

03. INDUSTRIAL DRYING OVEN



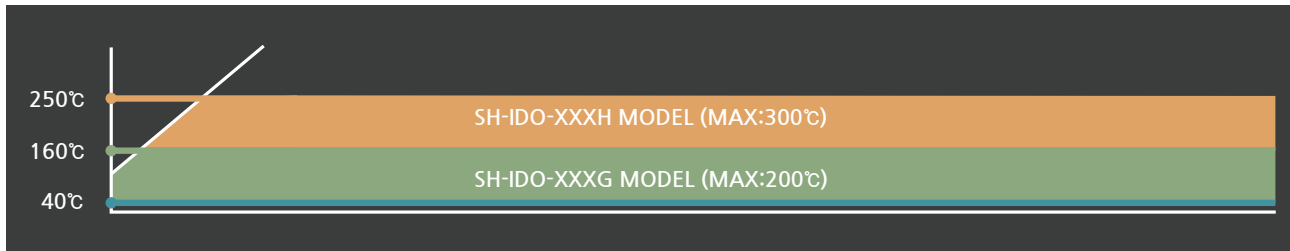
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INDUSTRIAL DRYING OVENS

We Offer

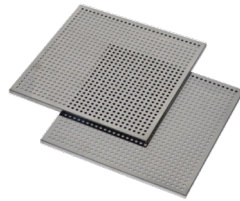
- Industrial Drying Oven
- 300°C Industrial Drying Oven

Selection guide



Ambient temperature is below 25°C, relative humidity is lower than 80%

Shelves' detail



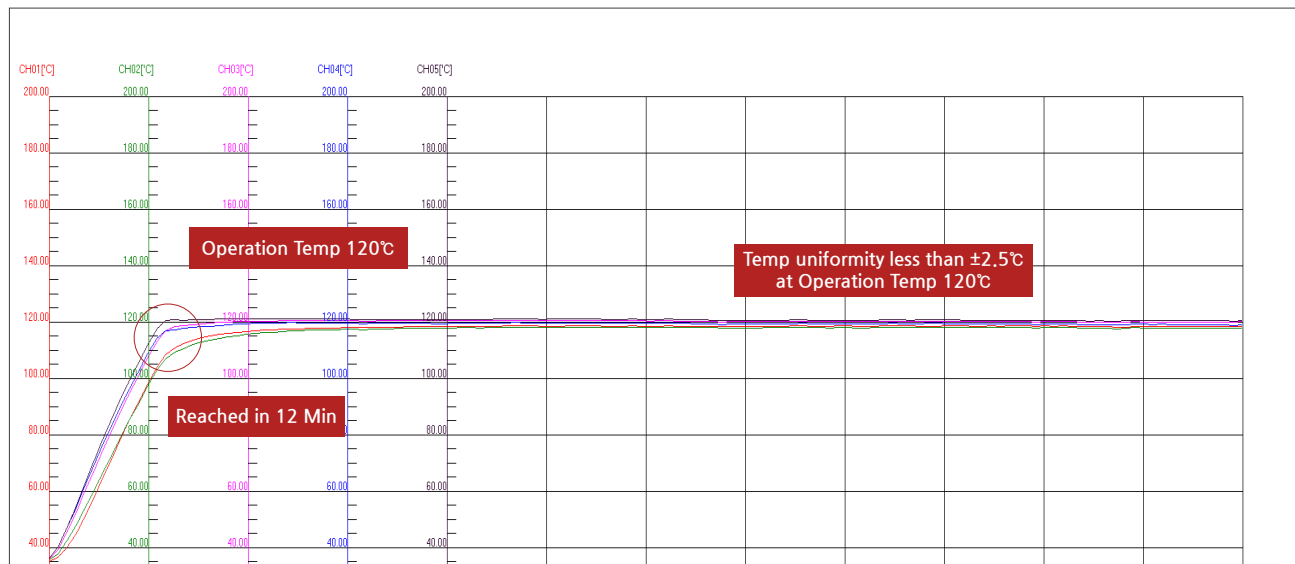
Stainless steel 12mm punched shelves

| Catalog No. | Type | Dimension(WxDxH) | Weight(Kg) | Material | Application Model | Oven Type |
|-------------|-------------|------------------------------------|------------|-----------------|-------------------|-----------|
| IDPS864A | PUNCH PLATE | 870x775x17mm / 34.25x30.51x0.67" | 5.5 | Stainless Steel | SH-IDO-864FG | AF,AM |
| IDPS864C | PUNCH PLATE | 774x775x17mm / 30.47x30.51x0.67" | 4.9 | | | CF,CM |
| IDPS1152A | PUNCH PLATE | 1170x775x17mm / 46.06x30.51x0.67" | 7.7 | | SH-IDO-1152FG | AF,AM |
| IDPS1152B | PUNCH PLATE | 475x775x17mm / 18.70x30.51x0.67" | 3.2 | | | BF,BM |
| IDPS1152C | PUNCH PLATE | 1074x775x17mm / 42.28x30.51x0.67" | 7.1 | | | CF,CM |
| IDPS2250A | PUNCH PLATE | 1570x905x17mm / 61.81x35.62x0.67" | 15 | | SH-IDO-2250FG | AF,AM |
| IDPS2250B | PUNCH PLATE | 675x905x17mm / 26.57x35.63x0.67" | 6.5 | | | BF,BM |
| IDPS2250C | PUNCH PLATE | 1474x905x17mm / 58.03x35.63x0.67" | 14 | | | CF,CM |
| IDPS3612A | PUNCH PLATE | 2120x1095x17mm / 83.46x43.11x0.67" | 25 | | SH-IDO-3612FG | AF,AM |
| IDPS3612B | PUNCH PLATE | 950x1095x17mm / 37.40x43.11x0.67" | 11.2 | | | BF,BM |
| IDPS3612C | PUNCH PLATE | 2024x1095x17mm / 79.69x43.11x0.67" | 24 | | | CF,CM |
| IDPS864HA | PUNCH PLATE | 870x775x17mm / 34.25x30.51x0.67" | 6.6 | | SH-IDO-864FH | AF,AM |
| IDPS864HC | PUNCH PLATE | 774x775x17mm / 30.47x30.51x0.67" | 5.9 | | | CF,CM |
| IDPS1152HA | PUNCH PLATE | 1170x775x17mm / 46.06x30.51x0.67" | 9.2 | | SH-IDO-1152FH | AF,AM |
| IDPS1152HB | PUNCH PLATE | 475x775x17mm / 18.70x30.51x0.67" | 3.8 | | | BF,BM |
| IDPS1152HC | PUNCH PLATE | 1074x775x17mm / 42.28x30.51x0.67" | 8.5 | | | CF,CM |
| IDPS2250HA | PUNCH PLATE | 1570x905x17mm / 61.81x35.63x0.67" | 18 | | SH-IDO-2250FH | AF,AM |
| IDPS2250HB | PUNCH PLATE | 675x905x17mm / 26.57x35.63x0.67" | 7.8 | | | BF,BM |
| IDPS2250HC | PUNCH PLATE | 1474x905x17mm / 58.03x35.63x0.67" | 16.8 | | | CF,CM |
| IDPS3612HA | PUNCH PLATE | 2120x1095x17mm / 83.46x43.11x0.67" | 30 | | SH-IDO-3612FH | AF,AM |
| IDPS3612HB | PUNCH PLATE | 950x1095x17mm / 37.40x43.11x0.67" | 13.4 | | | BF,BM |
| IDPS3612HC | PUNCH PLATE | 2024x1095x17mm / 79.69x43.11x0.67" | 28.8 | | | CF,CM |

Industrial Drying Oven -Feature

This version of the forced convection drying oven is used for a variety of industrial applications including drying, curing or baking components, parts or final products. The Industrial Drying Oven takes advantage of its capability to work on heavy duty samples. It is specially designed to operate on bulk samples or large amounts of test pieces. Our Industrial Drying Oven is equipped with a powerful circulation fan, electronically safe circuits and efficient carts.

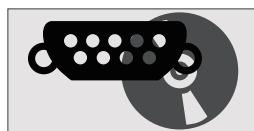
Uniformity Sheet



Feature



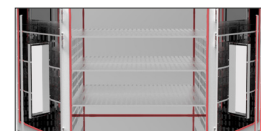
View window



RS-485
or
RS-232C interface



Digital PID controller



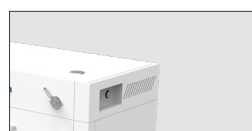
Stainless steel



Steel plate with powder
heating coated



Leveling caster



Safety devices



Door sealing gasket

Industrial Drying Oven



| Model | SH-IDO-864FG | SH-IDO-1152FG |
|--|--|-------------------------|
| Air Circulation type | Forced | |
| Temp Range | Ambient +10°C to 200°C (Ambient +18°F to 392°F) | |
| Time Range | 00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer | |
| Temp & Time controller | Microprocess P I D Membrane Touch Digital controller | |
| Heater Capa | 7 KW | 9 KW |
| Dimension Internal (W×D×H) | 900×800×1200mm | 1200×800×1200mm |
| | 35.43×31.50×47.24" | 47.24×31.50×47.24" |
| Dimension External (W×D×H) | 1160×1000×1870mm | 1480×1013×1948mm |
| | 45.67×39.37×73.62" | 58.27×39.88×76.69" |
| Weight | 295 kg | 415 Kg |
| Capa | 864 L | 1152 L |
| Material Internal | Stainless Steel | |
| Material External | Steel Plate With Powder Heating Coated | |
| Shelves | 3 Supplied (38 Maximum) | 3 Supplied (38 Maximum) |
| Electrical Requirements 230V ,50/60Hz, 3Φ | 17.6 A | 22.6 A |
| Cat. No. | IDO864FG230-3 | IDO1152FG230-3 |
| Electrical Requirements 380V,50/60Hz, 3Φ | 10.6 A | 13.7 A |
| Cat. No. | IDO864FG380-3 | IDO1152FG380-3 |

• Accessory

-Movable stainless steel plate (864FG,1152FG)-3EA, (2250FG,3612FG)-3EAx2

• Option

-Programmable controller
-Digital recorder
-2CH Hybrid recorder
-Moving Cart & Room cart (Accessory will be movable stainless steel plate wide 3EA than 3ea x 2)
-RS-485 interface
-RS-232C interface

• Safety Device

-Automatic reset function incoming power cut
-Buzzer on when set time arrived
-Fan motor overload protection
-Electric leakage breaker
-Over temp function
-Fire safety controller

※We accept custom-made order.

Industrial Drying Oven



| Model | SH-IDO-2250FG | SH-IDO-3612FG |
|--|--|-------------------------------|
| Air Circulation type | Forced | |
| Temp Range | Ambient +10°C to 200°C (Ambient +18°F to 392°F) | |
| Time Range | 00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer | |
| Temp & Time controller | Microprocess P I D Membrane Touch Digital controller | |
| Heater Capa | 18 KW | 23 KW |
| Dimension Internal (W×D×H) | 1600×930×1500mm | 2150×1120×1500mm |
| | 62.99×36.61×59.06" | 84.65×44.09×59.06" |
| Dimension External (W×D×H) | 2300×1145×2090mm | 2850×1335×2090mm |
| | 90.55×45.08×82.28" | 112.20×52.56×82.28" |
| Weight | 570 Kg | 780 Kg |
| Capa | 2232 L | 3612 L |
| Material Internal | Stainless Steel | |
| Material External | Steel Plate With Powder Heating Coated | |
| Shelves | 6 Supplied 2EAx3 (96 Maximum) | 6 Supplied 2EAx3 (96 Maximum) |
| Electrical Requirements 230V ,50/60Hz, 3Φ | 45.2 A | 57.7 A |
| Cat. No. | IDO2250FG230-3 | IDO3612FG230-3 |
| Electrical Requirements 380V,50/60Hz, 3Φ | 27.3 A | 34.9 A |
| Cat. No. | IDO2250FG380-3 | IDO3612FG380-3 |

• Accessory

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-Fan motor overload protection
-Electric leakage breaker
-Over temp function
-Fire safety controller

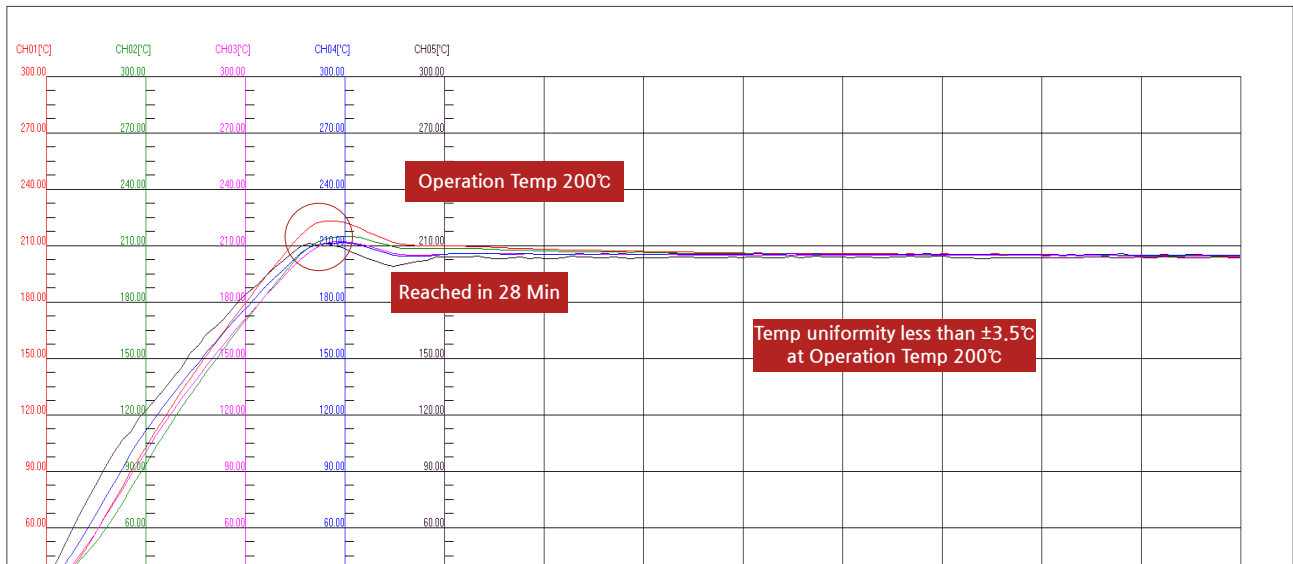
※We accept custom-made order.

300°C Industrial Drying Oven -Feature

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This version of the Industrial Drying Oven is suitable for bulk samples or large amounts of test pieces that need to operate on a temperature as high as 300°C. This unit can also be used for drying, curing or baking components, parts or final products. In addition to these, our Industrial Drying Oven is equipped with a powerful circulation fan, electronically safe circuits and efficient carts.

Uniformity Sheet



Feature



Steel plate with powder heating coated



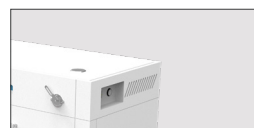
Digital PID controller



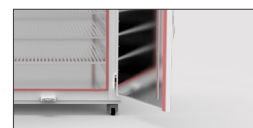
Stainless steel



Leveling caster



Safety devices



Door sealing gasket

300°C Industrial Drying Oven



| Model | SH-IDO-864FH | SH-IDO-1152FH |
|--|--|-------------------------|
| Air Circulation type | Forced | |
| Temp Range | Ambient +10°C to 300°C (Ambient +18°F to 572°F) | |
| Time Range | 00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer | |
| Temp & Time controller | Microprocess P I D Membrane Touch Digital controller | |
| Heater Capa | 9 KW | 12 KW |
| Dimension Internal (W×D×H) | 900×800×1200mm | 1200×800×1200mm |
| | 35.43×31.50×47.24" | 47.24×31.50×47.24" |
| Dimension External (W×D×H) | 1160×1000×1870mm | 1480×1013×1948mm |
| | 45.67×39.37×73.62" | 58.27×39.88×76.69" |
| Weight | 333 kg | 468 Kg |
| Capa | 864 L | 1152 L |
| Material Internal | Stainless Steel | |
| Material External | Steel Plate With Powder Heating Coated | |
| Shelves | 3 Supplied (38 Maximum) | 3 Supplied (38 Maximum) |
| Electrical Requirements 230V, 50/60Hz, 3Φ | 23.6 A | 31.5 A |
| Cat. No. | IDO864FH230-3 | IDO1152FH230-3 |
| Electrical Requirements 380V, 50/60Hz, 3Φ | 14 A | 18.3 A |
| Cat. No. | IDO864FH380-3 | IDO1152FH380-3 |

• Accessory

-Movable stainless steel plate (864FG, 1152FG)-3EA, (2250FG, 3612FG)-3EAx2

• Option

-Programmable controller
-Digital recorder
-2CH Hybrid recorder
-Moving Cart & Room cart (Accessory will be movable stainless steel plate wide 3EA than 3ea x 2)
-RS-485 interface
-RS-232C interface

• Safety Device

-Automatic reset function incoming power cut
-Buzzer on when set time arrived
-Fan motor overload protection
-Electric leakage breaker
-Over temp function
-Fire safety controller

※We accept custom-made order.

300°C Industrial Drying Oven



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| Model | SH-IDO-2250FH | SH-IDO-3612FH |
|--|--|-------------------------------|
| Air Circulation type | Forced | |
| Temp Range | Ambient +10°C to 300°C (Ambient +18°F to 572°F) | |
| Time Range | 00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer | |
| Temp & Time controller | Microprocess P I D Membrane Touch Digital controller | |
| Heater Capa | 23 KW | 30 KW |
| Dimension Internal (W×D×H) | 1600×930×1500mm | 2150×1120×1500mm |
| | 62.99×36.61×59.06" | 84.65×44.09×59.06" |
| Dimension External (W×D×H) | 2300×1145×2090mm | 2850×1335×2090mm |
| | 90.55×45.07×82.28" | 112.20×52.56×82.28" |
| Weight | 644 Kg | 881 Kg |
| Capa | 2232 L | 3612 L |
| Material Internal | Stainless Steel | |
| Material External | Steel Plate With Powder Heating Coated | |
| Shelves | 6 Supplied 2EAx3 (96 Maximum) | 6 Supplied 2EAx3 (96 Maximum) |
| Electrical Requirements 230V ,50/60Hz, 3Φ | 60.5 A | 79 A |
| Cat. No. | IDO2250FH230-3 | IDO3612FH230-3 |
| Electrical Requirements 380V,50/60Hz, 3Φ | 35 A | 46 A |
| Cat. No. | IDO2250FH380-3 | IDO3612FH380-3 |

. Accessory

-Movable stainless steel plate (864FG,1152FG)-3EA,
(2250FG,3612FG)-3EAx2

. Option

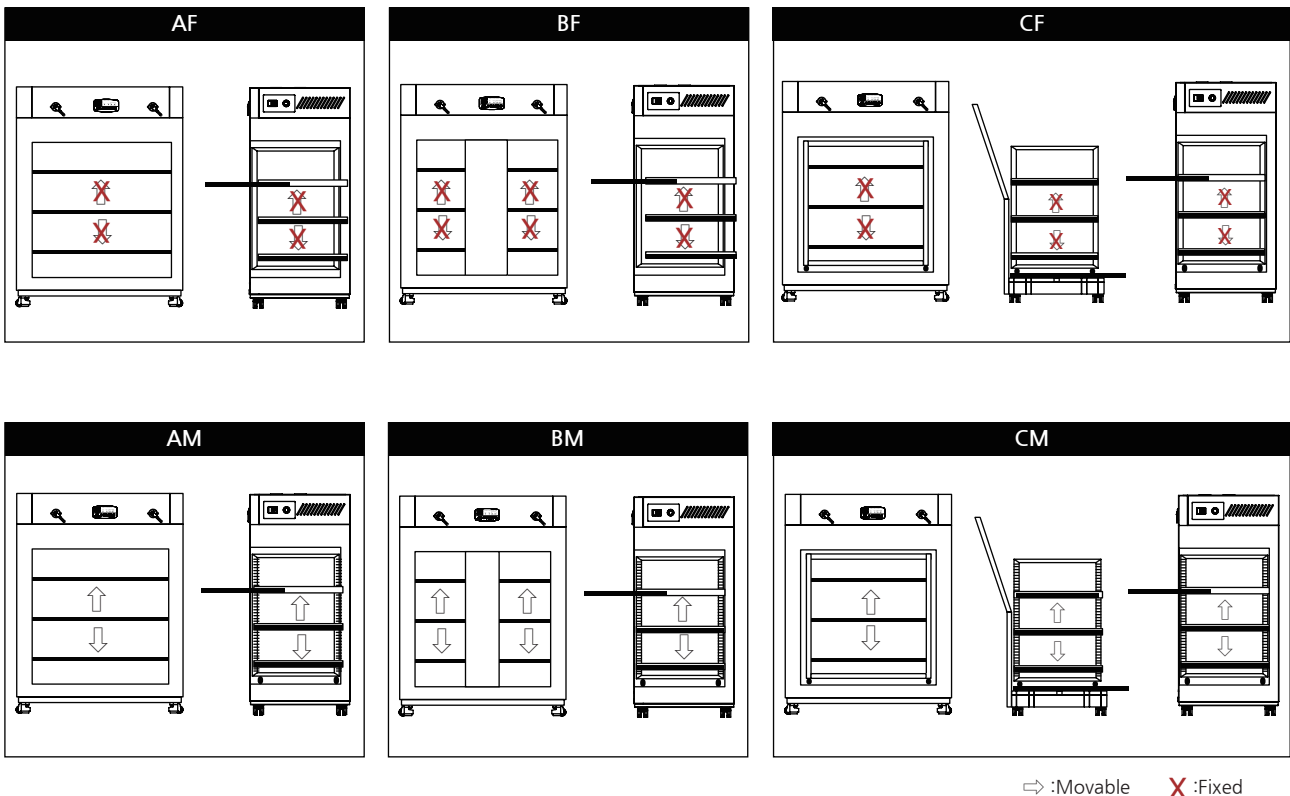
-Programmable controller
-Digital recorder
-2CH Hybrid recorder
-Moving Cart & Room cart
(Accessory will be movable stainless steel plate wide 3EA than 3ea x 2)
-RS-485 interface
-RS-232C interface

. Safety Device

-Automatic reset function incoming power cut
-Buzzer on when set time arrived
-Fan motor overload protection
-Electric leakage breaker
-Over temp function
-Fire safety controller

※We accept custom-made order.

Shelves detail



⇔ :Movable X :Fixed

| Type of Shelves | AF | BF | CF | AM | BM | CM |
|-----------------------------------|----|----|-----|-----|-----|-----|
| Work Convenience | 4 | 3 | 4 | 4 | 4 | 5 |
| Utilization of work space | 4 | 3 | 4 | 5 | 4 | 5 |
| Maximum Weight of sample | 4 | 5 | 4 | 2 | 3 | 2 |
| Adjustable Height Length Interval | No | No | No | Yes | Yes | Yes |
| Moving Cart | No | No | Yes | No | No | Yes |

5: Very high / 4: High / 3:Medium / 2: Low / 1: Very Low

| Catalog No | | Type | Dimension(WxDxH) | Application Model | | Oven Type |
|------------|------------|-------------|-------------------------------------|-------------------|---------------|-----------|
| Max 200 °C | Max 300 °C | | | Max 200 °C | Max 300 °C | |
| IDPS864A | IDPS864HA | PUNCH PLATE | 870x775x17mm 34.25x30.51x0.67" | SH-IDO-864FG | SH-IDO-864FH | AF,AM |
| IDPS864C | IDPS864HC | PUNCH PLATE | 774x775x17mm 30.47x30.51x0.67" | | | CF,CM |
| IDPS1152A | IDPS1152HA | PUNCH PLATE | 1170x775x17 46.06x30.51x0.67" | SH-IDO-1152FG | SH-IDO-1152FH | AF,AM |
| IDPS1152B | IDPS1152HB | PUNCH PLATE | 475x775x17mm 18.70x30.51x0.67" | | | BF,BM |
| IDPS1152C | IDPS1152HC | PUNCH PLATE | 1074x775x17mm 42.28x30.51x0.67" | | | CF,CM |
| IDPS2250A | IDPS2250HA | PUNCH PLATE | 1570x905x17mm 43.11x35.63x0.67" | SH-IDO-2250FG | SH-IDO-2250FH | AF,AM |
| IDPS2250B | IDPS2250HB | PUNCH PLATE | 675x905x17mm 26.57x35.63x0.67" | | | BF,BM |
| IDPS2250C | IDPS2250HC | PUNCH PLATE | 1474x905x17mm 58.03x35.63x0.67" | | | CF,CM |
| IDPS3612A | IDPS3612HA | PUNCH PLATE | 2120x1095x17mm 83.46x35.63x0.67" | SH-IDO-3612FG | SH-IDO-3612FH | AF,AM |
| IDPS3612B | IDPS3612HB | PUNCH PLATE | 950x1095x17mm 37.40x35.63x0.67" | | | BF,BM |
| IDPS3612C | IDPS3612HC | PUNCH PLATE | 2024x1095x17mm 79.69x35.63x0.67" | | | CF,CM |

Programmable Controller Options



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

| | | |
|-----------------------|----------------------|---|
| Display | Size(WxHxL) | 96x96x100mm / 3.8x3.8x3.9" |
| | PV/SP Display | 4 Digit |
| Operation Mode | | Program / Reset, 2 Zone PID |
| Control Mode | | 1CH Control |
| Max Channel | | - |
| Pattern & Segments | | 2 Pattern / Max 30 segments |
| Input | TC | K, J, E, T, R, B, S, L, N, U, W, C, Platinel II |
| | RTD | Pt100 Ω , JPt100 Ω |
| | Analog Voltage Input | -10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC |
| Output | Control Output | RELAY, SSR(Voltage Pulse) |
| | Current Output | 4 ~ 20mA DC |
| | Voltage Output | - |
| | Transmission Output | 4 ~ 20mA (PV, SP, MV) |
| Digital Input | Contact Type | 2 Points / 4 Types(RUN, HOLD, STEP, RESET) |
| | Contact capacity | - |
| Digital Output | Relay | Normal Open 30V DC A, 250V AC 1A Normal Close 30V DC3A 250V AC 3A |
| | Open Collector | ON voltage across contacts at less than 2V, the leakage current less than 100 μ A |
| Sampling Time | | 250ms |
| Accuracy | | $\pm 0.1\%$ $\pm 1\%$ digit of Full Scale |
| Event | Alarm | 1 Point / Max 3 Points(20 Types) |
| | Inner Signal | 2 Points (PV, SP, TSP) |
| | Time Signal | 1 Point |
| | Other | 1 Point (RUN, Pattern END, UP, DOWN, SOAK) |
| Communication | Interface | RS485 |
| | Protocol | PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave) |
| | Speed | Max 19,200 bps |
| Power | Power | 100 ~ 240V AC, 50 ~ 60Hz |
| | Power Consumption | Max 6W |
| Operating environment | | - |
| Weight | | - |

Digital Recorder Options



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

| Suffix Code | | |
|---------------|------|---|
| Model | Code | Information |
| GR200 | | Graphic recorder(applied touch panel function) 145(W)×145(H)mm / 5.71x5.71" |
| Input channel | 2 | 2 channels |
| | 4 | 4 channels |
| | 8 | 8 channels |
| | 12 | 12 channels |

| Model | GR200 |
|--|--|
| Number of channels | 2, 4, 8, 12 (Refer to the type configuration) |
| Input type | 2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 - 20 mV, 0 - 100 mV, 1 - 5V, 0 - 30 V) |
| Sampling period | 250 ms |
| Current to measure the thermoresistor (RTD) | About 0.21 mA |
| Input resistor | Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ |
| Allowable wiring resistor | Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 - .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ |
| Impact of the wiring resistor | Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors) |
| Allowable input voltage | Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC |
| Degree | ±0.15 % of F.S, ±1 digit (Except the RJC temperature error) ※ Refer to the input table |
| The error in the reference junction compensation (RJC) | ±2.0 °C (0 ~ 50 °C) |
| Sensor short detection (Burn-out) | UP-Scale for the short |

Hybrid Recorder Options



- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100mm / 3.78x3.78x3.94"), light weight

| | | |
|-------------------------|---|--|
| Record accuracy | ±0.5%F.S. | |
| Alarm output | CH1 (AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a) | |
| Alarm output hysteresis | ON/OFF interval setting for alarm output: 1 to 999digit variable | |
| Communication output | RS485 communication output(Modbus RTU protocol) | |
| Set method | Setting by front keys | |
| Sampling cycle | 500 ms/channel x 2 channels = 1000 ms | |
| Dielectric strength | 2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity) | |
| Vibration | 0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour | |
| Relay life cycle | Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations | |
| Insulation resistance | Over 100 MΩ (at 500 VDC megger) | |
| Noise resistance | Square shaped noise by noise simulator (pulse width 1 μs)±2 kV | |
| Print | Method | Direct thermal line print |
| | Resolution | 8 dot/mm |
| | Dots | 384 dot/Line |
| | Life cycle | 50 km |
| Record | Graphic mode | <ul style="list-style-type: none"> • Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h |
| | Digital mode | TEXT mode record cycle: 00 m 05 s to 99 m 59 s |
| | Paper | Thermal Direct Receipt Paper (57 mm x 16 m) |
| | Paper supply method | Clamshell Type |
| | Language | Korean, English |
| Environment | Ambient temperature | 0 to 50 °C, storage: -20 to 60 °C |
| | Ambient humidity | 35 to 85%RH, storage: 35 to 85%RH |
| Approval | CE | |
| Unit weight | Approx. 700 g | |