 6KW - 740	3P415V	6KW	740MM
SHA- SBP415V X 7KW - 860	3P415V	7KW	860MM

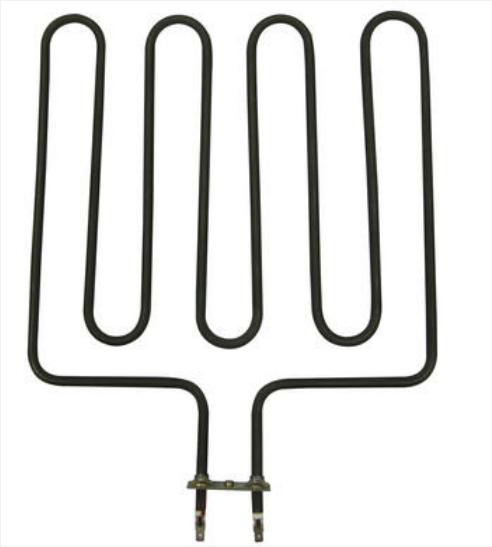
2"BSP 25W/INSQ

311 21/4"BSP Screw Im.Heater + T/stat

RCT 1 1/4"BSP Screw Im.Heater + T/stat

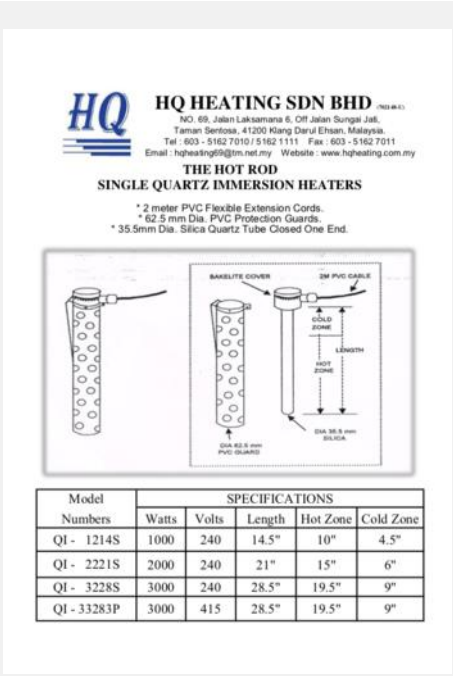
SIH 1"BSP Screw Immersion Heater





Sauna Tubular Heater

Quartz Immersion Heater



HQ HEATING SDN BHD

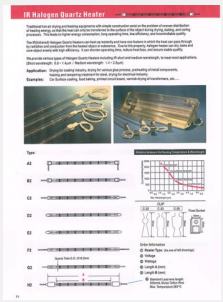
NO. 69, Jalan Laksamana 6, Off Jalan Sungai Jati,
Taman Sentosa, 41200 Klang Darul Ehsan, Malaysia.
Tel : 603 - 5162 7010 / 5162 1111 Fax : 603 - 5162 7011
Email : hqheating69@tm.net.my Website : www.hqheating.com.my

THE HOT ROD
SINGLE QUARTZ IMMERSION HEATERS

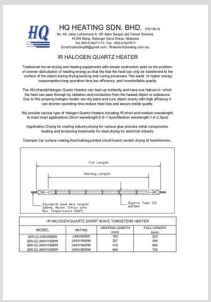
* 2 meter PVC Flexible Extension Cords.
* 62.5 mm Dia. PVC Protection Guards.
* 35.5mm Dia. Silica Quartz Tube Closed One End.

Model Numbers	SPECIFICATIONS				
	Watts	Volts	Length	Hot Zone	Cold Zone
QI - 1214S	1000	240	14.5"	10"	4.5"
QI - 2221S	2000	240	21"	15"	6"
QI - 3228S	3000	240	28.5"	19.5"	9"
QI - 33283P	3000	415	28.5"	19.5"	9"

IR Halogen Quartz Heater



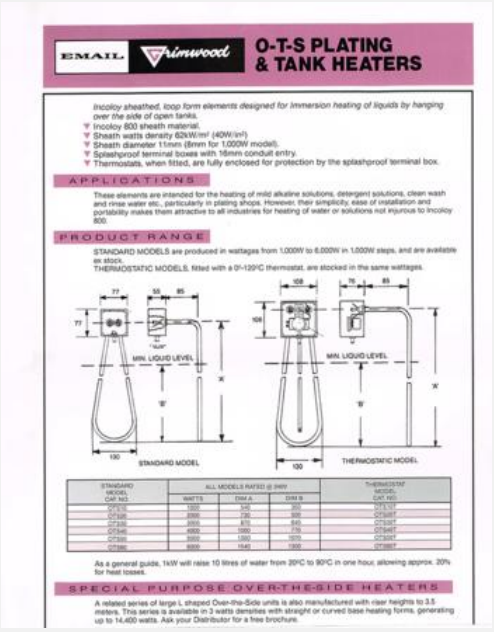
IR Halogen Quartz Heater



HQ HEATING SDN. BHD.

IR HALOGEN QUARTZ HEATER

OTS Heater



EMAIL Primwood

O-T-S PLATING & TANK HEATERS

Incoloy sheathed, loop form elements designed for immersion heating of liquids by hanging over the side of open tanks.

- Incoloy 800 sheath material.
- Sheath watts density 62kW/m² (40W/in²)
- Sheath diameter 11mm (8mm for 1,000W model).
- Splashproof terminal boxes with 16mm conduit entry.
- Thermostats, when fitted, are fully enclosed for protection by the splashproof terminal box.

APPLICATIONS

These elements are intended for the heating of mild alkaline solutions, detergent solutions, clean wash and rinse water etc., particularly in plating shops. However, their simplicity, ease of installation and portability makes them attractive to all industries for heating of water or solutions not injurous to Incoloy 800.

PRODUCT RANGE

STANDARD MODELS are produced in wattages from 1,000W to 6,000W in 1,000W steps, and are available ex stock.
THERMOSTATIC MODELS, fitted with a 0°-120°C thermostat, are stocked in the same wattages.

STANDARD MODEL CAT. NO.	ALL MODELS RATED @ 240V			THERMOSTAT MODEL CAT. NO.
	WATTS	DIM A	DIM B	
OT510	1000	540	300	OT510T
OT520	2000	730	500	OT520T
OT530	3000	870	640	OT530T
OT540	4000	1000	770	OT540T
OT550	5000	1500	1070	OT550T
OT560	6000	1640	1300	OT560T

As a general guide, 1kW will raise 10 litres of water from 20°C to 90°C in one hour, allowing approx. 20% for heat losses.

SPECIAL PURPOSE OVER-THE-SIDE HEATERS

A related series of large L shaped Over-the-Side units is also manufactured with riser heights to 3.5 meters. This series is available in 3 watts densities with straight or curved base heating forms, generating up to 14,400 watts. Ask your Distributor for a free brochure.

Ceramic Open Coil Heater

Super Black Infrapara Heater

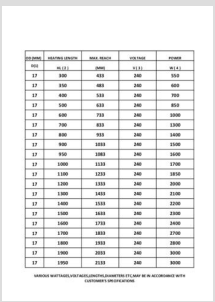
HQ HEATING SDN. BHD. (Tel:08-2)

No. 65 Jalan Jalanan 4, Off Jalan Sungai Lui Taman Sentosa
41200 Klang Selangor Darul Ehsan, Malaysia
Tel: 603-3382 0122 Fax: 603-3382 0123
Email:hqheating@hqhtmail.com Website:hqheating.com.my

SUPER BLACK INFRAPARA CERAMIC HEATER(LONG WAVE INFRARED)

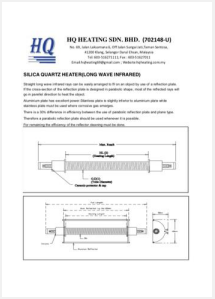
FEATURES AND ADVANTAGES:

1. Unique ceramic heater material ceramics with high thermal stability mechanical strength and good electrical insulation. Only quality resistance wire is used.
2. High efficiency.
3. Easy control to radiate favourable wave lengths for different targets materials.
4. 1-10 times more quantity for all ceramic heaters.
5. Uniform temperature distribution.
6. Electrical power may be saved up to 50% production yield may be raised 30% up.
7. Even volume reducibility to one half or more less thermometer or replacement of welding of welding cold-fabricated heat plates is over to easy.
8. Free from dust contamination by fine fumes appears during heating process.
9. High safety.



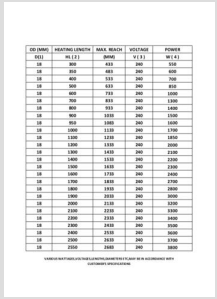
SO.DIMM.	HEATING LENGTH	MAX. WATCH	VOLTAGE	POWER
MM	M.(L)	(MM)	V.(L)	M.(L)
17	300	433	240	550
17	350	483	240	600
17	400	533	240	700
17	500	633	240	850
17	600	733	240	1000
17	700	833	240	1200
17	800	933	240	1400
17	900	1033	240	1500
17	950	1083	240	1600
17	1000	1133	240	1700
17	1100	1233	240	1850
17	1200	1333	240	2000
17	1300	1433	240	2100
17	1400	1533	240	2200
17	1500	1633	240	2300
17	1600	1733	240	2400
17	1700	1833	240	2700
17	1800	1933	240	2800
17	1900	2033	240	3000
17	1950	2133	240	3000

VARIOUS WATTAGES,VOLTAGES,LENGTHS,DIAMETERS ETC,MAY BE IN ACCORDANCE WITH CUSTOMER'S SPECIFICATIONS



HQ HEATING SDN. BHD. (592148-U)

SILICA QUARTZ HEATERLONG WAVE INFRARED)

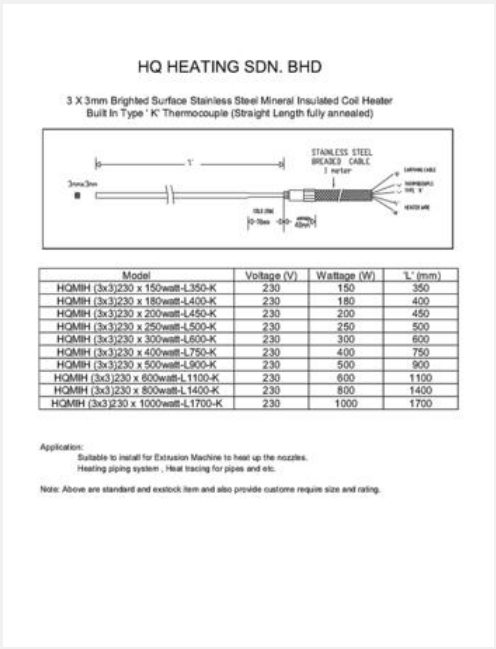


OD (MM)	HEATING LENGTH	MAX. REACH	VOLTAGE	POWER
D(1)	H(2)	(MM)	V(3)	W(4)
10	300	433	240	550
10	350	483	240	600
10	400	533	240	700
10	500	633	240	850
10	600	733	240	1000
10	700	833	240	1300
10	800	933	240	1400
10	900	1033	240	1500
10	950	1083	240	1600
10	1000	1133	240	1700
10	1100	1233	240	1850
10	1200	1333	240	2000
10	1300	1433	240	2150
10	1400	1533	240	2300
10	1500	1633	240	2300
10	1600	1733	240	2400
10	1700	1833	240	2700
10	1800	1933	240	2850
10	1900	2033	240	3000
10	2000	2133	240	3200
10	2100	2233	240	3300
10	2200	2333	240	3400
10	2300	2433	240	3500
10	2400	2533	240	3600
10	2500	2633	240	3700
10	2550	2683	240	3800

VARIOUS WATTAGES,VOLTAGE,HEATING DIAMETER ETC,MAY BE IN ACCORDANCE WITH CUSTOMERS SPECIFICATIONS

Infrared Silica Heater

Standard Straight MI Coil Heater



HQ HEATING SDN. BHD

3 X 3mm Brighted Surface Stainless Steel Mineral Insulated Coil Heater
Built In Type ' K' Thermocouple (Straight Length fully annealed)

Model	Voltage (V)	Wattage (W)	'L' (mm)
HQMIH (3x3)230 x 150watt-L350-K	230	150	350
HQMIH (3x3)230 x 180watt-L400-K	230	180	400
HQMIH (3x3)230 x 200watt-L450-K	230	200	450
HQMIH (3x3)230 x 250watt-L500-K	230	250	500
HQMIH (3x3)230 x 300watt-L600-K	230	300	600
HQMIH (3x3)230 x 400watt-L750-K	230	400	750
HQMIH (3x3)230 x 500watt-L900-K	230	500	900
HQMIH (3x3)230 x 600watt-L1100-K	230	600	1100
HQMIH (3x3)230 x 800watt-L1400-K	230	800	1400
HQMIH (3x3)230 x 1000watt-L1700-K	230	1000	1700

Application:
Suitable to install for Extrusion Machine to heat up the nozzles.
Heating piping system , Heat tracing for pipes and etc.

Note: Above are standard and exstock item and also provide custome require size and rating.

HOT RUNNER HEATERS & BUSHES

Hot Runner Heaters are made of helically wound nickel- chrome resistance wire evenly stretched and strung through highly pure MgO core. This element assembly is centrally placed in chrome nickel steel tube and filled with specifically selected high grade MgO powder. It is then subjected to drawing and swaging process for compacting MgO core, MgO powder and heating element to a solid mass, producing a rugged and durable Hot Runner Heaters. Hot runner Heaters with inbuilt thermocouples are also available. Hot Runner Bushes are produced with Hot Runner Heaters of different cross sections with inner brass bush and outer SS shell.

Features:

- Sheath Temperature upto 800°C • Higher watt densities • Built in Type "J" (or) "K" Thermocouple
- Available in following cross sections: □3mm x 3mm, 3.3mm x 3.3mm, 3.7mm x 3.7mm, 4.5mm x 4.5mm, □4.3mm x 2.2mm, 3.2mm x 1.8mm, ○1.8mm, 3.3mm,3.7mm • Rugged & Durable Construction • Available as per customer's specifications

Applications:

- Moulds & Dies • Nozzle Heating • Sprue Bushing

TYPICAL LEAD ORIENTATIONS

HOW TO ORDER COILED MICRO TUBULAR HEATER

- Watts & Volts
- Cross Section
- ID, OD & Length
- Termination style
- Thermocouple if required Specify Type "J" (or) "K" Grounded (or) Ungrounded
- Number of coil in L1, L2, L3
- Coil Total Length TL, L1, L2 & L3
- Connection lead option, lead length and lead orientation
- Drawing or sample for special type configuration

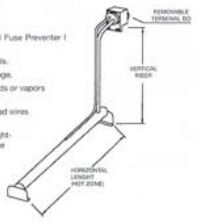
MI Coil Heater

L-shape Hot Rod Heater

THE HOTROD

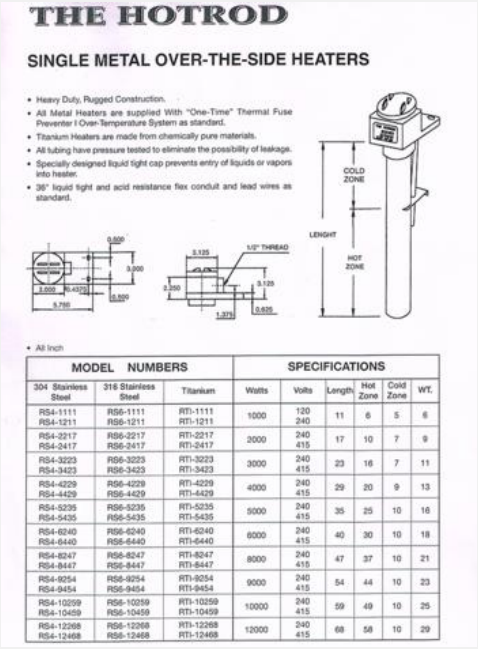
SINGLE METAL L-SHAPED HEATERS

- Special vertical heights available upon request.
- Heavy Duty, Rugged Construction.
- All Metal Heaters are supplied with 'One-Time' Thermal Fuse Preventer I Over-Temperature System as standard.
- Titanium Heaters are made from chemically pure materials.
- All tubing pressure tested to eliminate possibility of leakage.
- Specially designed liquid tight cap prevents entry of liquids or vapors into heater.
- 36" liquid tight and acid resistance flexible conduit and lead wires as standard. Additional lengths available.
- Standard heater has gooseneck riser with 90° bend. Straight-up riser available as an option. Add - S to the end of the model number.



- All Inch

MODEL NUMBERS			SPECIFICATIONS				
304 Stainless Steel	316 Stainless Steel	Titanium	Watts	Volts	Horiz Length	Vertical Riser	WT.
RLS4-1113 RLS4-1213	RLS6-1113 RLS6-1213	RLTI-1113 RLTI-1213	1000	120 240	13	15	11
RLS4-2217 RLS4-2417	RLS6-2217 RLS6-2417	RLTI-2217 RLTI-2417	2000	240 415	17	19	12
RLS4-3222 RLS4-3422	RLS6-3222 RLS6-3422	RLTI-3222 RLTI-3422	3000	240 415	22	25	13
RLS4-4226 RLS4-4426	RLS6-4226 RLS6-4426	RLTI-4226 RLTI-4426	4000	240 415	26	25	14
RLS4-5231 RLS4-5431	RLS6-5231 RLS6-5431	RLTI-5231 RLTI-5431	5000	240 415	31	37	15
RLS4-6236 RLS4-6436	RLS6-6236 RLS6-6436	RLTI-6236 RLTI-6436	6000	240 415	36	50	16
RLS4-8244 RLS4-8444	RLS6-8244 RLS6-8444	RLTI-8244 RLTI-8444	8000	240 415	44	50	19
RLS4-9250 RLS4-9450	RLS6-9250 RLS6-9450	RLTI-9250 RLTI-9450	9000	240 415	50	50	21
RLS4-10255 RLS4-10455	RLS6-10255 RLS6-10455	RLTI-10255 RLTI-10455	10000	240 415	55	50	23
RLS4-12264 RLS4-12464	RLS6-12264 RLS6-12464	RLTI-12264 RLTI-12464	12000	240 415	64	50	26



THE HOTROD

SINGLE METAL OVER-THE-SIDE HEATERS

- Heavy Duty, Rugged Construction.
- All Metal Heaters are supplied With "One-Time" Thermal Fuse Preventer I-Over-Temperature System as standard.
- Titanium Heaters are made from chemically pure materials.
- All tubing have pressure tested to eliminate the possibility of leakage.
- Specially designed liquid tight cap prevents entry of liquids or vapors into heater.
- 36" liquid tight and acid resistance flex conduit and lead wires as standard.

- All Inch

MODEL NUMBERS			SPECIFICATIONS					
304 Stainless Steel	316 Stainless Steel	Titanium	Watts	Volts	Length	Hot Zone	Cold Zone	WT.
RS4-1111 RS4-1211	RS6-1111 RS6-1211	RTI-1111 RTI-1211	1000	120 240	11	6	5	6
RS4-2217 RS4-2417	RS6-2217 RS6-2417	RTI-2217 RTI-2417	2000	240 415	17	10	7	9
RS4-3223 RS4-3423	RS6-3223 RS6-3423	RTI-3223 RTI-3423	3000	240 415	23	16	7	11
RS4-4229 RS4-4429	RS6-4229 RS6-4429	RTI-4229 RTI-4429	4000	240 415	29	20	9	13
RS4-5235 RS4-5435	RS6-5235 RS6-5435	RTI-5235 RTI-5435	5000	240 415	35	25	10	16
RS4-6240 RS4-6440	RS6-6240 RS6-6440	RTI-6240 RTI-6440	6000	240 415	40	30	10	18
RS4-8247 RS4-8447	RS6-8247 RS6-8447	RTI-8247 RTI-8447	8000	240 415	47	37	10	21
RS4-9254 RS4-9454	RS6-9254 RS6-9454	RTI-9254 RTI-9454	9000	240 415	54	44	10	23
RS4-10259 RS4-10459	RS6-10259 RS6-10459	RTI-10259 RTI-10459	10000	240 415	59	49	10	25
RS4-12268 RS4-12468	RS6-12268 RS6-12468	RTI-12268 RTI-12468	12000	240 415	68	58	10	29

Straight Hot Rod Heater

Spiral Hot Plate Heater

Flange Immersion Heater

GW-1129 UL Listed S/S Finned Heater

HQ HEATING SDN. BHD.
No. Jalan Laksamana 6, Off Jalan Sungai Jati,
Taman Sentosa, 41200 Klang, Selangor Darul Ehsan, Malaysia.
Tel: 03 51627910; Fax: 03 51627911
Email: hqheat@tm.net.my

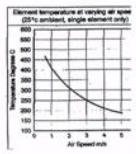
Stainless Steel Finned Air Heaters
GW-1129 Series – UL LISTED

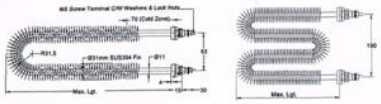
Sheath Watts Density Sheath 44.5KW/m² (29W/in²)

Construction Continuous Spiral Stainless Steel Fin On 11mmØ Stainless Steel Element. Fin 31mmØ. Fin Pitch 5.0mm

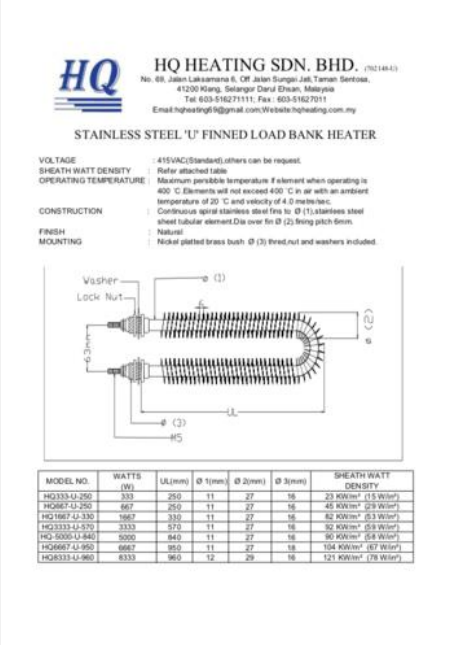
Finish Annealed 304 Stainless Steel

Mounting Stainless Steel Bushes With M16 Thread 15mm Long. Clearance 18mmØ required. Washers & Nut Included.





Model	Rating	Max. Lgt. "U" SHAPE	Max. Lgt. "W" SHAPE
GW-1129-U500	240V, 500W	200mm	-
GW-1129-U750	240V, 750W	298mm	164mm
GW-1129-U1000	240V, 1000W	381mm	205mm
GW-1129-U1250	240V, 1250W	465mm	243mm
GW-1129-U1500	240V, 1500W	548mm	286mm
GW-1129-U1750	240V, 1750W	632mm	331mm
GW-1129-U2000	240V, 2000W	716mm	373mm
GW-1129-U2500	240V, 2500W	883mm	456mm
GW-1129-U3000	240V, 3000W	1050mm	537mm
GW-1129-U3500	240V, 3500W	1217mm	623mm
GW-1129-U4000	240V, 4000W	1384mm	707MM



HQ HEATING SDN. BHD. (782144-U)

No. 69, Jalan Laksamana 6, Off Jalan Sungai Jati, Taman Sentosa,
41200 Klang, Selangor Darul Ehsan, Malaysia
Tel: 603-51627111; Fax : 603-51627011
Email:hqheating69@gmail.com;Website:hqheating.com.my

STAINLESS STEEL 'U' FINNED LOAD BANK HEATER

VOLTAGE	:	415VAC(Standard),others can be request.
SHEATH WATT DENSITY	:	Refer attached table
OPERATING TEMPERATURE	:	Maximum persibble temperature if element when operating is 400 °C.Elements will not exceed 400 °C in air with an ambient temperature of 20 °C and velocity of 4.0 metre/sec.
CONSTRUCTION	:	Continuous spiral stainless steel fins to Ø (1),stainless steel sheet tubular element,Dia over fin Ø (2),fining pitch 6mm.
FINISH	:	Natural
MOUNTING	:	Nickel platted brass bush Ø (3) thred,nut and washers included.

MODEL NO.	WATTS (W)	UL(mm)	Ø 1(mm)	Ø 2(mm)	Ø 3(mm)	SHEATH WATT DENSITY
HQ333-U-250	333	250	11	27	16	23 KW/m² (15 W/in²)
HQ667-U-250	667	250	11	27	16	45 KW/m² (29 W/in²)
HQ1667-U-330	1667	330	11	27	16	82 KW/m² (53 W/in²)
HQ3333-U-570	3333	570	11	27	16	92 KW/m² (59 W/in²)
HQ-5000-U-840	5000	840	11	27	16	90 KW/m² (58 W/in²)
HQ6667-U-950	6667	950	11	27	18	104 KW/m² (67 W/in²)
HQ8333-U-960	8333	960	12	29	16	121 KW/m² (78 W/in²)

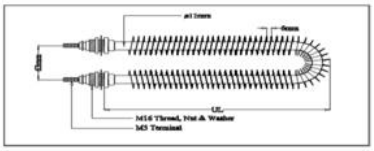
Load Bank S/Steel Fin Heater

HQSS Finned Heater

HQ HEATING SDN. BHD. (702148-U)
No. 69, Jalan Laksamana 6, Off Jalan Sungai Jati, Taman Sentosa,
41200 Klang, Selangor Darul Ehsan, Malaysia
Tel: 603-51627111; Fax : 603-51627011
Email:hqheating69@gmail.com ; Website:hqheating.com.my

HQSS SERIES FINNED HEATERS

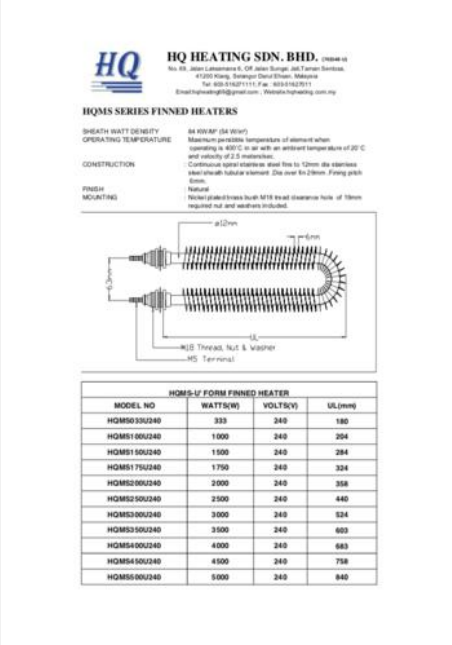
SHEATH WATT DENSITY : 60 KW/M² (39 W/in²)
OPERATING TEMPERATURE : Maximum persible temperature of element when operating is 400˚C.Element will not exceed in air velocity with an ambient temperature of 20˚C and of 1.0 meters/sec.
CONSTRUCTION : Continuous spiral stainless steel fins to 11mm dia stainless steel sheath tubular element .Dia over fin 28mm .Firing pitch 6mm.
FINISH : Natural
MOUNTING : Nickel plated brass bush M16 tread clearance hole of 18mm required nut and washers included.



HQSS-U' FORM FINNED HEATER

MODEL NO	WATTS(W)	VOLTS(V)	UL(mm)
HQSS075U240	750	240	226
HQSS100U240	1000	240	281
HQSS125U240	1250	240	346
HQSS150U240	1500	240	406
HQSS175U240	1750	240	459
HQSS200U240	2000	240	526
HQSS250U240	2500	240	638
HQSS300U240	3000	240	747
HQSS350U240	3500	240	858
HQSS400U240	4000	240	973
HQSS450U240	4500	240	1109
HQSS500U240	5000	240	1235
HQSS600U240	6000	240	1453

HQMS Finned Heater



HQ HEATING SDN. BHD. (760848-U)

No. 69, Jalan Latasmana 6, Off Jalan Sungai Jati,Taman Sentosa,
41200 Klang, Selangor Darul Ehsan, Malaysia
Tel: 603-51627111, Fax : 603-51627511
Email:hqheating69@gmail.com , Website:hqheating.com.my

HQMS SERIES FINNED HEATERS

SHEATH WATT DENSITY	84 KW/M² (54 W/in²)
OPERATING TEMPERATURE	Maximum persistible temperature of element when operating is 400°C in air with an ambient temperature of 20°C and velocity of 2.5 meters/sec.
CONSTRUCTION	Continuous spiral stainless steel fins to 12mm dia stainless steel sheath tubular element. Dia over fin 29mm. Fining pitch 6mm.
FINISH	Natural
MOUNTING	Nickel plated brass bush M18 tread clearance hole of 19mm required nut and washers included.

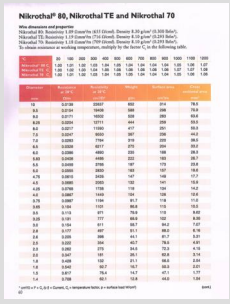
HQMS-U' FORM FINNED HEATER			
MODEL NO	WATTS(W)	VOLTS(V)	UL(mm)
HQMS033U240	333	240	180
HQMS100U240	1000	240	204
HQMS150U240	1500	240	284
HQMS175U240	1750	240	324
HQMS200U240	2000	240	358
HQMS250U240	2500	240	440
HQMS300U240	3000	240	524
HQMS350U240	3500	240	603
HQMS400U240	4000	240	683
HQMS450U240	4500	240	758
HQMS500U240	5000	240	840

80/20 Nicrome Ribbon Element

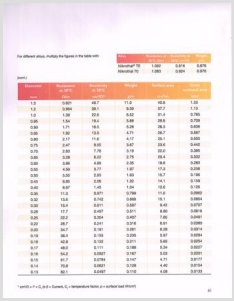
80/20% FLAT RIBBON NICROME WIRE

NO	DIMENSION	OHM/M	M/KG
1	0.4X0.08	35.53	4610
2	0.4X0.10	28.42	3690
3	0.4X0.12	23.68	3080
4	0.4X0.14	20.30	2640
5	0.8X0.08	17.76	2310
6	0.8X0.10	14.21	1848
7	0.8X0.12	11.84	1541
8	0.8X0.14	10.15	1319
9	1.6X0.08	8.88 / 9.04	1115
10	1.6X0.10	7.10	923
11	1.6X0.12	5.92	769
12	2.4X0.10	4.56	615
13	2.4X0.12	3.90	513
14	2.4X0.16	2.96	385
15	2.4X0.18	2.63	342
16	3.2x0.16	2.25	251
17	3.2X0.20	1.79	200
18	4.0X0.20	1.42	160
19	5.0X0.20	1.14	128
20	5.0X0.40	0.57	64

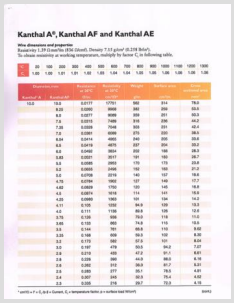
80/20 Nicrome Round Element

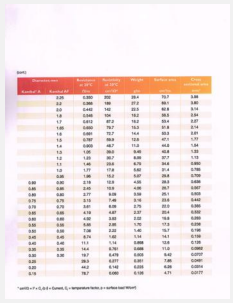


Nikrothal® 80, Nikrothal TE and Nikrothal 70



AF Furnace Element


Kanthal A®, Kanthal AF and Kanthal AE

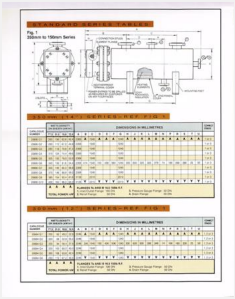


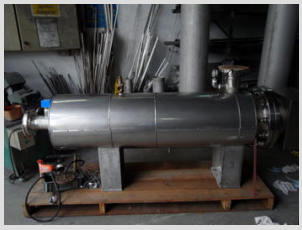
Silicon Rubber Drum Heater

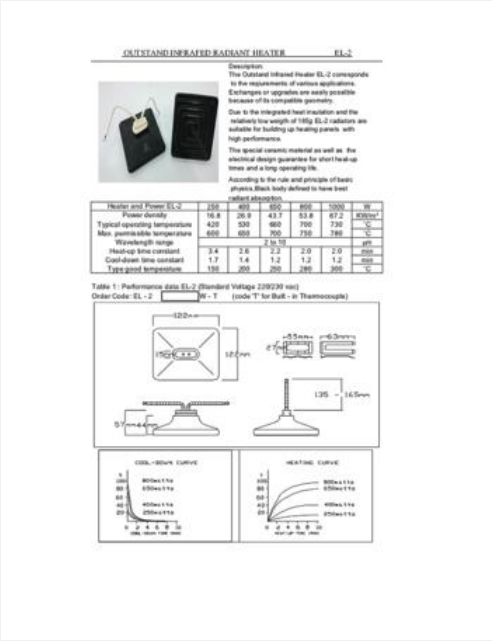
Fibreglass Blanket Drum Heater

DHT Metal Drum Heater

Circulation Heater

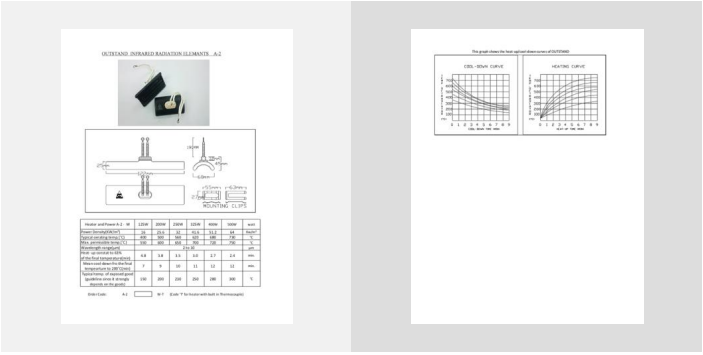




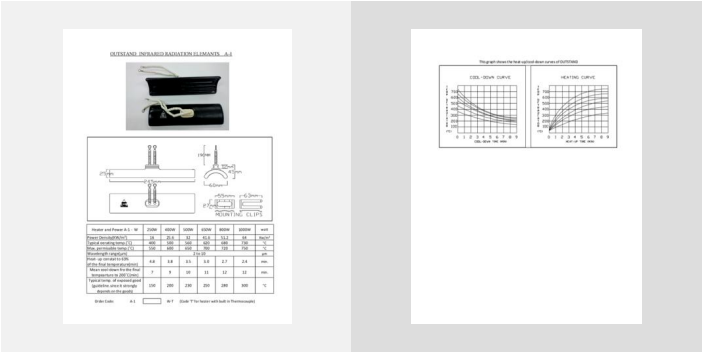


EL-2 Ceramic Heater

A-2 Ceramic Heater



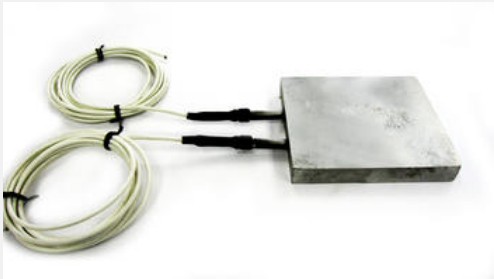
A-1 Ceramic Heater

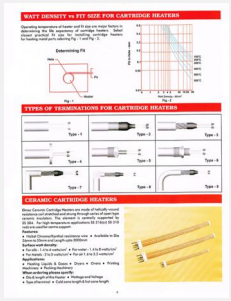


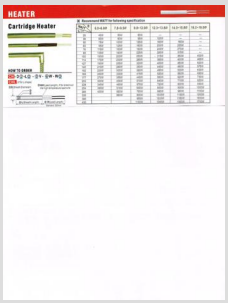
Ceramic Heater

Cast Iron Heater

Cast Aluminium Heater

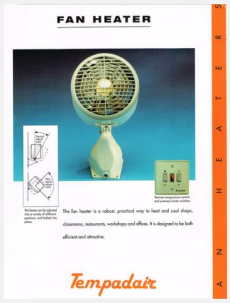


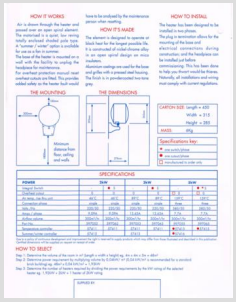


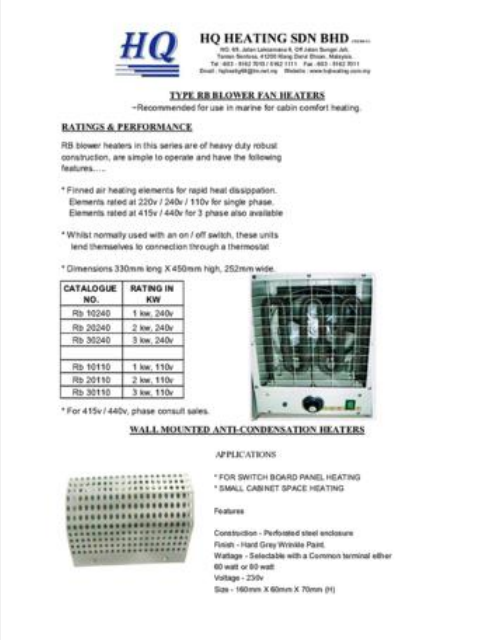


Cartridge Heater

Axial Fan Heater







HQ HEATING SDN BHD

TYPE RB BLOWER FAN HEATERS

–Recommended for use in marine for cabin comfort heating.

RATINGS & PERFORMANCE

RB blower heaters in this series are of heavy duty robust construction, are simple to operate and have the following features.....

* Finned air heating elements for rapid heat dissipation. Elements rated at 220v / 240v / 110v for single phase. Elements rated at 415v / 440v for 3 phase also available

* Whilst normally used with an on / off switch, these units lend themselves to connection through a thermostat

* Dimensions 330mm long X 450mm high, 252mm wide.

CATALOGUE NO.	RATING IN KW
Rb 10240	1 kw, 240v
Rb 20240	2 kw, 240v
Rb 30240	3 kw, 240v
Rb 10110	1 kw, 110v
Rb 20110	2 kw, 110v
Rb 30110	3 kw, 110v

* For 415v / 440v, phase consult sales.

WALL MOUNTED ANTI-CONDENSATION HEATERS

APPLICATIONS

* FOR SWITCH BOARD PANEL HEATING
* SMALL CABINET SPACE HEATING

Features

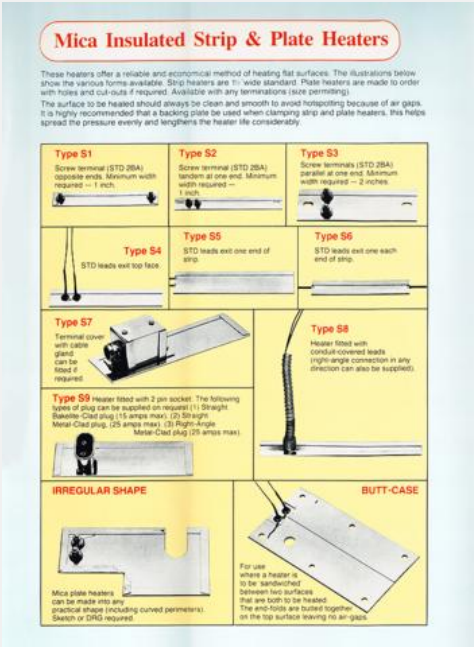
Construction - Perforated steel enclosure
Finish - Hard Grey Wrinkle Paint.
Wattage - Selectable with a Common terminal either 60 watt or 80 watt
Voltage - 230v
Size - 160mm X 60mm X 70mm (H)

BH Blower Heater

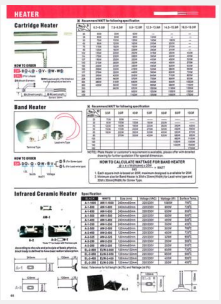
IR Bank Heater

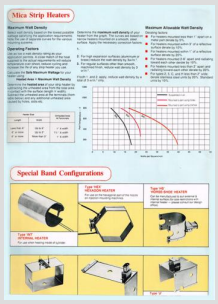
Nozzle Heater-Mica,Brass,MI

Mica Plate Heater

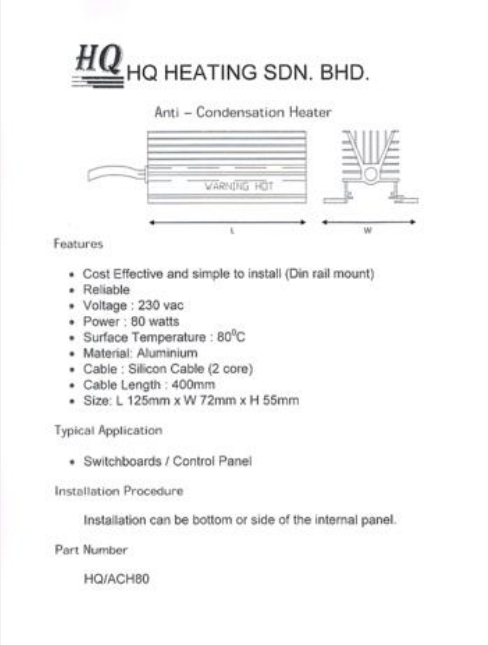


Mica Band Heater





Ceramic Band Heater



HQ HEATING SDN. BHD.

Anti – Condensation Heater

Features

- Cost Effective and simple to install (Din rail mount)
- Reliable
- Voltage : 230 vac
- Power : 80 watts
- Surface Temperature : 80°C
- Material: Aluminium
- Cable : Silicon Cable (2 core)
- Cable Length : 400mm
- Size: L 125mm x W 72mm x H 55mm

Typical Application

- Switchboards / Control Panel

Installation Procedure

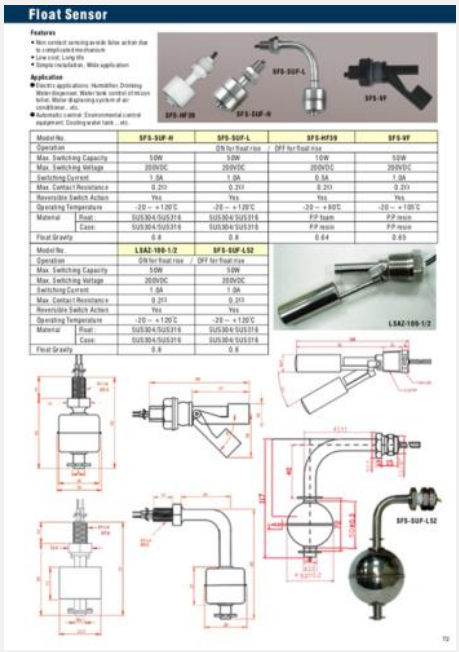
Installation can be bottom or side of the internal panel.

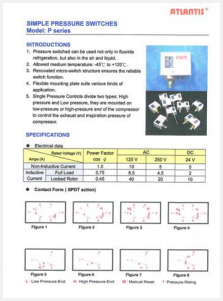
Part Number

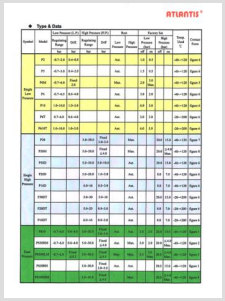
HQ/ACH80

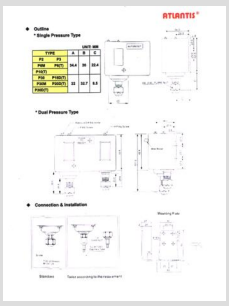
ACH Anticondensation Heater

Level Float Switch



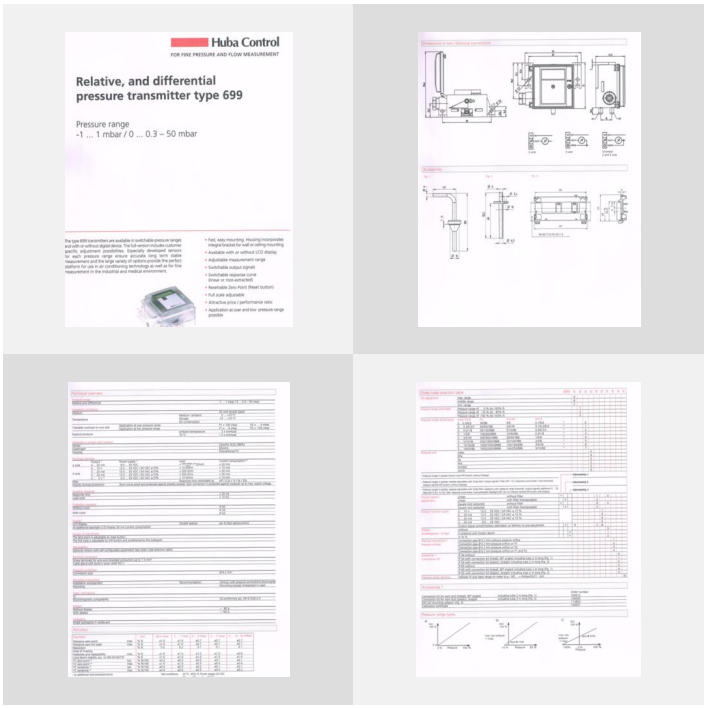




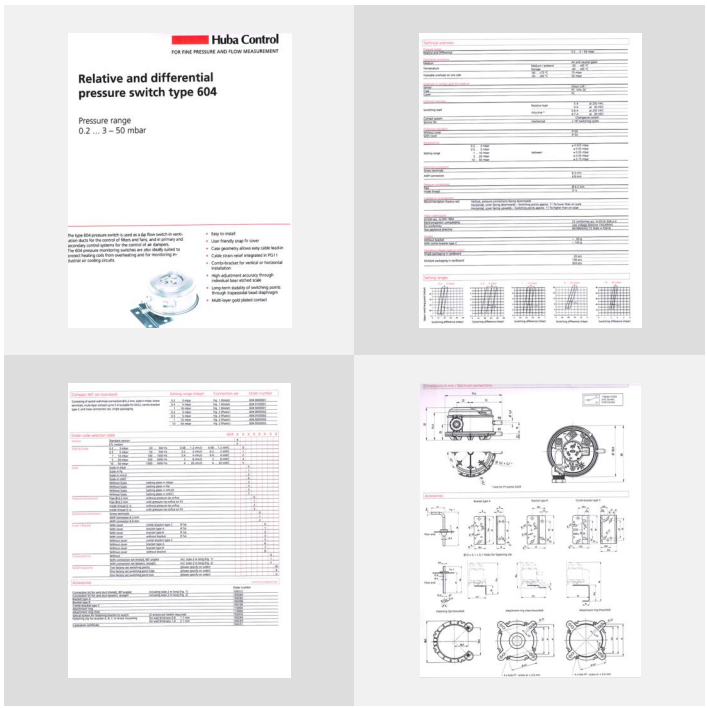


Pressure Switch

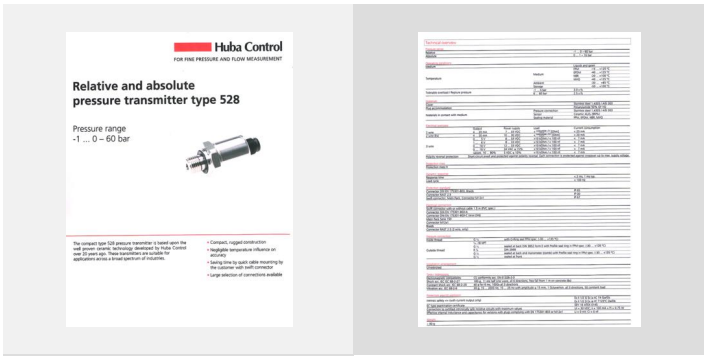
699 Differential Pressure Transmitter



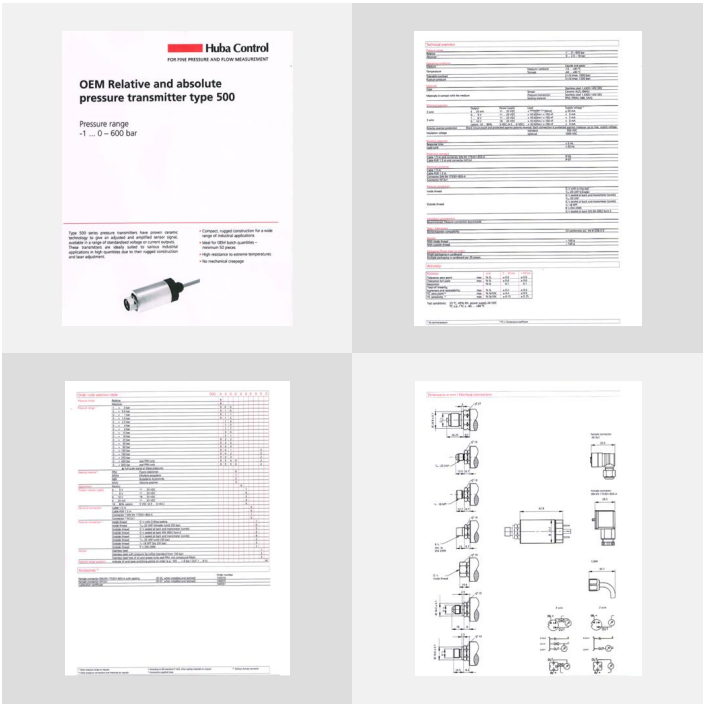
604 Differential Pressure Switch



528 Pressure Transmitter (HUBA)



500 Pressure Transmitter



Tachometer

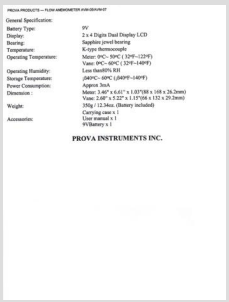
轉速計／照度計

8000

基本功能特色	非接觸式，轉速測量 簡單容易操作 利用反光貼紙精確測量轉動中之物
量測範圍	10.000至99999 RPM
準確度	0.04%+/-2 數字
解析度	0.001/0.01/0.1/1 RPM
尺寸	122*50*32.5毫米
配件	電池、使用手冊、反光貼紙、紙盒

8001

基本功能特色	接觸式，轉速測量 自動關機功能可解除設定 雙向驅動裝置，簡單易操作 針對被測量物的接頭做更換 測量中可按住按鍵鎖住讀值 轉速單位:轉速/分鐘、米/分、英呎/分、碼/分鐘
量測範圍	10.000至99999 轉動次數/分鐘 1.000至9999.9 米/分鐘 3.0000至30000 英呎/分鐘 1.0000至1000 碼/分鐘
準確度	0.04%+/-2 數字
解析度	0.001/0.01/0.1/1 RPM(依不同單位)
尺寸	145*50*32.5毫米
配件	電池、使用手冊、凹凸接頭、紙盒



PROVA PRODUCTS — FLOW ANEMOMETER AVM-05/AVM-07

General Specification:

Battery Type:	9V
Display:	2 x 4 Digits Dual Display LCD
Bearing:	Sapphire jewel bearing
Temperature:	K-type thermocouple
Operating Temperature:	Meter: 0ºC~ 50ºC (32ºF~122ºF) Vane: 0ºC~ 60ºC (32ºF~140ºF)
Operating Humidity:	Less than80% RH
Storage Temperature:	-20ºC~ 60ºC (-4ºF~140ºF)
Power Consumption:	Approx 3mA
Dimension :	Meter: 3.40" x 6.61" x 1.03"(86 x 168 x 26.2mm) Vane: 2.60" x 5.22" x 1.13"(66 x 132 x 29.2mm)
Weight:	350g / 12.34oz. (Battery included)
Accessories:	Carrying case x 1 User manual x 1 9V Battery x 1

PROVA INSTRUMENTS INC.

PROVA

Anemometer

MODEL AVM-01/AVM-03

- Sensitive for low/high air velocity
- Ergonomic Design
- 0.3~45m/s range
- M/S, KNOTS, ft/min, km/h, MPH

AVM-03

Specification for AVM-01/AVM-03 (23.0 +/- 5ºC)

	Measurement Range	Resolution	Accuracy
Air Velocity	M/S	0.3-45.0	0.1	+/- 3% or 0.1
	KNOTS	0.6-88.0	0.1	+/- 3% or 0.1
	ft/min	60-8800	10	+/- 3% or 10
	Km/hr	1.1-88.0	0.1	+/- 3% or 0.1
Optional Range	MPH	0.7-100.0	0.1	+/- 3% or 0.1
Temperature AVM-01	ºC	0-60	0.1	+/- 0.8
Temperature AVM-03	ºF	32-140	0.1	+/- 1.5

Operating Temperature: 10ºC-50ºC
Operating Humidity: 0%-80%
Display: Large 1 1/2 digit LCD
Power Source: Use of 9V Battery
Dimension: 1.5Mm x 90mm x 31.3mm
Weight: 350g
Accessory: Carrying Case, 9V Battery, Instruction Manual

PROVA INSTRUMENTS INC.

PROVA

MODEL AVM-05/AVM-07

- Flow(CFM,CMM)
- Instant, Ave, 2/3min Flow Measurement
- Velocity m/s, ft/min, knots,Km/hr, mph
- LCD Dual Display
- ºC/ºF

AVM-05/AVM-07

Specifications for AVM-05/AVM-07 (23ºC+/-5ºC)

Range of Wind Velocity: Auto Range

Units	Range	Resolution	Threshold	Accuracy
m/s	0.0~45.0	0.1	0.3	+/-3%+/-0.1dgts
ft/min	0.0~8800	0.1/1	60	+/-3%+/-10dgts
knots	0.0~88.0	0.1	0.6	+/-3%+/-0.1dgts
km/hr	0.0~148.0	0.1	1.0	+/-3%+/-0.1dgts
mph	0.0~100.0	0.1	0.7	+/-3%+/-0.1dgts

m/s : meter per second
knots : nautical miles per hour
mph : miles per hour
Range of Area (CMM) : 0.01~9999 m²
(CFM) : 0.01~9999 ft²

ft/min : feet per minute
Km/hr : Kilometers per hour
Range of Wind Flow(CMM) : 0.01~9999 x 100
(CFM) : 0.01~9999 x 100

Unit Conversion table:

Unit	Range	Resolution	Accuracy
ºC	0.0~45.0	0.2	+/-1.0ºC
ºF	32.0~113.0	0.56	+/-1.8ºF

Air Velocity Meter

Moisture Meter

Digital Thermocouple Dual K/R input

CE and RoHS approved

TK-62

Specification of TK-62

Input	Thermocouple K TYPE (CA)	Thermocouple R TYPE (PR)
Measuring Range	−200 ~ +1372°C (−328.0 ~ +2372°F)	-20 ~ +1772°C (-4 ~ +3221°F)
Resolution	0.1°C Between -199.9 to +199.9°C 1°C Above 200°C (Auto Ranging)	
Accuracy(at 25°C)	± 0.1% of rdg+0.2°C (Between -199.9 to +199.9°C), ± 0.1% of rdg+1°C (Above 200°C)	
Sampling rate	Approx. 0.4 sec/reading	Approx. 1 sec/reading
Temp. Compensation	Temp. Compensation of Cold Junction auto switchable depends on T/C types	
Display	Digital LCD display with multi-functions (back-light luminescence EL)	
Functions	K/R-Type switchable, Accurate auto temperature compensation, Auto/manual power off, Records, Max./Min values, Date hold, °C/°F switchable, Back-light luminescence, Battery symbol and low battery warning, RS-232 signal output.	
RS-232 output	0.1°C/18bit (-200 ~ +1800°C), Baud Rate=57,600	
Power supply	9V006P Battery × 1 About 160 hours for continuing use or DC-9V Adaptor (option)	
Dimension/Weight	140 x 56 x 32 mm (L x W x D), Approx.120g (without battery)	
Sensor connector	Miniature Connector for Thermocouple (Standard)	

* Above note of "Accuracy" and "Sampling rate" exclude the error of temperature probes

M700 Digital Multi-functions Moisture Meter

Measuring range (%WME	5.5~99.9% (Digital LCD Display)	
Accuracy (at 25°C)	±1% (difference on the testing materials)	
Resolution	0.1%	
Operating Range	-10~+50°C (with temp. Compensated)	
No. of wood calibration scales	4 (choose form "WOOD" key)	
Sampling rate	Approx. 1 reading /sec.	
Main Functions	Auto/Manual turn off, Hold functions, record maximum & minimum values, built-in calibrator, wood calibration scales low battery warning	
Power Supply	9V Battery 1pc or AC Adaptor (option)	
Battery Life	Approx. 180 hours (continuously)	
Dimensions Meter	168×73×33mm (6.6×2.9×1.3 inch)	
Dimensions Probe	L:130 mm, cable 3 meter (For Type)	
Weight	Approx. 200g (7 fl oz) including battery	
Accessories	Pin-type moisture probe (No.7011) Protecting cap (No.7024R) Latching carrying case (No. 7150) Operation manual (With wood calibration scales)	

M700

M70-D

No. 7021

No. 7022

No. 7023

M70-D (Digital Moisture Meter)

Measuring Range	5.5~99.9% (LCD) %WME
Resolution	0.1%
Accuracy (at 25°C)	±1% (Wood scale)
Display	Digital dual LCD display with multi-functions indicator
Sampling Rate	0.3 seconds
Wood group scales	Select from 8 wood groups
Data memory	99 readings Record & Recall
Signal output	Analog (0.5~10.1Vdc@1%) (with 1kΩ)
Calibration	Built-in calibration adjustment
Functions	① Back-Light luminescence EL ② Data hold, records Max./Min. and Average values ③ Manual/automatic power off ④ Automatic temperature compensation ⑤ Battery symbol and low power warning indicator ⑥ Usable and changeable of minimum probe
Power supply	One 9V 6F22 battery About 210 hours for continuing use (none back light)
Dimensions	153×56×32mm (6.0" × 2.2" × 1.26")
Weight	150g (5.3oz) including battery
Basic Accessories	NO. 7021 ..... Pin type extension probe NO. 7024R ..... Protection case NO. 7019 EL ..... Replacement needles (150mm/2pcs) No. 7032 ..... Hand Lanyard Instruction manual (with wood calibration scales)

Option Accessories for M700

1. Roller Type Moisture Probe ..... No. 7012
2. Moisture Electrodes (pin) ..... No. 7019
3. Bolt of Electrodes ..... No. 7028
4. AC Adaptor ..... No. 7019

M70-L (Moisture Meter)

Measuring Range	5.5~99.9% (LCD) %WME
Accuracy (at 25°C)	±1% (Wood scale)
Indicator	High-res LED bargraph readout
Signification of color code	Green (~16%) Yellow Red (~25%)
Signal output	0~1.1Vdc (@1kΩ)
Calibration	Auto-temperature compensation Built-in calibration adjustment
Functions	① Audible alarm alerts for catching reading ② Audible and highlying for low battery warns ③ Auto-power off ④ Usable and changeable of minimum probes ⑤ CE and RoHS approved
Power supply	One 9V(006P) battery
Dimensions/Weight	152×56×32mm, weight:145g (including battery)
Accessories	No. 7048 ..... Protecting cap No. 7011 ..... Pin type extension probe No. 7019 EL ..... Electrodes (150mm/2pcs) No. 7032 ..... Hand Lanyard Instruction manual (With wood calibration table)

M70-L

Hand held Non Contact Thermometer

Hand held Thermometer

K/type Single / Dual Thermometer

K/J - TypeDual Input Thermometer
Model: 502 (Dual), 503 (Single)

K/J/T/E-Type Dual Input & Output Thermometer & Calibrator
Model: 513

Single/Dual Input RTD Thermometer

Model: 805
Model: 805U (USB+Adapter)
Model: 805W (Wireless)
Model: 805UW (USB+Adapter+Wireless)

Model: 804
Model: 804U (USB+Adapter)
Model: 804W (Wireless)
Model: 804UW (USB+Adapter+Wireless)

Features:

- USB Port provides excellent user interface (804U/804UW/805U/805UW)
- DC 12V adapter (804U/804UW/805U/805UW)
- Wireless two ways transmission (804U/804UW/805W/805UW)
- 305 series for Pt100 ohm single input & 804-series for Dual Pt100 input
- Pt3916/Pt3926/Pt3385 RTD standard
- °C/°F user-selective
- MAX/MIN with elapsed time, AVG, REL, REL RECALL, Hi RECALL, Lo RECALL, HOLD function
- TIME setting, REL setting
- Warning beeper with HiLo setting
- Resolution 0.1°C to 0.2°F
- According to temperature standard ITS-90

(804U/804UW/805U/805UW)
Accessories: USB cable
12VDC Adaptor (Option)

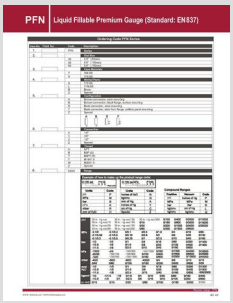
(804U/804UW/805W/805UW)
WIRELESS Features:
Frequency range: 910~920MHz
Low current consumption less than 1mA
The transmitting distance can reach 25M without magnetic interference.

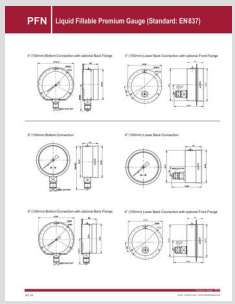
Data Logger & Infrared Thermometer

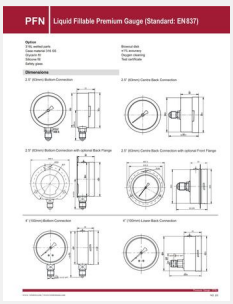
Hand held Meter (Smart Sensor)

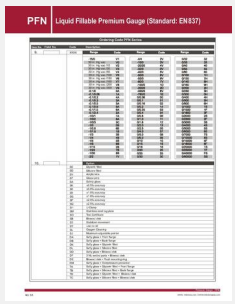
Calibrator (PROVA)

Pressure Gauge (Winters)



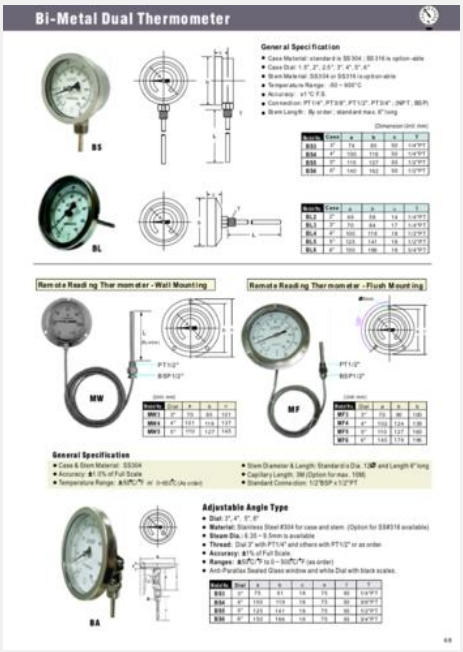


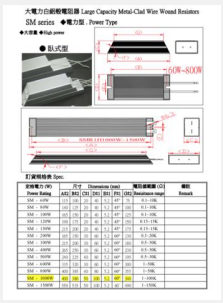


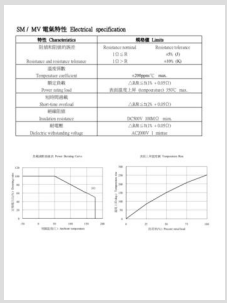


Remove Pressure Gauge (Rainbow)

Bi-Metal Temp.Gauge (SENSE)(KCl)

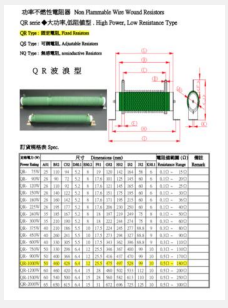


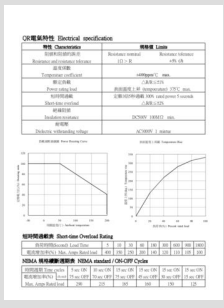


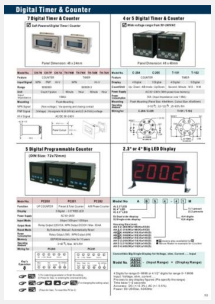


Large Capacity Metal -Clad Wire

Non Flammable Wire Wound Resistors

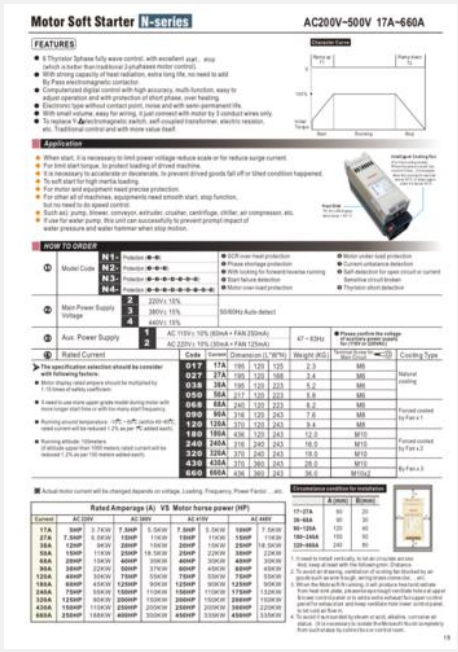






Timer/Counter (Golink)

N-SERIES MOTOR SOFT STARTER



Fast Blow Fuse (Bussmann)

G3PA Solid State Relay (Omron)

Solid State Relays

G3PA

Extremely Thin Relays Integrated with Heat Sinks

- Mounting pitches through-system design of 6 mm min.
- Mounting possible via screws or via DIN track.
- Models with Power Device Cartridges (Accepts G3PA-220B-VD and G3PA-230B-VD).
- Applicable with 3-phase loads.
- Models with Power Device Cartridges.
- Complies with VDE 0160 (Page-to-interface), with a dielectric strength of 4,000 VAC between I/O.
- Certified by UL, CSA, and VDE (reinforced insulation).

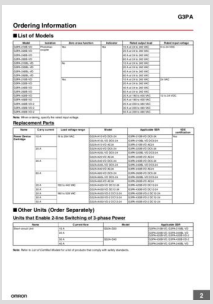
Refer to Safety Precautions for All Solid State Relays.

Model Number Structure

Model Number Legend

G3PA-

1. **Basic Model Name**
2. **Output Configuration**
3. **Rated Load Power Supply Voltage**
   - 240 VAC
   - 380 VAC
4. **Rated Load Current**
   - 020: 20 A
   - 030: 30 A
   - 040: 40 A
   - 050: 50 A
   - 060: 60 A
5. **Built-in Heat Sink**
   - B: Built-in fin type
6. **Zero Cross Function**
   - None: Without zero cross function
   - H: With zero cross function
7. **Functions**
   - None: Standard type
   - D: Certified by UL, CSA, and VDE
8. **Mounting Method**
   - None: Standard model
   - R: DIN track



Ordering Information

List of Models

Model	Output	Zero cross function	Indicator	Rated output load	Rated input voltage
G3PA-220B-VD	1 a (normally open)			0.5 A to 20 A, 100 VAC	5 to 24 VDC
G3PA-220B-2H				0.5 A to 20 A, 200 VAC	
G3PA-220B-VD				0.5 A to 20 A, 100 VAC	
G3PA-230B-2H				0.5 A to 30 A, 200 VAC	
G3PA-230B-VD				0.5 A to 30 A, 100 VAC	
G3PA-240B-2H				0.5 A to 40 A, 200 VAC	
G3PA-240B-VD				0.5 A to 40 A, 100 VAC	
G3PA-250B-2H				0.5 A to 50 A, 200 VAC	12 to 24 VDC
G3PA-250B-VD				0.5 A to 50 A, 100 VAC	
G3PA-260B-2H				0.5 A to 60 A, 200 VAC	
G3PA-260B-VD				0.5 A to 60 A, 100 VAC	

Note: When ordering, specify the rated input voltage.

Replacement Parts

Name	Carry current	Load voltage range	Model	Applicable SSR	Unit quantities
Power Device Cartridge	10 A	75 to 264 VAC	G32A-A10ELV-VD2-US	G3PA-210B-VD, G3PA-220B-VD	1
			G32A-A10EL-VD-SUS	G3PA-210B, -220B-VD	
	20 A		G32A-A20ELV-VD2-US	G3PA-220B-2H, -230B-2H	
			G32A-A20ELV-VD2	G3PA-220B, -230B-VD	
	40 A		G32A-A40ELV-VD2	G3PA-240B-2H, -250B-2H	
			G32A-A40ELV-VD	G3PA-240B, -250B-VD	
	50 A		G32A-A50ELV-VD2	G3PA-260B-2H	
			G32A-A50ELV-VD	G3PA-260B-VD	
	75 A	150 to 440 VAC	G32A-A75ELV-VD-SUS	G3PA-275B-VD	
	100 A		G32A-A100ELV-VD-SUS	G3PA-290B-VD	
	150 A		G32A-A150ELV-VD-SUS	G3PA-2150B-VD	
	200 A		G32A-A200ELV-VD-SUS	G3PA-2200B-VD	

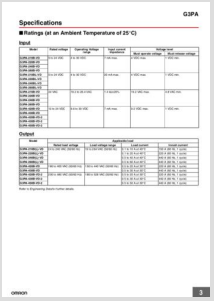
Note: When ordering, specify the rated input voltage.

Other Units (Order Separately)

Units that Enable 2-line Switching of 3-phase Power

Name	Connection	Model	Applicable SSR
Short-circuit plug	10 A	Socket type	G3PA-210B-VD, G3PA-220B-VD
	20 A		G3PA-220B-2H, G32A-A20EL-VD
	30 A	Socket type	G3PA-230B-2H, G3PA-230B-VD
	40 A		G3PA-240B-2H, G3PA-240B-VD

Note: Refer to List of Units Models for a list of products that comply with safety standards.



Specifications

Ratings (at an Ambient Temperature of 25°C)

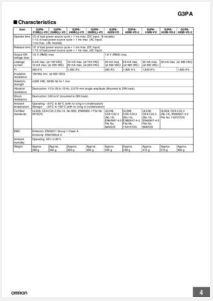
Input

Model	Rated voltage	Operating voltage range	Input current (reference value)	Voltage level	
				ON (U) and OFF voltage	OFF (release voltage)
G3PA-210B-VD	24 to 240 VAC	75 to 264 VAC	100 mA	75 VAC max.	20 VAC min.
G3PA-220B-2H					
G3PA-220B-VD					
G3PA-230B-2H					
G3PA-230B-VD	24 to 240 VAC	75 to 264 VAC	200 mA max.	75 VAC max.	10 VAC min.
G3PA-240B-2H					
G3PA-240B-VD					
G3PA-250B-2H					
G3PA-250B-VD	24 to 240 VAC	75 to 264 VAC	1.00 A max.	75 VAC max.	10 VAC min.
G3PA-260B-2H					
G3PA-260B-VD					
G3PA-275B-VD	100 to 240 VAC	75 to 264 VAC	1.00 A max.	75 VAC max.	10 VAC min.
G3PA-290B-VD					
G3PA-2150B-VD					
G3PA-2200B-VD					

Output

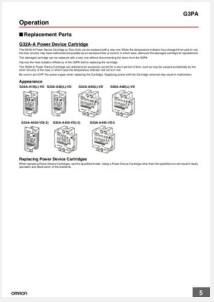
Model	Rated load voltage	Load voltage range	Applicable load	
			Load current	Inrush current
G3PA-210B(-2H)-VD	100 to 240 VAC (50/60 Hz)	75 to 264 VAC (50/60 Hz)	0.5 to 10 A (at 40°C)	120 A (60 Hz, 1 cycle)
G3PA-220B(-2H)-VD			0.1 to 20 A (at 40°C)	240 A (60 Hz, 1 cycle)
G3PA-230B(-2H)-VD			0.1 to 30 A (at 40°C)	300 A (60 Hz, 1 cycle)
G3PA-240B(-2H)-VD			0.1 to 40 A (at 40°C)	400 A (60 Hz, 1 cycle)
G3PA-250B-2H	200 to 480 VAC (50/60 Hz)	150 to 440 VAC (50/60 Hz)	0.1 to 50 A (at 40°C)	500 A (60 Hz, 1 cycle)
G3PA-250B-VD			0.1 to 50 A (at 40°C)	600 A (60 Hz, 1 cycle)
G3PA-260B-2H	200 to 480 VAC (50/60 Hz)	150 to 440 VAC (50/60 Hz)	0.1 to 60 A (at 40°C)	600 A (60 Hz, 1 cycle)
G3PA-260B-VD			0.1 to 60 A (at 40°C)	720 A (60 Hz, 1 cycle)
G3PA-290B-VD			0.1 to 90 A (at 40°C)	900 A (60 Hz, 1 cycle)
G3PA-2150B-VD			0.1 to 150 A (at 40°C)	1,800 A (60 Hz, 1 cycle)
G3PA-2200B-VD			0.1 to 200 A (at 40°C)	2,400 A (60 Hz, 1 cycle)

Refer to Engineering Data for further details.



Characteristics

Item	G3PA-210B-VD	G3PA-220B-2H	G3PA-220B-VD	G3PA-230B-2H	G3PA-230B-VD	G3PA-240B-2H	G3PA-240B-VD	G3PA-250B-2H	G3PA-250B-VD
Operate time	0.5 of rated power source cycle + 1 ms max. (8.7 msec)								
	0.5 of rated power source cycle + 1 ms max. (8.7 msec)								
Release time	0.5 of rated power source cycle + 1 ms max. (8.7 msec)								
Output ON voltage drop	1.6 V (RMS) max.				1.6 V (RMS) max.				
Leakage current	10 mA max. (at 100 VAC)	20 mA max. (at 200 VAC)	10 mA max. (at 100 VAC)	20 mA max. (at 200 VAC)	10 mA max. (at 100 VAC)	20 mA max. (at 200 VAC)	10 mA max. (at 100 VAC)	20 mA max. (at 200 VAC)	10 mA max. (at 100 VAC)
I²t	260 A²s	2,160 A²s		240 A²s	2,160 A²s		1,440 A²s		1,440 A²s
Insulation resistance	100 MΩ min. (at 500 VDC)								
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min								
Vibration resistance	Destruction: 10 to 55 Hz, 0.75-mm single amplitude (Mounted to DIN track)								
Shock resistance	Destruction: 1000 m/s² (mounted to DIN track)								
Ambient temperature	Operating: -30°C to 80°C (with no icing or condensation)								
Ambient humidity	Operating: 35% to 85% (with no condensation)								
Certification	EN60947-4-3 (Class I), UL 508, CSA22.2 No. 14	G3PA-220B-2H, G3PA-230B-2H, G3PA-240B-2H, G3PA-250B-2H, G3PA-260B-2H: File No. E41515	G3PA-220B-VD, G3PA-230B-VD, G3PA-240B-VD, G3PA-250B-VD, G3PA-260B-VD: File No. E41643	G3PA-220B-2H, G3PA-230B-2H, G3PA-240B-2H, G3PA-250B-2H, G3PA-260B-2H: File No. E41515	G3PA-220B-VD, G3PA-230B-VD, G3PA-240B-VD, G3PA-250B-VD, G3PA-260B-VD: File No. E41643				
EMC	EN61000-3-2/EN61000-3-3/EN61000-6-2/EN61000-6-4, EN61000-4-2 Operating: 8kV (Air discharge)								
Terminal screw	M3.5								
Weight	Approx. 240 g	Approx. 280 g	Approx. 280 g	Approx. 280 g	Approx. 280 g	Approx. 280 g	Approx. 280 g	Approx. 280 g	Approx. 280 g



Operation

Replacement Parts

G32A-A Power Device Cartridge

The Built-in Power Device Cartridge is fine-sized, and equipped with a new one. When the temperature indicator has changed from pink to red, the fan should be replaced. Replacing the Cartridge is convenient because it is not necessary to remove the wiring. Remove the damaged cartridge and replace with a new one.

You can be sure to detect a failure as a result of the SSR before applying the voltage.

Be sure to turn OFF the power supply when replacing the Cartridge. Supplying power with the Cartridge removed may result in malfunction.

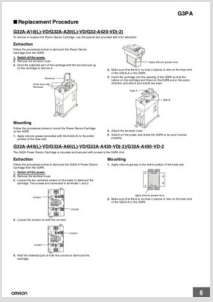
Appearance

G32A-A10ELV-VD2 G32A-A20ELV-VD2 G32A-A40ELV-VD2 G32A-A50ELV-VD2

G32A-A40ELV-VD G32A-A50ELV-VD

Replacing Power Device Cartridges

When replacing Power Device Cartridges, use the appropriate model. Using a Power Device Cartridge other than the specified one will result in faulty operation and deterioration of the current life.



Replacement Procedure

G32A-A10ELV-VD/G32A-A20ELV-VD/G32-A40D-VD(-2)

To remove or replace the Power Device Cartridge, use the procedure that corresponds with (1) operation.

Extraction

Follow the procedure below to dismount the Power Device Cartridge from the G3PA.

1. Switch off the power.
2. Open the terminal cover of the cartridge with the slot and pull up on the cartridge to remove it.

3. Make sure that the fin is not in contact at all with on the main unit of the G3PA and then pull it out.
4. Insert the cartridge into the opening of the G3PA so that the cartridge's terminal block and the G3PA's terminal block are aligned and push it all the way in.

Mounting

Follow the procedure below to mount the Power Device Cartridge to the G3PA.

5. Make sure the opening provided with the G3PA is in the same direction as the slot and push in.
6. Attach the terminal cover.
7. Insert the fin into the case and secure the G3PA to be sure it works properly.

G32A-A40ELV-VD/G32A-A60ELV-VD/G32A-A40D-VD/G32A-A50D-VD-2

The A50D Power Device Cartridge is mounted at a bound with screws to the G3PA (fin).

Extraction

Follow the procedure below to dismount the Power Device Cartridge from the G3PA.

1. Switch off the power.
2. Remove the terminal cover.
3. Loosen the two stationary screws on the sides to detach the cartridge. Please be careful not to lose the mounting screws.

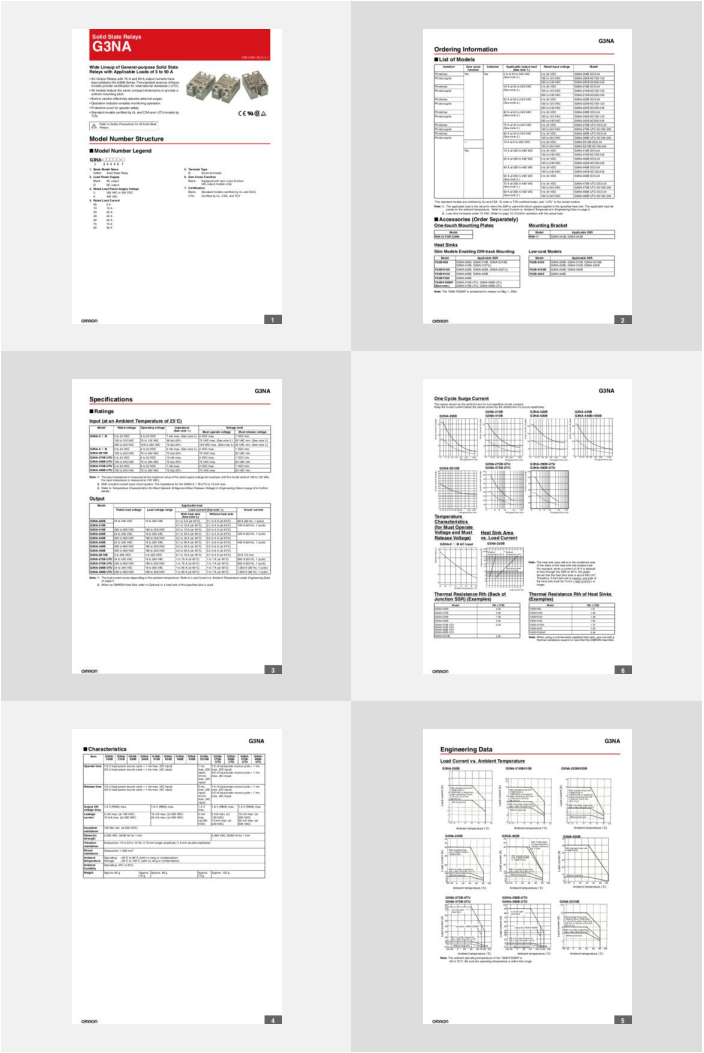
4. Loosen the screws on the cartridge.

5. Hold the bottom part of the fin and pull to dismount the cartridge.

Mounting

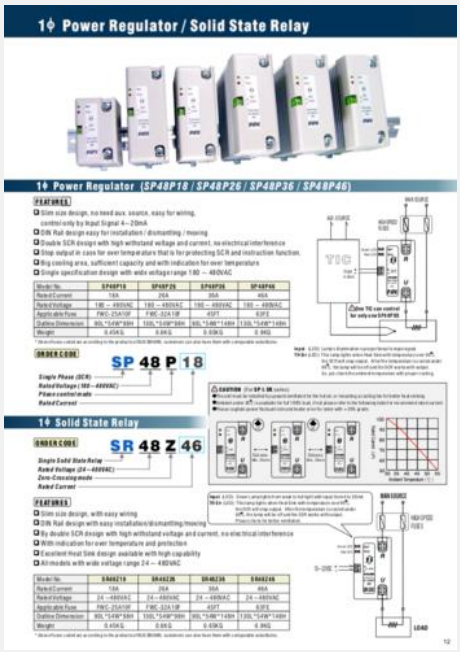
Follow the procedure below to mount the Power Device Cartridge to the G3PA.

6. Apply silicone grease to the entire surface of the heat sink.
7. Make sure that the fin is not in contact at all with on the main unit of the G3PA and then pull it out.

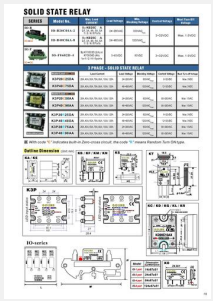


G3NA Solid State Relay (Omron)

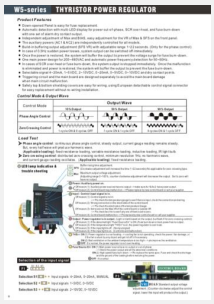
Slim 1 Phase SCR & SSR (Golink)

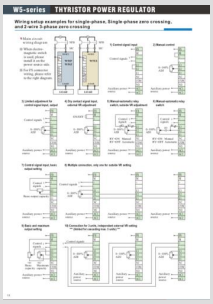


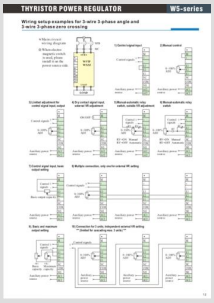
Solid State Relay & Accessories (Golink)

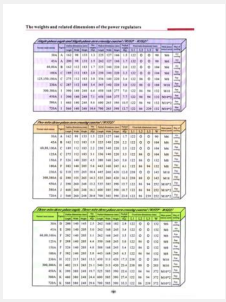


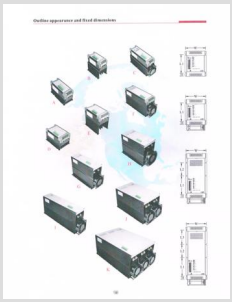
W5-Series SCR Power Regulator (Golink)



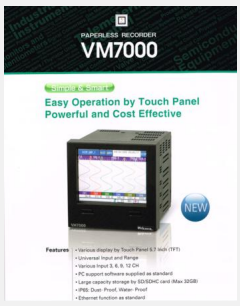


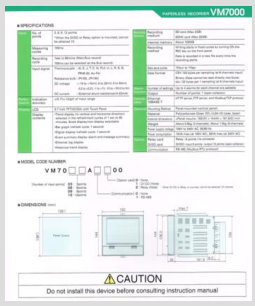






VM7000 Paperless Recoder (OHKURA)





PHF Paperless Recoder (Fuji)_4A

Instruction Manual

PAPERLESS RECORDER

TYPE: PHF

Fuji Electric Co.,Ltd. INP-TN1PHF-E

1. INTRODUCTION

We thank you for purchasing Fuji Paperless Recorder PHF.
This instruction manual describes installation, operation, and maintenance of Paperless Recorder. Read this manual carefully before use.

1.1 Paperless recorder

(1) This recorder displays measured data in real time on the liquid crystal display. It is a paperless type that is also capable of saving the measured data to a compact flash card.
(2) It accepts various input signals for the inputs (pre-set) as thermocouple, resistance bulb, and DC voltage (or current).
(3) It allows the measured data saved to the compact flash card to be displayed on the display unit. Use of the support software attached to the recorder allows the saved data to be displayed on a personal computer.

1.2 Product check

Upon receiving the recorder unit, check the appearance for damage, and if the correct quantity of the accessories are supplied.

Check on accessories
The recorder comes with the accessories shown in Fig. 1.1. Check that they are all present.

Fig. 1.1 Accessories

	Product name	Quantity
(1)	Panel-mounting bracket	4
(2)	CD-ROM (PC support software instruction manual)	1
(3)	Power supply noise filter	1

2. NAMES AND FUNCTIONS OF PARTS

2.1 Names and functions of parts

(1) Display unit
Allows the Real time trend screen, Bar Graph Display screen, Digital Display screen, Historical trend screen and other various Parameter Set screens to be displayed.
(2) Power switch
Used to switch the power ON or OFF.
(3) Memory card slot
Used for inserting the memory card
(4) Memory card ejection button
To remove the memory card from the slot, press this button.

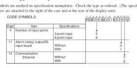
CAUTION
1) Do not remove the memory card from the slot while recording is in progress (while the display status is displayed) or during switching with a (Steps 9.2 - 2) stop recording and switching before removing the memory card. Otherwise, the data cannot be recorded correctly or the previous may be damaged. If the memory card is removed and inserted again while recording or resulting is in progress, the recorder will stop.
2) While the compact flash of the paperless recorder is accessed by FTP communication, do not take out the compact flash.
When you want to take out the FTP server function is used, enable access to this compact flash in the "Memory card abscat" screen, before taking out the compact flash.

(5) Connector for parameter loader
When changing parameters by using a loader, connect the exclusive cable (optional) cable.
(6) Function keyboard
Used for operation, or setting and verifying such parameters.

1.3 Check on type and specification

Code symbols are marked on specification nameplates. Check the type as ordered. (The specification nameplates are attached to the right of the case and at the rear of the display unit).

CODE SYMBOLS



Digit	Item	Code	Specifications	
1	Number of input points	1	6 points	6
		2	12 points	12
7	Alarm (relay) output/DI input board	1	6 points input/6 points output	6
		2	6 points input/6 points output	6
		3	Without	0
8	Communication/ Ethernet	1	With	1
		2	Without	0

1.4 Handling memory card (Compact Flash) – Cautions on handling

(1) Use a Compact Flash (sold separately) that we warrant its performance.
Use of a commercially available Compact Flash may cause failure.

CAUTION
1) When formatting the memory card, use a personal computer. (Refer to 14.3) Do not use FORMAT command.
2) The memory card should be inserted in the proper direction and level securely in the slot.
3) Shut it turn OFF the power or remove the card from the slot while data is being written in or read from the card, or recorded data may be damaged or lost.
4) The recorded data stored in the memory card should be backed up, if necessary.
5) Using CF card adapter (as sold), maximum capacity is up to 2GB only. If a CF card with a larger capacity than 2GB is used, it will not be recognized. When formatting CF card by the adapter, you may find a complaint formatted on Windows, but PHF might not read the card.
6) Do not use the CF card formatted by Windows. If the following phenomena take place, the card must have come to the end of its service life. Replace the card in such cases.
• The number of recording files is found to be longer than expected even though power failure did not occur or recording was not interrupted.
• Recording is not performed normally although the card is set in the server.
7) If you insert a large capacity Compact Flash, the recorder's access may stop about 3 seconds. Recording is still performed normally during this period.

(2) Compact flash to the capacity range from 8MB to 2GB can be used.
Refer to the following tables for the storage capacity in the case of bi-channel recording (on condition that no events such as alarms or messages are occurring, and that windowing is stopped).
(The number of days required for 1-channel recording is approximately 1/4 times of those shown in the table.)

Compact flash size		64MB					
Display refresh cycle		1 sec	2 sec	5 sec	10 sec	20 sec	30 sec
Recordable capacity (days)	100% full	0.5 days	1 day	2 days	4 days	8 days	12 days
	Wrap by limit	0.5 days	1 day	2 days	4 days	8 days	12 days

Compact flash size		256MB				
Display refresh cycle		1 sec	2 sec	5 sec	10 sec	20 sec
Recordable capacity (days)	100% full	2 days	4 days	10 days	20 days	40 days
	Wrap by limit	2 days	4 days	10 days	20 days	40 days

Compact flash size		1GB				
Display refresh cycle		1 sec	2 sec	5 sec	10 sec	20 sec
Recordable capacity (days)	100% full	8 days	16 days	40 days	80 days	160 days
	Wrap by limit	8 days	16 days	40 days	80 days	160 days

Compact flash size		2GB				
Display refresh cycle		1 sec	2 sec	5 sec	10 sec	20 sec
Recordable capacity (days)	100% full	16 days	32 days	80 days	160 days	320 days
	Wrap by limit	16 days	32 days	80 days	160 days	320 days

Note: Refer to Ref. 9.1 "Basic Setting" for the selection of 100% or wrap format for data recording.

(3) Data write to the memory card is performed according to the following timing. If the power is OFF in the writing cycle, note that the data will not be recorded.

Display refresh cycle	1 sec to 1min	2 min	5 min	10 min	20 min	30 min
Write cycle	1 min	2 min	5 min	10 min	20 min	30 min

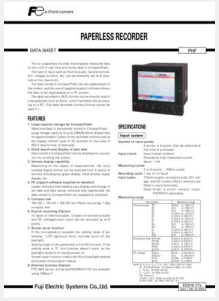
Display refresh cycle	1 hour	2 hours	4 hours	8 hours	12 hours	24 hours
Write cycle	1 hour	2 hours	4 hours	8 hours	12 hours	24 hours

(4) The data recorded in the compact flash can be regenerated on the PC by using the data viewer (contained in the attached CD-ROM).
If the data is recorded in ASCII format, it can be directly opened in a spreadsheet such as EXCEL, and about 4MB can be opened in the case of 2 point input, and about 16MB or larger in the case of 8 point input, and about 64MB or larger in the case of 32 point input.
In these cases, read in data with the data viewer (contained in the attached CD-ROM), and perform CSV conversion to divide the file, which allows the data to be read in.
The data recorded in binary format cannot be directly opened in a spreadsheet such as EXCEL, but can be read in by the data viewer.
Note: 1) Be careful not to remove the case of the exchange-use CF card in card. About it is not free 16MB if another.)
2) Be careful not to exceeding the maximum 2048M or more, a run file is created automatically to continue recording.

(5) Removing memory card
By prohibiting the writing on the memory card, the card can be taken out even if the recording or integration is not stopped. Refer to Item 9.2 "Removing memory card (compact flash)" for the procedure.

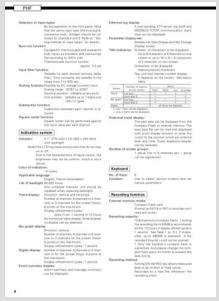
CAUTION Make sure to prohibit writing before removing the memory card or when using FTP server function.

(6) About communication function
By connecting the paperless recorder to Ethernet, the following function can be used (when "E" is selected for the -1Xh digit of the code symbols).
• FTP server function: Record files stored in the compact flash of the recorder can be downloaded from the PC on the network using Web browser (Microsoft Internet Explorer) or DOS prompt.
• Web function: Measured data and alarm occurrence/ event log on the network can be displayed using Web browser (Microsoft Internet Explorer).
• E-mail function: E-mails can be sent to specified addresses with the measurement of the recorder attached.
• MODBUS TCP/IP function: Settings of the recorder can be read or written from the PC on the network using MODBUS TCP/IP function.

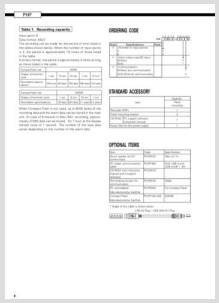

PAPERLESS RECORDER

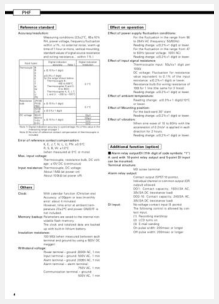
DATA SHEET PHF

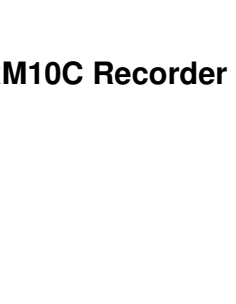
Fuji Electric Systems Co.,Ltd.



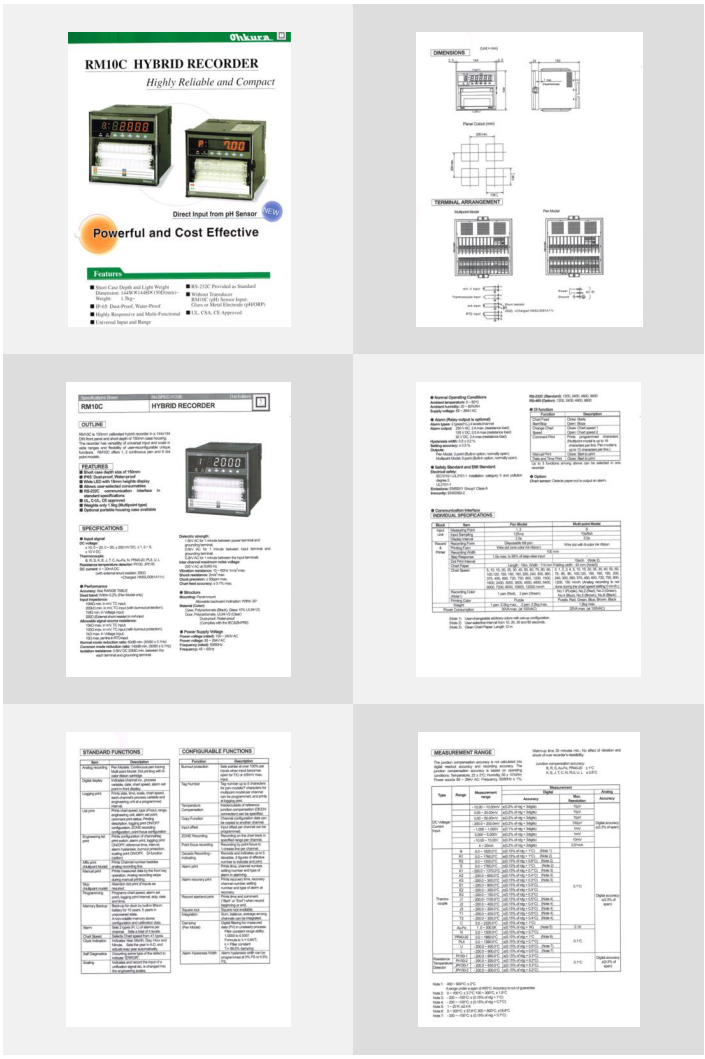
PHF Paperless Recoder (Fuji)



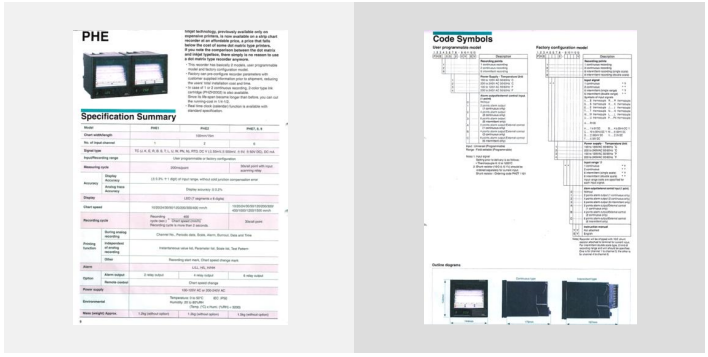




RM10C Recorder (Ohkura)



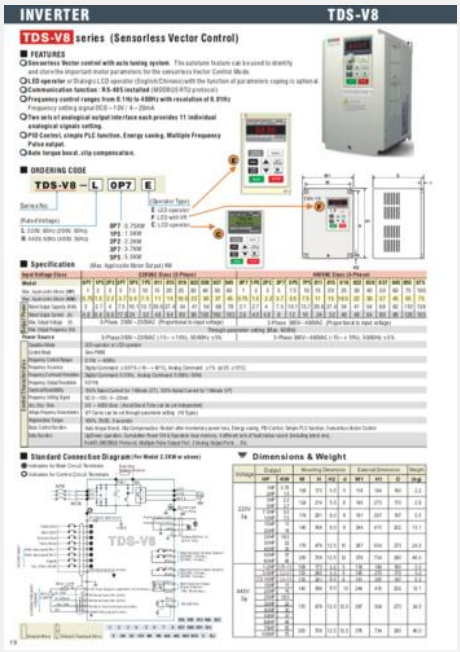
PHE Recorder (Fuji)



PHA , PHC Recorder (FUJI)

SHIHLIN INVERTER

TDS-V8 Frequency Inverter (Tek Drive)


INVERTER TDS-V8

TDS-V8 series (Sensorless Vector Control)

■ FEATURES

○Sensorless Vector control with auto tuning system. The autotune feature can be used to identify and store the important motor parameters for the sensorless Vector Control Mode.
○LED operator or Analog-LCD operator (English/Chinese) with the function of parameters coping is optional.
○Communication function : RS-485 installed (MODBUS-RTU protocol)
○Frequency control ranges from 0.1Hz to 400Hz with resolution of 0.01Hz
Frequency setting signal DC0 ~ 10V / 4 ~ 20mA
○Two sets of analogical output interface each provides 11 individual analogical signals setting.
○PID Control, simple PLC function, Energy saving, Multiple Frequency Pulse output.
○Auto torque boost , slip compensation.

■ ORDERING CODE

TDS-V8 – L 0P7 E

Series No.

(Rated Voltage)
L 220V, 60Hz (200V, 50Hz)
H 440V, 60Hz (400V, 50Hz)

0P7 : 0.75KW
1P5 : 1.5KW
2P2 : 2.2KW
3P7 : 3.7KW
5P5 : 5.5KW

(Operator Type)
E LED operator
F LED with VR
C LED operator

■ Specification

(Max. Applicable Motor Output) KW

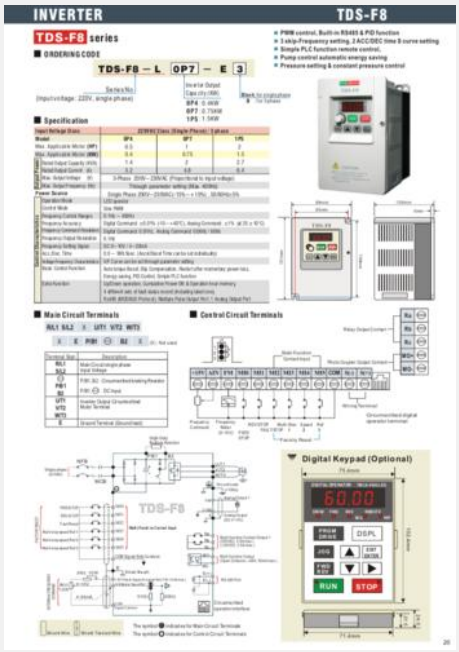
Input Voltage Class	220VAC Class (3-Phase)											440VAC Class (3-Phase)											
Model	0P7	1P5	2P2	3P7	5P5	7P5	011	015	018	022	030	037	045	0P7	1P5	2P2	3P7	5P5	011	015	018	022	030	037	045	055	075
Max. Applicable Motor (HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75
Max. Applicable Motor (KW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
Rated Output Capacity (KVA)	2	2.7	4	7.5	10	13.6	20.7	27	34	41	54	68	78	2.1	3.2	4	7.5	10.7	13.7	20.7	27	34	41	54	68	82	110	134
Rated Output Current (A)	5.5	8.0	9.6	17	25	32	48	64	80	96	130	160	183	2.5	4.2	5.3	9.0	13	16	24	32	40	48	64	80	96	128	165
Max. Output Voltage (V)	3-Phase 200V ~ 230VAC (Proportional to input voltage)											3-Phase 380V ~ 460VAC (Proportional to input voltage)												
Max. Output Frequency (Hz)	Through parameter setting (Max. 400Hz)																										
Power Source	3-Phase 200V ~ 230VAC (-15% ~ +10%), 50/60Hz ±5%											3-Phase 380V ~ 460VAC (-15% ~ +10%), 50/60Hz ±5%												
Control Mode	LED operator or LCD operator																										
Control Mode	Sine PWM																										
Frequency Control Range	0.1Hz ~ 400Hz																										
Frequency Accuracy	Digital Command: ±0.01% (-10 ~ +40°C), Analog Command: ±1% (at 25 ±10°C)																										
Frequency Command Resolution	Digital Command: 0.01Hz, Analog Command: 0.06Hz / 60Hz																										
Frequency Output Resolution	0.01Hz																										
Overload Capability	150% Rated Current for 1 Minute (CT), 120% Rated Current for 1 Minute (VT)																										
Frequency Setting Signal	DC 0 ~ 10V, 4 ~ 20mA																										
Acc./Dec. Time	0.1 ~ 6000 Sec. (Accel/Decel Time can be set independently)																										
Main Frequency Characteristics	V/F Curve can be set through parameter setting (10 Types)																										
Approximate Torque	150% (0.5Hz) (Sensorless)																										
Basic Control Function	Auto torque Boost, Slip Compensation, Restart after momentary power loss, Energy saving, PID Control, Simple PLC function, Frequency Jump Control																										
Data Function	Up/Down operation, Cumulative Power On & Operation hour memory, 3 different sets of fault status record (including time) etc.																										
Communication	RS485 (MODBUS Protocol), Multiple Point Control (Ref., Starting, Output Point ... Etc.)																										

■ Standard Connection Diagram (For Model 2.2KW or above)

● Indicates for Main Circuit Terminals
○ Indicates for Control Circuit Terminals

■ Dimensions & Weight

Voltage	Output		Mounting Dimension			External Dimension			Weight
	HP	KW	W	H	H2	d	W1	H1	D	(kg)
220V 3φ	1/2	0.75	108	173	5.3	5	118	184	163	2.2
	1	1.5	108	214	5.3	5	108	225	175	2.5
	2	2.2	176	201	6.0	6	191	207	167	3.5
	3	3.7	140	264	6.0	6	244	272	202	5.1
	5	5.5	176	476	12.5	6	207	504	273	14.5
	7.5	7.5	210	550	12.5	6	255	756	281	18.5
440V 3φ	1/2	0.75	108	173	5.3	5	118	184	163	2.2
	1	1.5	108	214	5.3	5	108	225	175	2.5
	2	2.2	176	201	6.0	6	191	207	167	3.5
	3	3.7	140	264	6.0	6	244	272	202	5.1
	5	5.5	176	476	12.5	6	207	504	273	14.5
	7.5	7.5	210	550	12.5	6.5	255	756	281	18.5



TDS-F8 Frequency Inverter (Tek Drive)

FRN_G1S Frequency Inverter (FUJI)

Instruction Manual

High Performance, Multifunction Inverter

FRENIC-MEGA

⚠CAUTION

Read this instruction manual before installing or operating the inverter.
- This product is designed to drive a three-phase induction motor. Read through this instruction manual and be familiar with the inverter before using it.
- Improper handling might result in incorrect operation, a short life, or even a failure of this product as well as the motor.
- Deliver this manual to the end user of this product. Keep this manual in a safe place until this product is discarded.
- For how to use an optional device, refer to the instruction and installation manuals for that optional device.

Fuji Electric Systems Co., Ltd. INR-SI47-1320-E

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Preface

Thank you for purchasing our FRENIC-MEGA series of inverters.
This product is designed to drive a three-phase induction motor. Read through this instruction manual and be familiar with the inverter before using it.
Improper handling might result in incorrect operation, a short life, or even a failure of this product as well as the motor.

This instruction manual has been prepared for the inverter versions in the destination(s) listed in Table 1 of Chapter 1, Section 1.1.1 (■: Yes, □: No). For the differences of the specifications between the versions, refer to Chapter 1, Section 1.1.1.

Refer to the table below for the manuals relevant to the FRENIC-MEGA. Read them in conjunction with this manual as necessary.

- FRENIC-MEGA User's Manual
- RS-485 Communication User's Manual

Note that specifications are subject to change without notice. Be sure to obtain the latest editions for use.

■ Safety precautions

Read this manual thoroughly before proceeding with installation, connection (wiring), operation, or maintenance and inspection of the inverter. Ensure you have sound knowledge of the device and all safety information and precautions before proceeding to operate the inverter.

In this manual, safety precautions are classified into the following two categories according to their severity.

⚠WARNING	Failure to heed the information indicated by this symbol may lead to dangerous conditions, possibly resulting in death or serious bodily injuries.
⚠CAUTION	Failure to heed the information indicated by this symbol may lead to dangerous conditions, possibly resulting in minor to medium bodily injuries and/or physical damage.

Failure to heed the information contained under the CAUTION title can also result in serious consequences. These safety precautions are of utmost importance and must be observed at all times.

Application

⚠WARNING

- The FRENIC-MEGA is designed to drive a three-phase induction motor. Do not use it for single-phase motors or for other purposes.
  Fire or accident could occur.
- The FRENIC-MEGA may not be used for a life-support system or other purposes directly related to the human safety.
- Though the FRENIC-MEGA is manufactured under strict quality control, install safety devices for applications where serious accidents or property damages are foreseen to occur in the event it should fail.
  An accident could occur.

Installation

⚠WARNING

- Install the inverter on a fire-resistant material. Direct or nearby installation to flammable material may cause a fire.
  Otherwise, a fire could occur.
- Do not place flammable object nearby.
  Doing so could cause fire.
- Provide an enclosure when using the inverter in a panel. Since foreign objects inside the panel may cause a fault or damage, or be the cause of a fire, install the inverter in a panel designed to prevent human contact with live parts.
  Otherwise, electric shock or injuries could occur.

⚠CAUTION

- Do not transport the inverter by its front cover during transportation.
  Doing so could cause a drop of the inverter and injuries.
- Prevent fiber particles, dust, metallic chips, or other foreign materials from getting into the inverter or from accumulating on the heatsink.
  Otherwise, a fire could occur.
- Do not install or operate an inverter that is damaged or lacking parts.
  Doing so could cause fire, an accident or injuries.

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Wiring

⚠WARNING

- When no-phase-failure control is enabled, check that no wiring is left disconnected. Otherwise, the inverter may be damaged.
  Otherwise, a fire could occur.
- When wiring the inverter to the power source, insert a recommended molded case circuit breaker (MCCB) or residual-current-operated protective device (RCD/ELCB) (with overcurrent protection) for each inverter in order to shut off a current in the path of each part of power lines in accident. Use the recommended devices within the recommended current ratings.
  Do not exceed the specifications.
  Failure to comply with specified terms.
  Otherwise, a fire could occur.
- Be sure to install a magnetic contactor (MC) for each inverter to isolate it from the power supply, manufacturer recommended molded case circuit breaker (MCCB) and 0.75 times or more the inverter rated capacity.
  Otherwise, a fire could occur.
- Ground the inverter in accordance with the national or local electric code.
- Be sure to ground the inverter's grounding terminals G.
  Otherwise, there is a risk of electric shock or fire.
- Qualified electricians should carry out wiring.
- Be sure to perform wiring after turning the power OFF.
  Otherwise, there is a risk of electric shock.
- Be sure to perform wiring after installing the inverter unit.
  Otherwise, an electric shock or injuries could occur.
- Before wiring, turn OFF the power and wait for at least the time specified below after the lamps on the front panel of the inverter have all gone out. Then confirm that the voltage between the main circuit DC terminals P(+) and N(-) is below the safety level (+25 VDC or lower) using a multimeter or by similar means.
  Failure to comply may result in electric shock.

Inverter capacity	Time to wait after power-off
0.4 kW to 22 kW	5 min.
30 kW to 75 kW	10 min.
90 kW to 160 kW	15 min.

- Before changing the wiring or checking the signals on the circuit board, turn OFF the power and wait at least five minutes for inverters with a capacity of 22 kW or below, or at least ten minutes for inverters with a capacity of 30 kW or above. Then confirm that the LED monitor and the charge lamp have all been turned OFF. Moreover, confirm that the DC link bus voltage between the terminals P(+) and N(-) has dropped to the safety level (+25 VDC or lower) using a multimeter or by similar means.
  Otherwise, electric shock could occur.

⚠CAUTION

- The inverter, motor and wiring generate electric noise. Be careful about malfunction of the nearby sensors and devices. If the noise may cause malfunction, install noise filters.
  Otherwise an accident could occur.
- The leakage current of the EMC filter built in type of inverter is comparatively large. Be sure to perform protective grounding.
  Otherwise, an electric shock could occur.

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Operation

⚠WARNING

- Be sure to mount the front cover before turning the power ON. Do not remove the cover when the inverter power is ON.
  Otherwise, an electric shock could occur.
- Do not operate the inverter with wet hands.
  Doing so could cause electric shock.
- If the selection of function code has been selected, the inverter may automatically restart and drive the motor depending on the cause of the trip. Design the machinery or equipment so that human safety is ensured at the time of restarting.
  Otherwise, an accident could occur.
- If the stall prevention function (current limiter), automatic deceleration (anti-regenerative control), or overload prevention control is selected, the inverter may operate with acceleration or deceleration different from the commanded ones. Design the machine so that safety is ensured even in such cases.
- The [FWD], and the [REV] terminals on the inverter are factory-set to be active. To prevent unexpected motor operation, wire the control circuit so that opening the [FWD] or [REV] terminal will cause a trip. Setting the [STOP] key is disabled in the factory default setting. To enable the [STOP] key, set function code H96 to 1 or 3.
  Assigning the coast-to-stop command (BX) to one of [X1] to [X9] terminals is also recommended. In this case, assigning the same command also to the digital input interface card you use is recommended.
- If you enable the "Restart mode after momentary power failure" (Function code F14 = 1 or 3), then the inverter automatically restarts running the motor when the power is recovered.
  Design the machinery or equipment so that human safety is ensured after restarting.
- If the user configures the function code wrongly without completely understanding this Instruction Manual and the FRENIC-MEGA User's Manual, the motor may run at a speed higher than the maximum speed limit of the machine.
  An accident or injuries could occur.
- Even if the inverter has interrupted power to the motor, if the voltage is applied to the main circuit input terminals (L1/R, L2/S, and L3/T) or the auxiliary control power input terminals (R1, and R2), voltage will be output to inverter output terminals (U, V, and W).
- Even if the power is stopped for a [RST (Retaining of performance) restoration, voltage is output to inverter output terminals U, V, and W.
  Otherwise, electric shock could occur.
- The inverter can easily accept high-speed operation. When changing the speed setting, carefully check the specifications of motors or equipment beforehand.
  Otherwise, injuries could occur.

⚠CAUTION

- Do not touch the heat sink and braking resistor because they become very hot.
  Doing so could cause burns.
- The DC link bus capacitor of the inverter does not provide any braking mechanism.
  Injuries could occur.
- Ensure safety before modifying the function code settings.
  The inverter has functions which, if set incorrectly, might cause the motor to run suddenly (e.g. "Reset to a stop" (RST), and "Frequency change commands can be assigned to digital input terminals. Depending upon the acceleration or deceleration time or frequency command source, the motor may run suddenly. Be sure to check the function codes before running the motor.
- When the inverter is controlled with the digital input signals, switching can a frequency command source with the external signals (turning ON and OFF the [Hz2/Hz1] [HZ/PID], and [IVS] terms) or a multi-frequency and so on change (stage 1 to 15).
- Ensure safety before modifying commands (sign.) related functions (the settings [C] codes and related functions which are changed with [E] terminal commands [SS1], [SS2], [SS4], and [SS8]). Depending upon the machines, such modification or interference of the commands(the type may change the operation sequence or cause a sudden motor start or unexpected stop.
  An accident or injuries could occur.

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Maintenance and inspection, and parts replacement

⚠WARNING

- Before proceeding to the maintenance/inspection jobs, turn OFF the power and wait at least five minutes for inverters with a capacity of 22 kW or below, or at least ten minutes for inverters with a capacity of 30 kW or above. Then confirm that the LED monitor and the charge lamp have all been turned OFF. Moreover, confirm that the DC link bus voltage between the terminals P(+) and N(-) has dropped to the safety level (+25 VDC or lower).
  Otherwise, an electric shock could occur.
- Maintenance, inspection, and parts replacement should be made only by qualified persons.
- Take off the watch, rings and other metallic objects before starting work.
- Use insulated tools.
  Otherwise, an electric shock or injuries could occur.
- Never modify the inverter.
  Doing so could cause an electric shock or injuries.

Disposal

⚠CAUTION

- Treat the inverter as an industrial waste when disposing of it.
  Otherwise injuries could occur.

GENERAL PRECAUTIONS

Drawings in this manual may be illustrated without covers or safety shields to explain detailed parts. Restore the covers and shields in the original state and observe the instructions mentioned before starting operation.

Icons

The following icons are used throughout this manual.

Tip	This icon indicates information that, if ignored, can result in the inverter not operating to full efficiency as well as information concerning incorrect operations and settings which can result in accidents.
	This icon indicates information that can prove handy when performing certain settings or operations.
	This icon indicates a reference to more detailed information.

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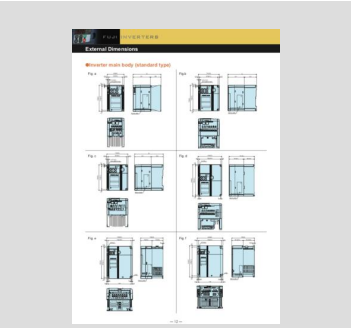
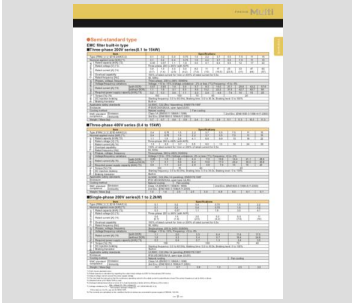
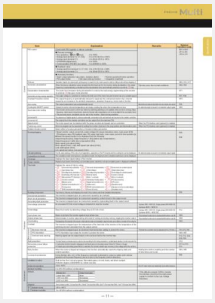
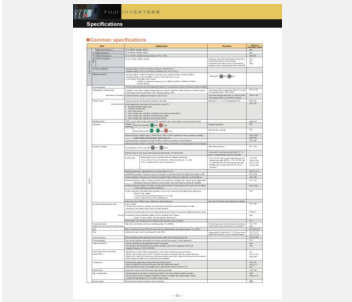
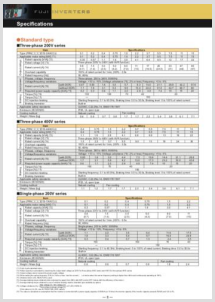


FRN_E1S Frequency Inverter (FUJI)









SD05 Integrated Signal Indicator

SD05

GOLINK

Integrated Signal Indicator

APPLICATIONS

Features

- SD05: 330° turnable, the direction of panel is changeable; good monitoring angle without blind corner.
- Programmable, display value can be set according to sensor's spec.
- Integrated display connected with 2-wire transmitter. Suitable for the on-site application.
- The power is from 2-wire signal loop, no extra power supply is required, easy to install.
- Programmable by pressing 2 buttons, easy to operate.
- High performance, good stability and functionality.

Applications

- With extensive applications as process monitoring in semiconductor industry, steel industry, chemical industry, environmental engineering, food processing, pharmaceutical industry, water plants, power plants, research and development, etc.

M12

DIN43650

SD 05 - 1 1 0 - H

Installation Method	Display	Input Signal	Power Supply	Connector
05 : Integrated type	1 : LED	1 : 4~20mA	0 : 2-wire loop power	H : DIN43650 M : M12

DIMENSION

DIN43650 Connector

M12 Connector

CONNECTION DIAGRAM

DIN43650 Connector

M12 Connector

TECHNICAL SHEET

INPUT

Input signal ..... 4~20 mA DC

..... eg. pressure / differential pressure / temperature

..... / flow / PH value / load cell, etc.

Parameter setting ..... programmable by pressing the button

OUTPUT

Display method ..... 4-digit LED (height of word: 9.2mm)

Display range ..... -1999 ~ +9999

Scale ..... decimal point: programmable

Display accuracy ..... 0.2 % F.S.

Voltage drop ..... 3.3 VDC

Overload current ..... 40mA DC

POWER SUPPLY

Power ..... 4~20mA, 2-wire loop power

Electrical connection ..... DIN 43650 plug / M12 connector

ELECTRICAL REGULATION

Electrical connector ..... DIN43650 PG

Protection degree ..... IP 65

Electrical protection ..... polarity protection

Environmental temperature ..... -20°C~70°C

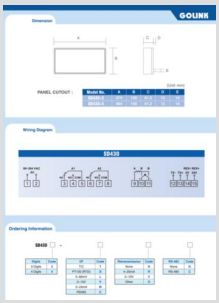
Rotating angle ..... DIN 43650: 330° / M12: 210°

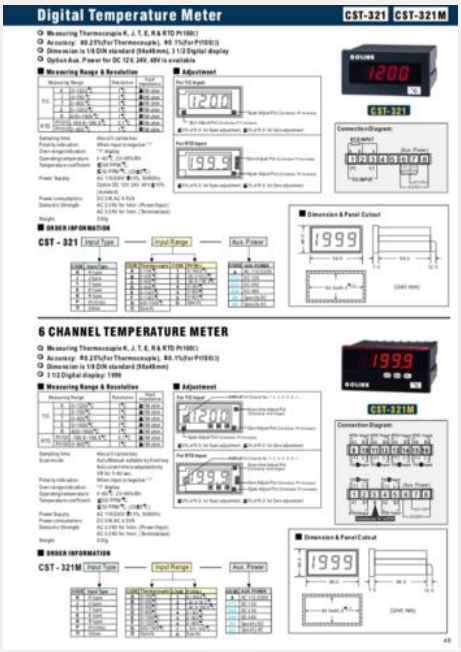
Body ..... ABS + PC

Weight ..... H: 125g / M: 127g

SM20 Line Speed Meter & Current Meter

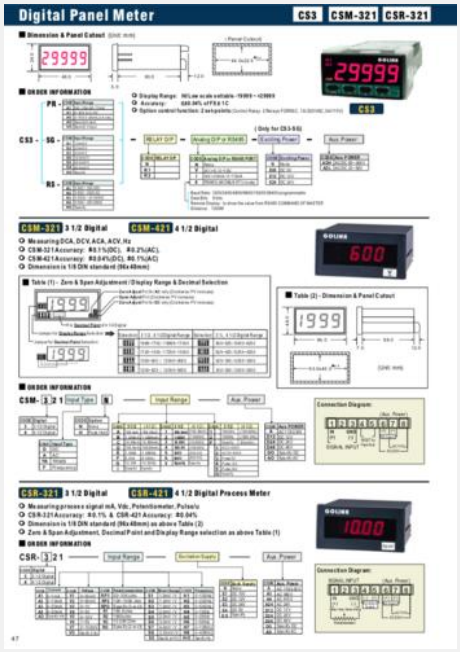
LED Big Display

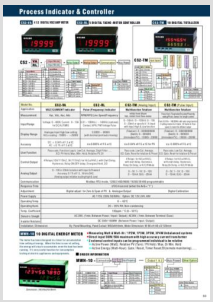




CST Digital Temperature Meter

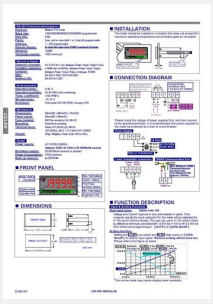
CS3, CSM & CSR Panel Meter

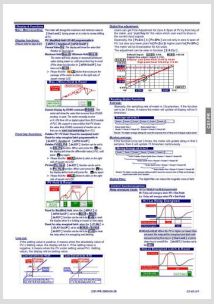


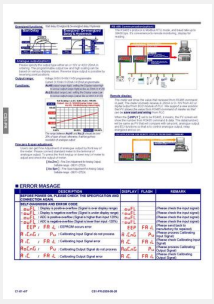


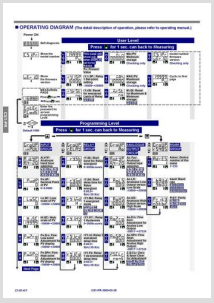
CS2 Process Panel Meter

CS1 Process Panel Meter



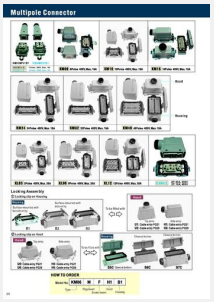


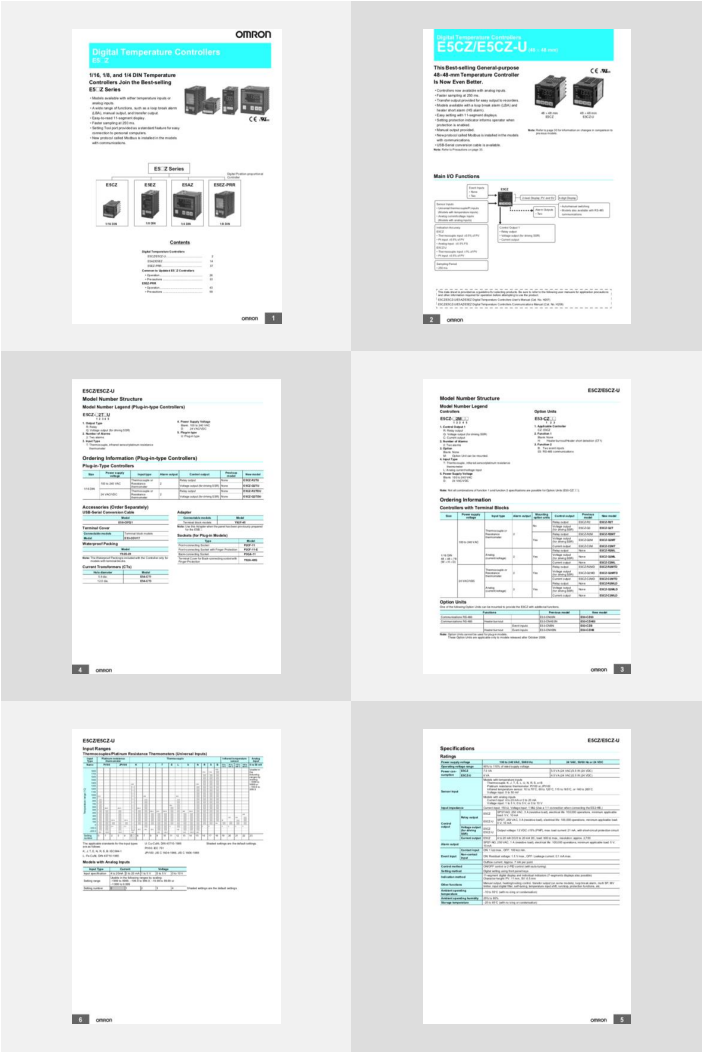




Design & Looping

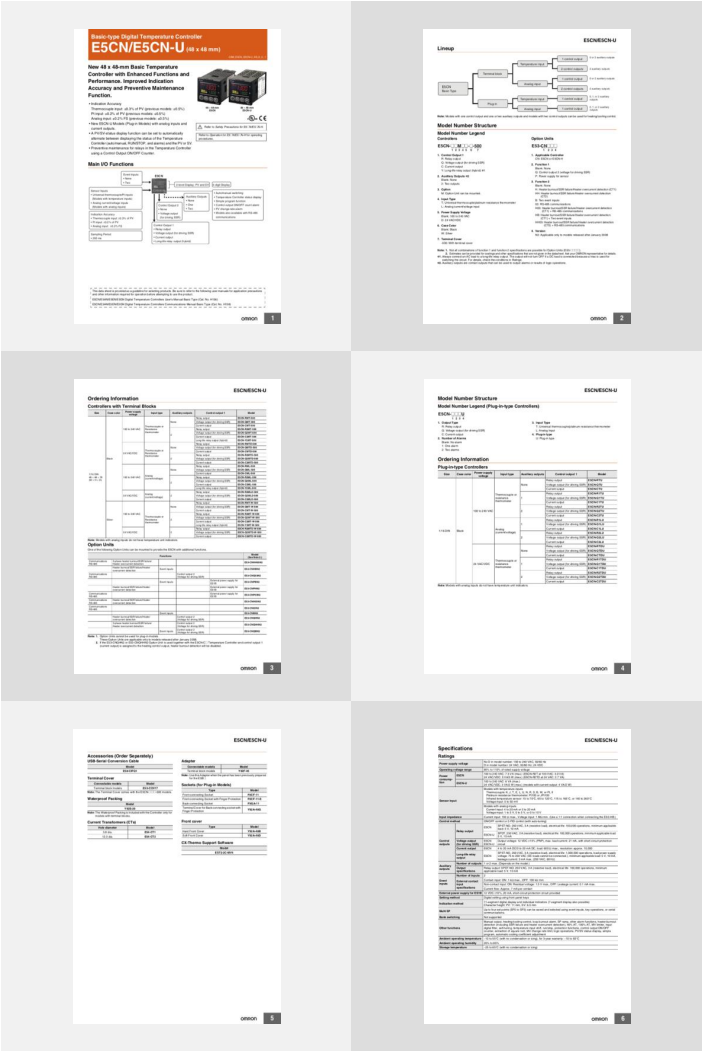
Multipole Connector





E5AZ, E5CZ & E5Ez Temperature Controller (Omron)

E5CN Temperature Controller (Omron)



E5CC/ E5EC Temperature Controller

KT Microprocessor Controller (Kyoto)

Microprocessor Controller

KT900 / KT800 / KT700 / KT600 / KT400 Series

Applicable for controlling Temperature, Humidity, Pressure, Flow....
Complete sizes for 1/4 DIN, 1/8 DIN, 1/16 DIN, 68mm and Easy for Mounting.

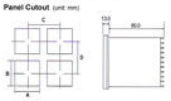
Features

- Auto/Manual operation and Fuzzy/PID control
- EEPROM Non-volatile memory
- Self-diagnosis function and data lock function
- Power Range AC265V
- Duplex Output Mode (Heat/Cool), Auxiliary Output PV, SV retransmission
- Implement Zero/Phase control by trig SCR module directly

SPECIFICATION

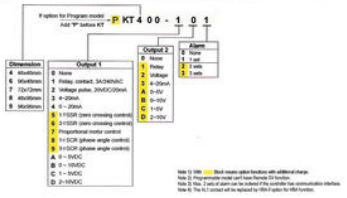
Display accuracy	Within 0.2% of displayed value + 1 digit	
Sampling Time	250ms	
Output Mode	Relay Output	Contact, SPDT, 3A/240Vac
	Voltage Output	Voltage Pulse, 20VDC/20mA
	Linear Output	4~20mA, 0~5V, 0~10V, 1~5V, 2~10V
	Motor Control Output	Proportional motor 3 wired open loop circuit control
	Others	1=SSR, 3=SSR, 1=SCR, 3Y SCR
General Specification	Power Consumption	4VA
	Ambient Temperature	0°C ~ 50°C
	Ambient Humidity	50~85% RH (Non-dew)

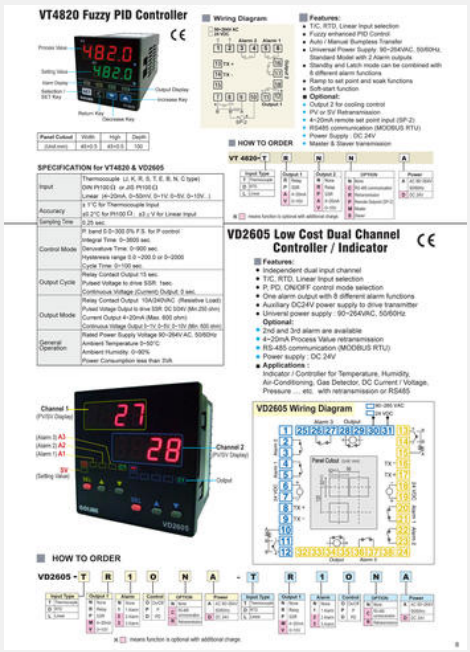
Panel Cutout (unit: mm)



Model No.	SIZE	Outline (W x H)	A	B	C	D
KT900	1/4 DIN	96.0x96.0	90.5+0.5	90.5+0.5	111	110
KT800	1/8 DIN	80.0x80.0	44.5+0.5	90.5+0.5	65	110
KT700	68x68mm	74.0x74.0	68.5+0.5	68.5+0.5	88	94
KT600	1/8 DIN	96.0x80.0	90.5+0.5	44.5+0.5	111	70
KT400	1/16 DIN	80.0x80.0	44.5+0.5	44.5+0.5	65	70

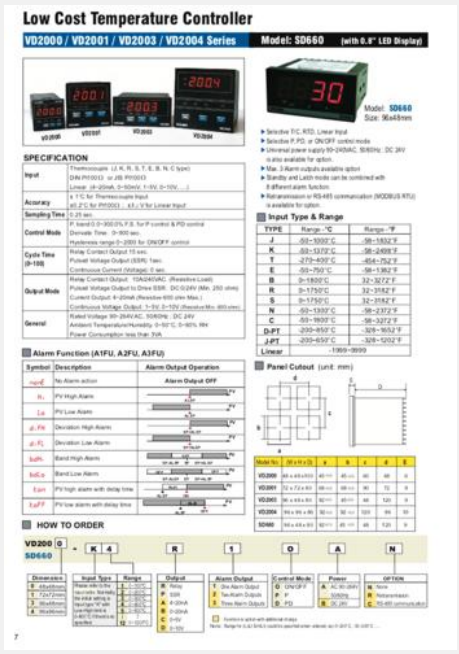
HOW TO ORDER





VT4826 & VD2605 Indicator/Controller

VD & SD660 Indicator/Controller



Low Cost Temperature Controller

VD2000 / VD2001 / VD2003 / VD2004 Series — **Model: SD660** (with 0.8" LED Display)

Model: SD660
Size: 96x48mm

- Selective T/C, RTD, Linear Input
- Selective P, PD, or ON/OFF control mode
- Universal power supply 90-240VAC, 50/60Hz; DC 24V is also available for option.
- Max. 3 Alarm outputs available option
- Standby and Latch mode can be combined with 8 different alarm function
- Retransmission or RS-485 communication (MODBUS RTU) is available for option

SPECIFICATION

Input	Thermocouple: (J, K, R, S, T, E, B, N, C type) DIN Pt100Ω or JIS Pt100Ω Linear: (4~20mA, 0~50mV, 1~5V, 0~10V, ...)
Accuracy	± 1°C for Thermocouple Input ±0.2°C for Pt100Ω ... ±3 / V for Linear Input
Sampling Time	0.25 sec
Control Mode	P, band:0.0~900.0% P.B. for P control & PD control Derivate Time: 0~900 sec. Hysteresis range:0~200 for ON/OFF control
Cycle Time (0~100)	Relay Contact Output:10 sec. Pulsed Voltage Output (SSR): 1sec. Continuous Current (Voltage): 0 sec.
Output Mode	Relay Contact Output: 10A/240VAC, (Resistive Load) Pulsed Voltage Output to Drive SSR: DC 0/24V (Min. 250 ohm) Current Output: 4~20mA (Resistive 600 ohm Max.) Continuous Voltage Output: 1~5V, 0~10V (Resistive Min. 600 ohm)
General	Rated Voltage:90~264VAC, 50/60Hz ; DC 24V Ambient Temperature/Humidity: 0~50°C, 0~90% RH Power Consumption: less than 7VA

Input Type & Range

TYPE	Range -°C	Range -°F
J	-50~1000°C	-58~1832°F
K	-50~1372°C	-58~2498°F
T	-270~400°C	-454~752°F
E	-50~750°C	-58~1382°F
B	0~1800°C	32~3272°F
R	0~1750°C	32~3182°F
S	0~1750°C	32~3182°F
N	-50~1300°C	-58~2372°F
C	-50~1900°C	-58~3272°F
D-PT	-200~650°C	-328~1652°F
J-PT	-200~650°C	-328~1202°F
Linear	-1999~9999	

Alarm Function (A1FU, A2FU, A3FU)

Symbol	Description	Alarm Output Operation
nonE	No Alarm action	Alarm Output OFF
H	PV High Alarm	
Lo	PV Low Alarm	
d.Hi	Deviation High Alarm	
d.Lo	Deviation Low Alarm	
bdH	Band High Alarm	
bdLo	Band Low Alarm	
tmr	PV high alarm with delay time	
tmrF	PV low alarm with delay time	

Panel Cutout (unit: mm)

Model No.	W x H x D	a	b	c	d	E
VD2000	48 x 48 x 100	46 +0.6	45 +0.6	90	46	9
VD2001	72 x 72 x 100	68 +0.7	68 +0.7	90	70	9
VD2003	96 x 48 x 100	92 +0.8	45 +0.6	90	120	9
VD2004	96 x 96 x 90	92 +0.8	92 +0.8	120	94	10
SD660	96 x 48 x 90	92 +0.8	45 +0.6	90	120	9

HOW TO ORDER

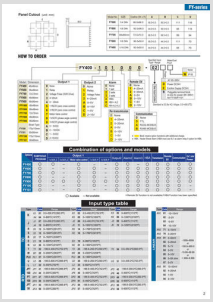
VD200 0 - K 4 R 1 0 A N
SD660

Dimension	Input Type	Range	Output	Alarm Output	Control Mode	Power	OPTION
0 48x48mm	Please refer to the input type "K" with low-high limit & 0.4V/1V selected as		K Relay	T One Alarm Output	0 ON/OFF	A AC 90~264V	N None
1 72x72mm	the initial setting in		P SSR	J Two Alarm Outputs	P P	50/60Hz	R Retransmission
3 96x48mm	input type "K" with		A 4~20mA	F Three Alarm Outputs	D PD	B DC 24V	C RS-485 communication
4 96x96mm	low-high limit &		B 0~20mA				
	0.4V/1V selected as		C 0~5V				
	specified.	12 0~1V(F)	D 0~10V				

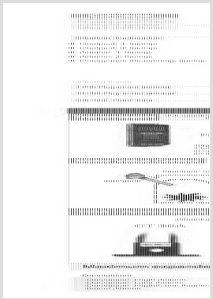
Some functions optional with additional charge.

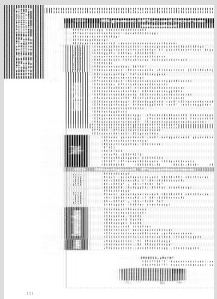
HR-50 & HR-80 Hot Runner Controller

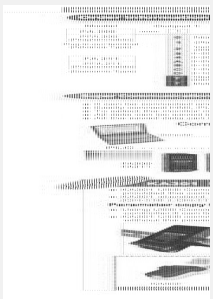
FY Microprocessor Controller



FA Din Rail Mount Controller







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