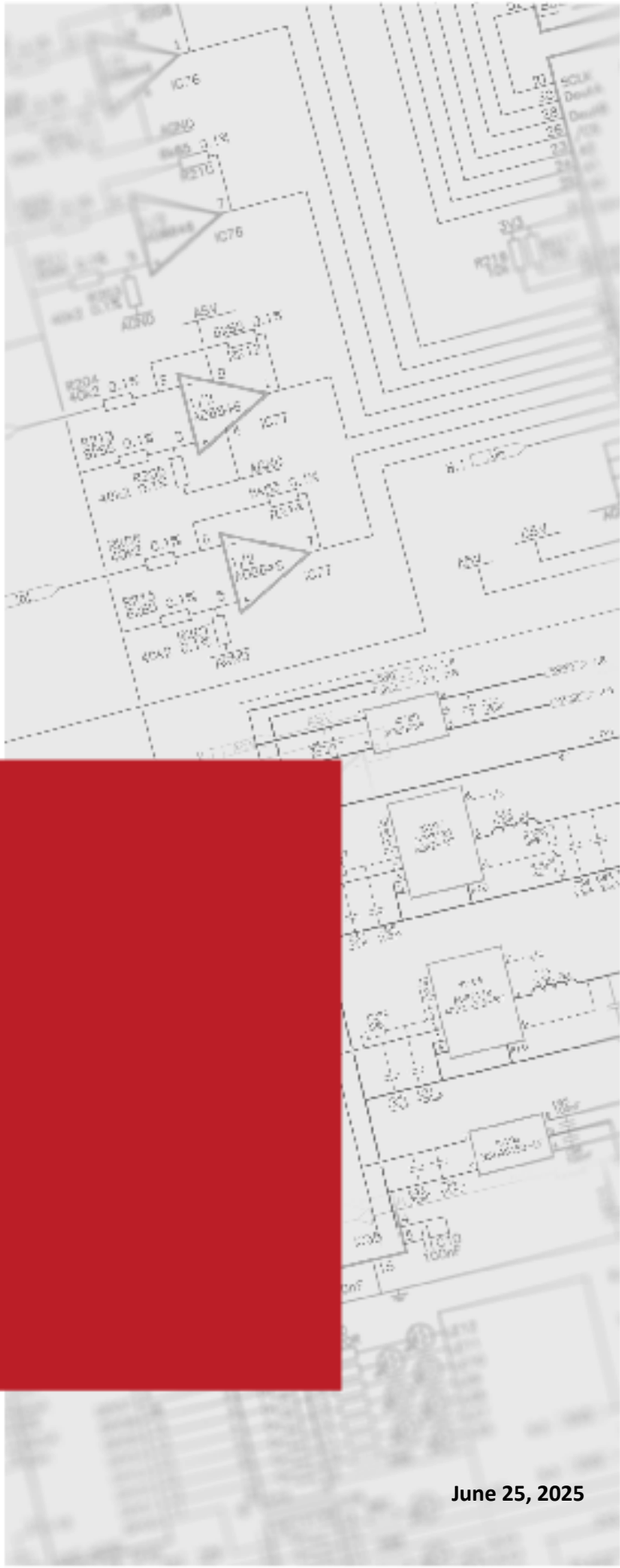
ENTRON™

Data Sheet

700260

Product Model

iPAK 360AW

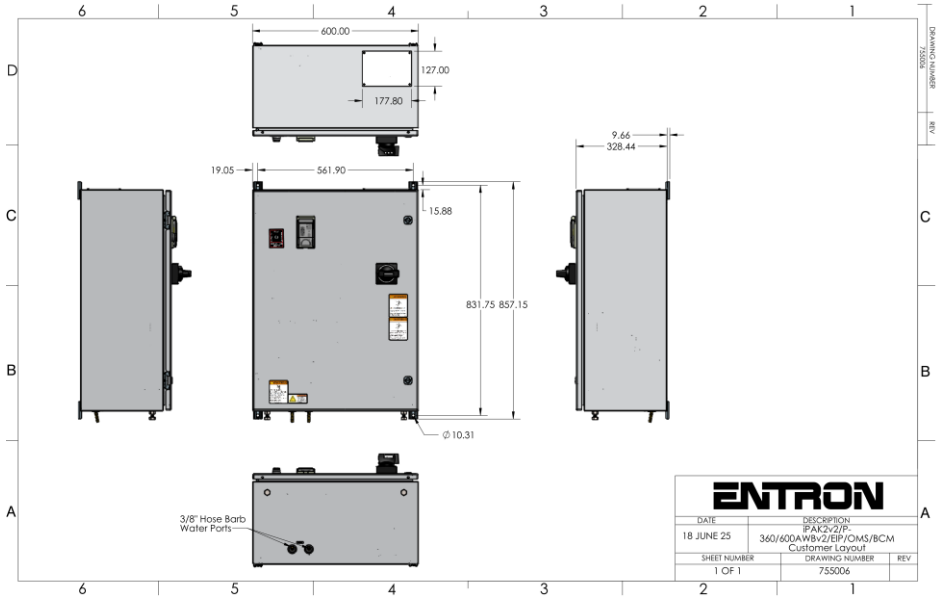


June 25, 2025

1 iPAK 360AW water cooled resistance welding inverter.

Typical Configurations:

The 360-amp inverter is suitable for the following resistance welding applications: - Spot, Projection and Seam welding including Cross wire welding and Industrial heat treating of metal parts.



Complete engineered welding control in self-contained easy to install cabinet, including circuit breaker with door interlocking, 24 VDC power supplies and OMS switch.

iPAK 360AW with typical suitable transformer/rectifier (Averaging Time 2 Seconds)			
Transformer type	TDC-6322	TDC-5583	TDC-5610
kVA	72 kVA	100 kVA	135 kVA
Transformer primary V	650 volts	650 volts	650 volts
Secondary Voltage	7.0 volts	9.0 volts	9.0 volts
Turns Ratio	92:1	72:1	72:1
Sec. Current @ 3%	26,000 Amps (D)	25,620 Amps (C)	25,620 Amps (C)
Sec. Current @ 10%	18,500 Amps (D)	18,500 Amps (D)	24,500 Amps (D)
Sec. Current @ 20%	14,700 Amps (D)	14,700 Amps (D)	19,600 Amps (D)
Sec. Current @ 50%	10,191 Amps (T)	11,000 Amps (D)	14,954 Amps (T)
Sec. Current @ 100%	7,206 Amps (T)	7,833 Amps (T)	10,574Amps (T)
3 phase voltage	480 V max	480 V max	480 V max

C=Limited by the inverter
T=Limited by transformer kVA
D=Limited by secondary diodes

Important note:

The current values shown in the above tables take no account of the secondary resistance of the machine, which in most circumstances will have a significant effect on the maximum current available from the system. The figures given are only intended as a guide and to demonstrate the limiting factors.

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General Power Specification	
Maximum output power @ 20% Duty-cycle @ 2 seconds averaging time	234 kVA @ 480 V line voltage
Maximum line input voltage	480 V ac +10%-20% @ 50/60 Hz
Maximum output current – Limited electronically	360 Amps
Maximum Continuous output current	160 Amps
Maximum line input current per phase	207 Amps
Continuous equivalent rms line current per phase (360 A @ 20% duty)	93 Amps
Power Factor	Leading
Current regulation and feedback	Primary and secondary
Current regulation accuracy	+/- 2 %
Current regulation repeatability	+/-1%
Inverter switching frequency	1 kHz
Maximum averaging time	2 seconds
Water flow rate	1.3 US gallons per minute 5 litres per minute
Maximum inlet water temperature	77 degrees Fahrenheit 25 degrees centigrade

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2 Installation of water-cooled iPAK AW inverter modules to qualify for warranty

These notes are provided to assist customers who are installing inverter module into their own equipment. Failure to follow these rules will render the warranty void.

1. The inverter must be fitted into a customer cabinet which is sealed against ingress of dust.
2. There must be a free air space around all sides of the inverter module of at least four inches or 100mm.
3. The cabinet internal ambient temperature must not rise above 104 degrees Fahrenheit or 40 degrees Centigrade when under normal operating conditions.
4. All entry and exit conduits must be sealed with appropriate bulkhead fittings or glands.
5. All unused holes must be sealed.
6. The inverter must be supplied with three phase AC via an earth leakage circuit breaker (ELCB or GFI), suitably rated for the inverter (please ENTRON Data sheet), with thermal and magnetic trips. This is required to provide protection for the inverter in the event of a device failure.
7. Maximum load/transformer primary current must not exceed the inverter rated current at the machine maximum duty cycle specified over the averaging time of two seconds (see ENTRON graph).
8. Duty cycle limits must not be exceeded beyond those specified in the ENTRON data sheet.
9.

Water flow must be at least the following:	
iPAK 100AW	1.3 US gal/min or 5 litres/min
iPAK 360AW	1.3 US gal/min or 5 litres/min
iPAK 600AW	2.0 US gal/min or 7.5 litres/min
iPAK 1000AW	2.6 US gal/min or 10 litres/min
iPAK 1500AW	2.6 US gal/min or 10 litres/min
iPAK 3000AW	5.3 US gal/min or 20 litres/min
iPAK 4500AW	8 US gal/min or 30 litres/min
iPAK 6000AW	10.5 US gal/min or 40 litres/min

10. A water management system must be used which is independent of both the machine and the welding transformer cooling systems.
11. The water management system must have the following components in each flow path:
    I. A manual flow regulator or constant flow valve.
    II. A programmable flow switch which is monitored by the welding control or line PLC.
    III. A shut off valve.
    IV. The water flow must drain to atmosphere.
12. Inlet water temperature must not exceed 77 degrees Fahrenheit or 25 degrees Centigrade.
13. The water temperature must not be low enough to cause the formation of condensation inside the inverter.
14. Water savers may be used, but should be used on the water outlet of the inverter. Water flow should be started at least half a second before a weld commences and the water must remain flowing for at least one minute after the weld has finished.

If the above conditions cannot be met ENTRON can supply a self-contained cabinet with earth leakage circuit breaker.

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Important Notes – Warranty Exclusions:

a. Excessive dust or moisture contamination may render the warranty void.
b. Excessive internal cabinet temperatures may cause the inverter to be damaged and the warranty will be void.
c. Evidence of significant inverter damage as a result of unprotected flash over as a result of no ELCB (GFI) being fitted will render the warranty void.

Suggested Minimum Installation Data for iPAK 360AW:

Important Note:

All the calculations for cable sizing assume that the inverter will be used at maximum permissible current and maximum permissible duty cycle, but within the inverter specification.

WARNING!

WARNING!

The calculations given below are intended as a guide, and should therefore be checked by a professional electrical engineer to ensure that local installation regulations are met.

Assumptions for three phase supply feed:

Ambient temperature	= 30°C (86°F)
Cable Insulation	= H0R7RN-1
Conductor temperature	= 85°C (185°F)
Maximum volts drop at full load	= 5% of nominal supply voltage.
Continuous current rating for cable sizing	= 93 Amps (thermal equivalent current)
Current rating for volts drop	= 208 Amps
Recommended fusing	= 125 Amps HRC
Recommended thermal/magnetic circuit breaker	= 100 Amps
Minimum cable size for 10 metre (*33 feet*) feed cable	= 25 sq. mm (49 kMCM) (Trefoil)
Volts drop over 10 metres (*33 feet*) of cable @ 208 Amps	= 1.49 Volts/10 metre length of run

Assumptions for Welding transformer feed:

Ambient temperature	= 30°C (86°F)
Cable Insulation	= H0R7RN-1
Conductor temperature	= 85°C (185°F)
Maximum volts drop at full load	= 5% of nominal supply voltage.
Continuous current rating for cable sizing	= 161 Amps (thermal equivalent current)
Current Rating for volts drop	= 360 Amps
Minimum cable size for 10 metre (*33 feet*) feed cable	= 35 sq. mm (138 kMCM) (Trefoil)
Volts drop over 10 metres (*33 feet*) of cable @ 360 Amps	= 4.14 Volts/10 metre length of run

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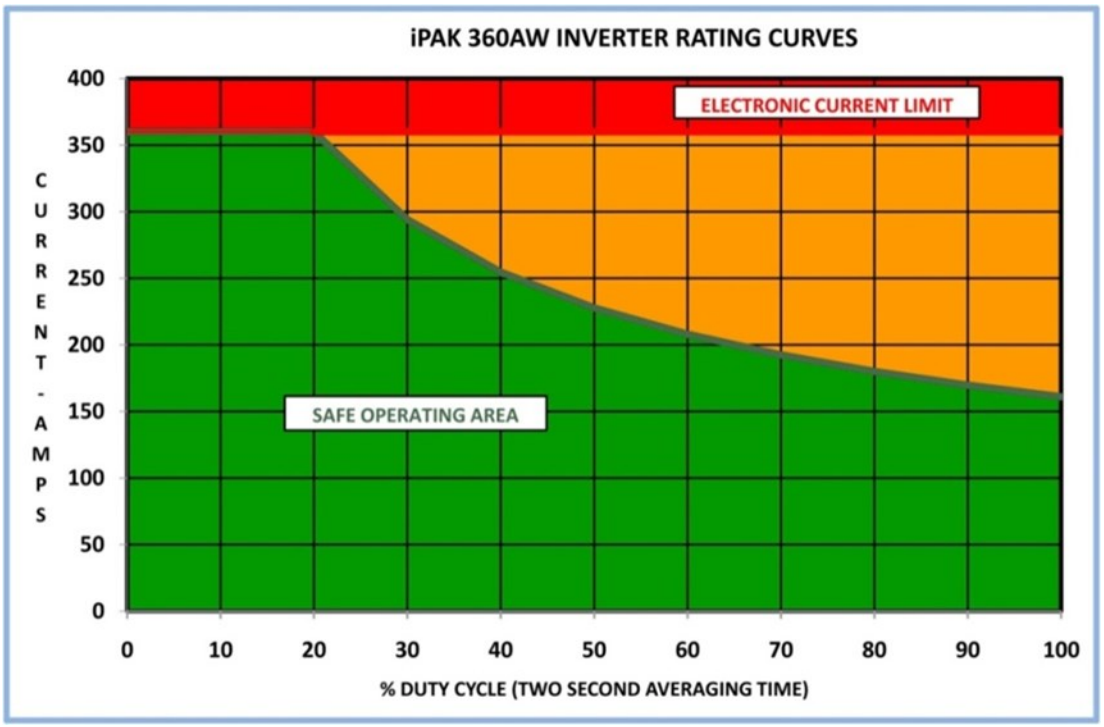
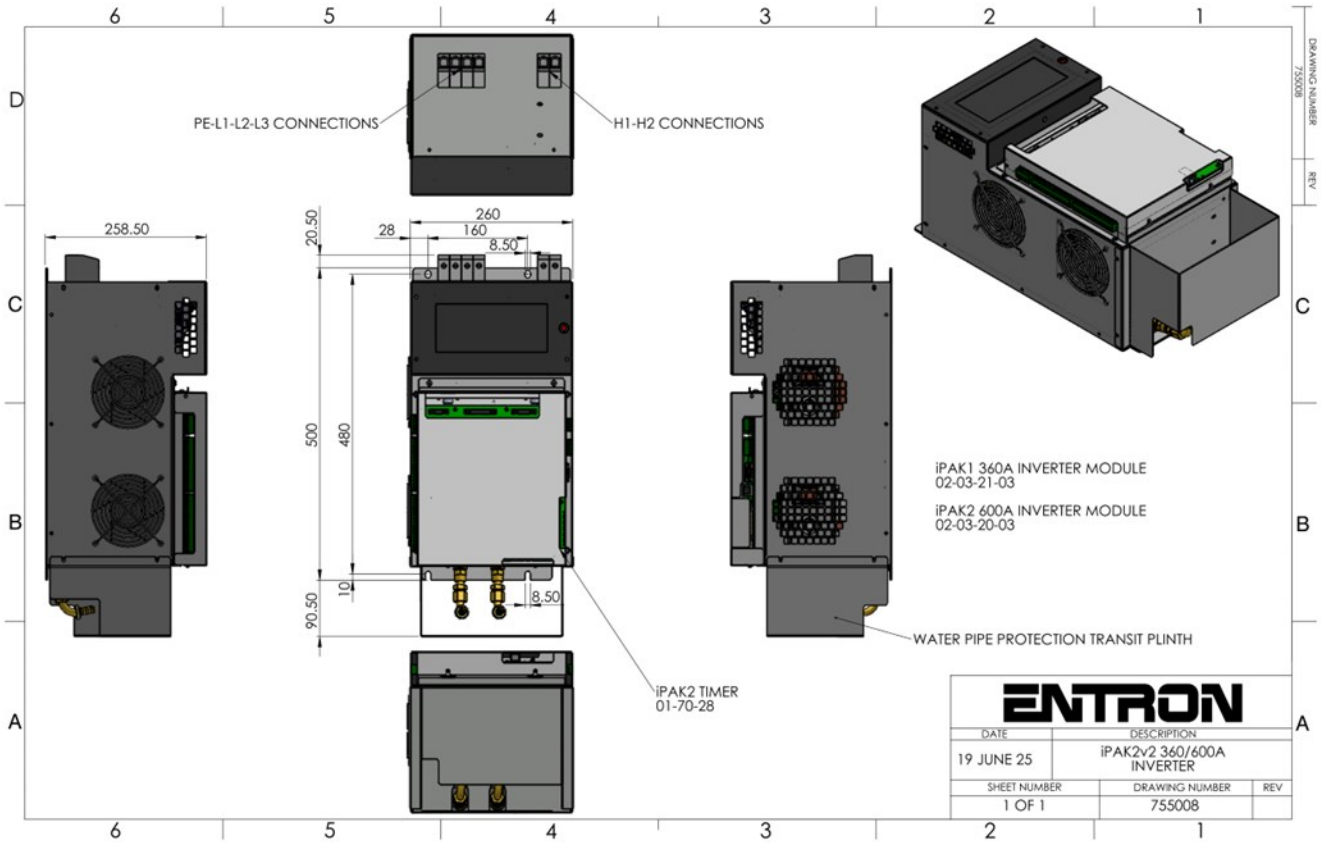
Rating Curve



Outline Drawing – Inverter Module:



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3 Technical Support

3.1.1 Internet

The latest version of the documentation and other helpful resources in the ENTRON Document Library page found in the Resource section of the ENTRON website: https://www.entroncontrols.com

3.1.2 Documentation Request

Documentation, user instructions and technical information can be requested by emailing ENTRON Controls at customerservice@entroncontrols.com or support@entroncontrols.com.

Please include your name and email

3.1.3 Service and Technical Support

For service and technical support, we request that customers fill out the Technical Support Form found on our website at link below:

TECHNICAL SUPPORT FORM LINK

https://www.entroncontrols.com/resources/technical-support.html

After the web form has been completed, your case will be assigned to one of our technical specialists who will contact you directly.

ENTRON Controls can also be contacted by phone or email:

- Phone: +1-864-416-0190
- Email: tech.support@entroncontrols.com

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