DC/DC CONVERTER AND REGULATOR UNIT

Locomotive Microprocessor Components

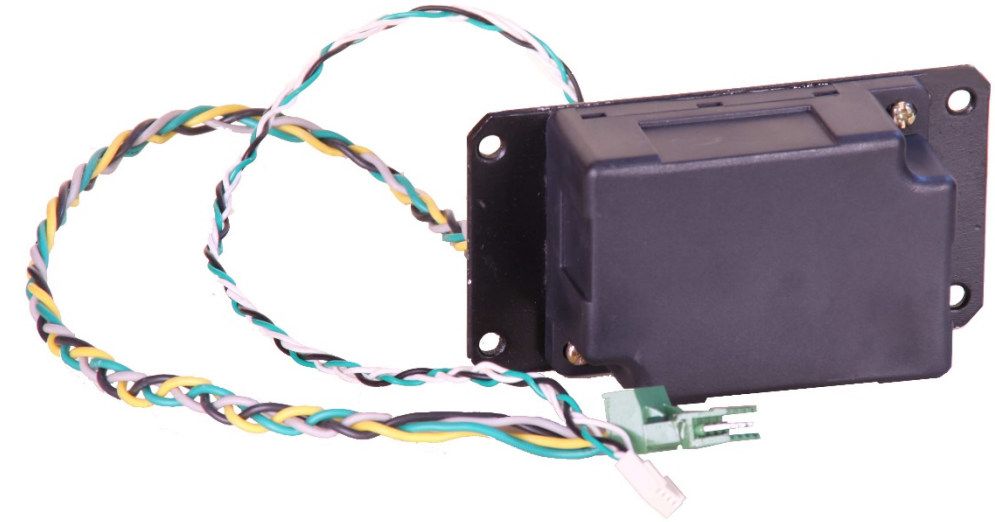
World Part Supplier Co.

Engineering Department

http://www.WPSupplier.com

WORLD PART SUPPLIER CO.

(Engineering, Design, Manufacturing, Maintenance, Consulting)



Locomotive Microprocessor and PLC Power Supply
Exclusive Design

Part Number: WPS-2005

Equal Part Number: (ZTR) 102024

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North York, Ontario, CANADA
M2N 6H8

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info@WPSupplier.com

Proudly Canadian

VSP-DCPower-07

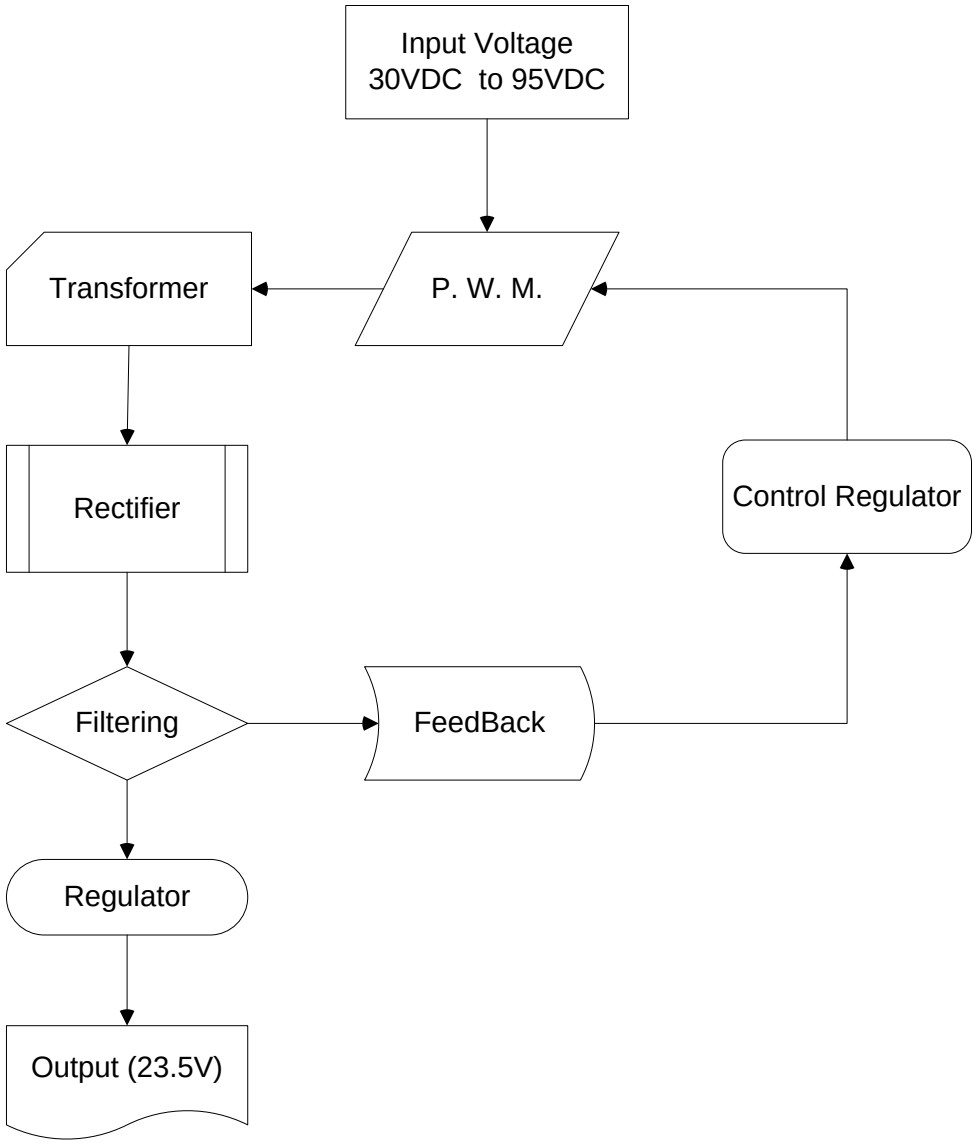
Specification of Unit:

In common word we name it "Power Supply".

Power Supply Unit P/N: WPS-2005 supplies necessary power to the Microprocessor Module cards and dependent Parts of Locomotive. We designed it according to newest electronic elements. All design technology belongs to World Part Supplier Co. We have tried to use the electronic elements of famous companies worldwide. This unit gets 74VDC and converts it into 24VDC. This power is used in microprocessor parts circuits such as relay boards, module cards, etc. This unit has been designed to have 0.05V mutation in output voltage per 10 volts increase or decrease of income voltage. Power Supply Unit P/N: WPS-2005 can perform from 30V to 95V and under these conditions we guarantee 23.5V continues output. This unit in idle position consumes about 0.03A current. This unit has been designed to produce 3A continuous output. However, WPS-2005 is capable to work with 4A continuous current.

In any circumstances, if output is shorted, WPS-2005 can stand for 6.3A current for almost 10 minutes without getting any damage. All the above-mentioned values and information have been tested and confirmed in the laboratory and under the real load test. In the several tests done on this unit we have reached to this point that if the microprocessor system consumes continuous 3A current, this unit will have maximum 0.8V drop in output voltage. Of course, this drop never will happen in the system that in the worst condition consumes only 1.2A.

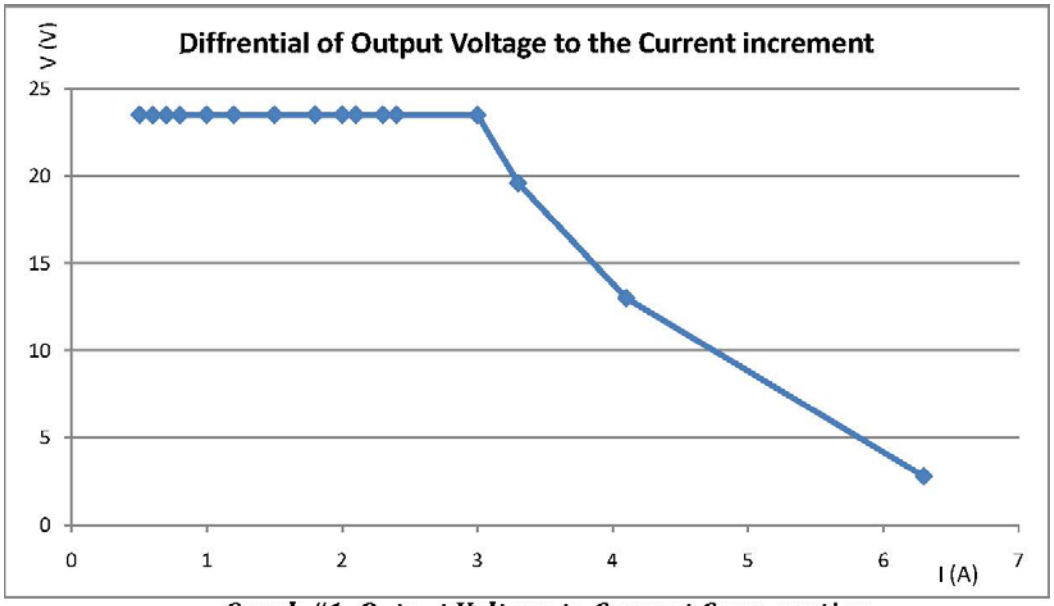
WPS-2005 will not be damaged by short in output but also under this circumstance will open the circuit to save the other elements of circuit such as relay boards, cards, etc. If we want to show the logic of this unit's function in one shot, you can study the below flowchart:



Power Supply WPS-2005 will keep normal performance between -20Celcius to +75Celcius. We guaranty the utilization of this power supply in this range without facing any single problem. WPS-2005 can be used in high humidity or vaporous weather due to the type of insulator sealing been used in this power supply. We would like mention that this system generated the minimum level of heat by its elements. This unit is equipped by high filtering Technology against noises and frequencies interferences. Because as you know this type of interferences can cause kind of shock on the system that it can stop the function of unit.

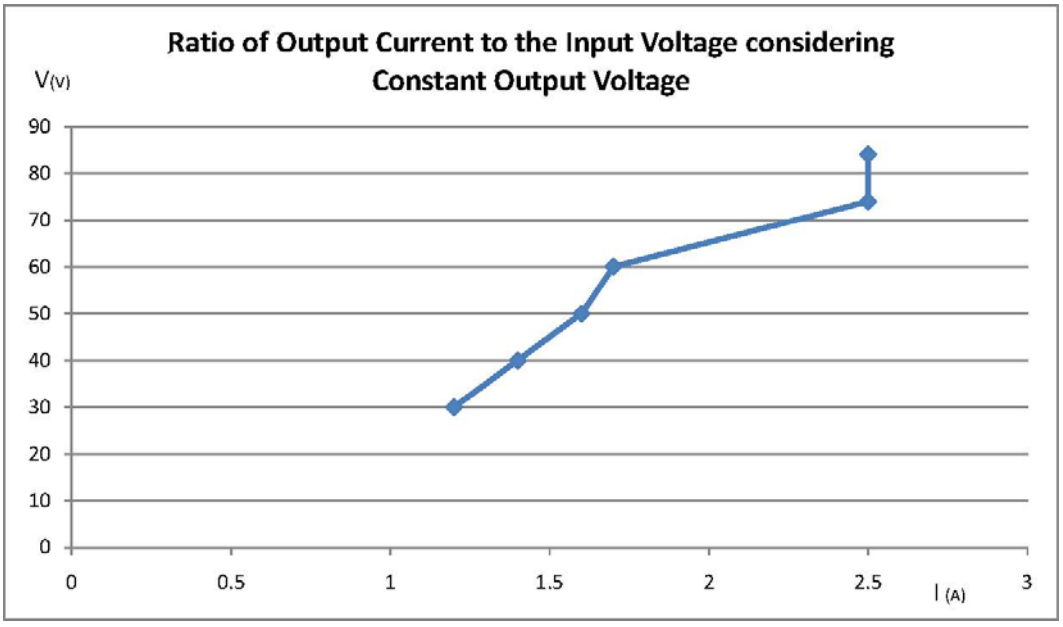
Very important note:

This unit has two completely isolated input and output sections. It means that in case of defect in each section, the other section will not get defected. In the following presented diagram, you can see the ratio of output voltage to the consumed current of the system that unit is installed on it:



Graph #1: Output Voltage to Current Consumption

By repetitive tests and analysis on the unit we reached to the point that unit will produce guaranteed 23.5V output voltage with 1.2A current consumption if the input voltage is 30Volts. In Graph #2, we have done one more test on the unit that you can see the results of the test in the graph. By remaining the constant 23.5V output of system and increasing the input voltage from 30 volts, we found out the characteristics of utilizable output current. Please review diagram.



Graph #2: Output Current Ratio to Input Voltage (Output Voltage is constant)

Note:
This unit is equipped by anti-short protection system. It means that if for any reason, system encounters with the short in the circuit; unit automatically resets itself and restarts the operation. We would like to inform you that this system opens the circuit when it detects the short in the system just in order to protect the other elements.

Note:
This unit has safety protection system against the high current consumption. In case of having high current consumption, this unit will cut the current and when the problem is solved, it restarts functioning normally.

Note:
In order to have protection and higher safety level for the microprocessor parts –since unit is being used on microprocessor system- this unit is equipped by voltage surge protection. It means that when system gets a voltage shock above 24.5V, this unit cuts the output to save the other parts.

Note:
Output and input of this unit are isolated up to 2000Volts.

Cautions:

1. Never open the cover of Power Supply Unit.
2. Avoid replacing the wires of connectors.
3. Avoid impact and strike shocks on unit.
4. As far as possible try to not using this unit in the ambient that has got high continues humidity.
5. Avoid using water or other washing liquids and detergents on this unit.
6. Avoid pouring acids and alkalis and alkaloids.

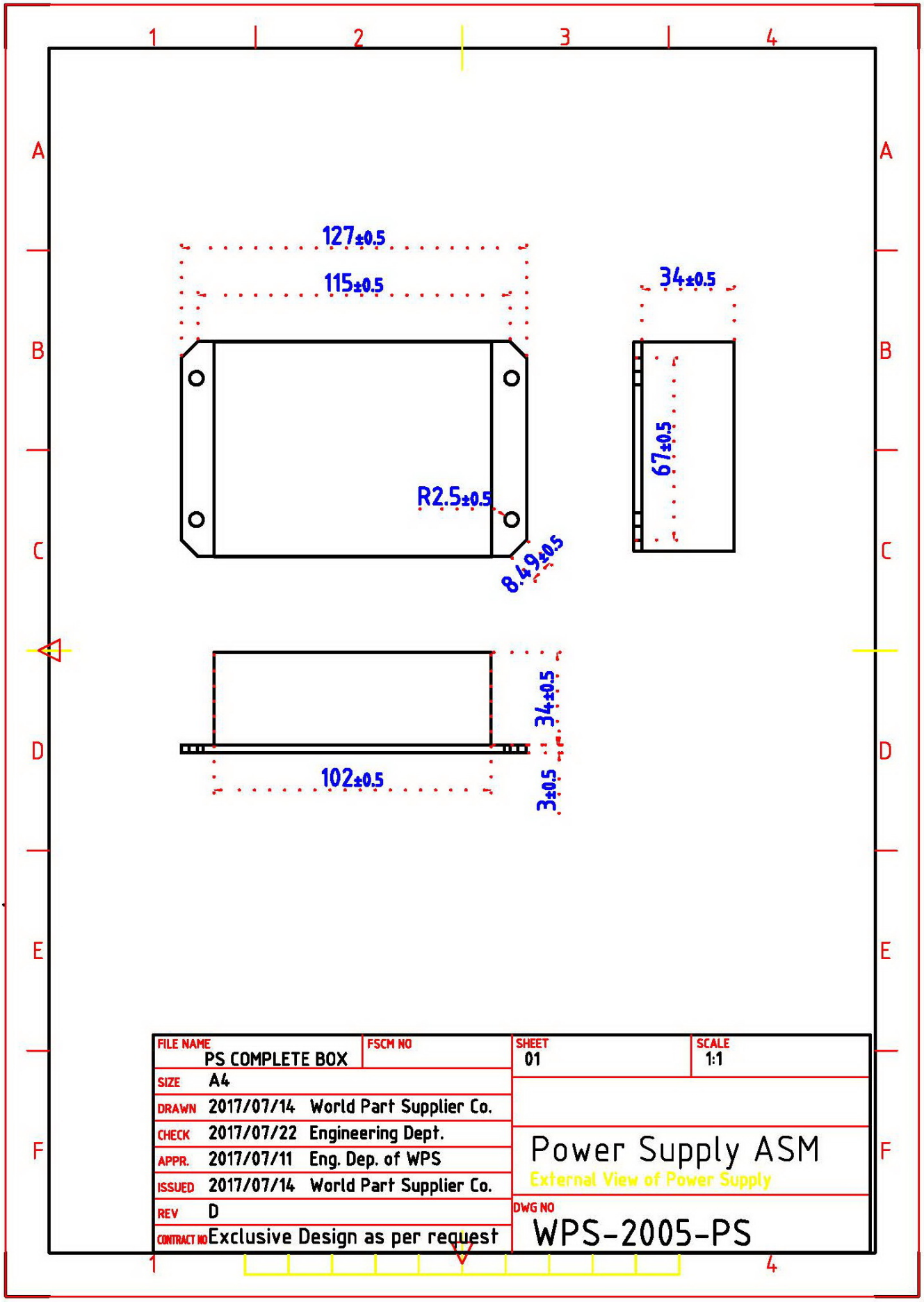
Each Power Supply Unit part number: WPS-2005 has a Serial Number for Further tracing purposes such as date of Production, Date of Sale, Date of Warranty start, etc.

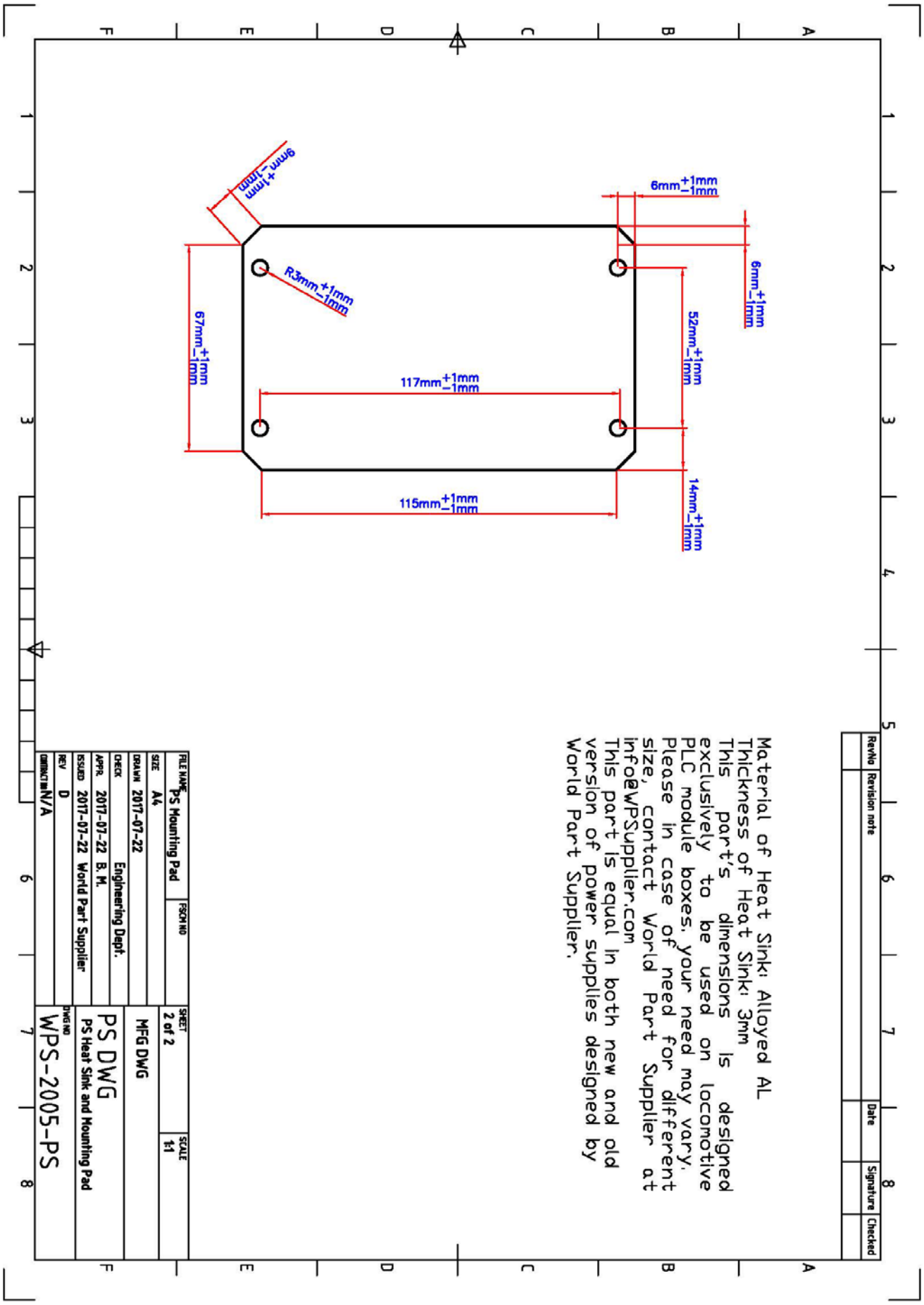
Note:
We supply this unit with two type of covers: A) Metal and B) Plastic

WPS-2005 Technical Specification in one shot:

Part Technical Name:	Microprocessor and PLC Power Supply
New Part Number:	WPS-2005
Equal Part Number:	(ZTR) 102024
Operational Input Voltage Range:	30 to 95VDC
Output Voltage:	Guaranteed 23.5 VDC with Max +.05VDC Deviation
Nominal Continuous Current Supplied by Unit:	3A
Continuous Current for Short Time:	4A for 120 Seconds
Stand for Over Current Caused by Short:	6.3A for 10 Seconds
Operational Ambient Temperature Range:	-20 to +75 Celsius
Can be used on:	Microprocessor Module cards, PLC systems and wherever demands such specification
Thermal Control:	No
Output Over Current Control:	Yes
Output Over Voltage Control:	Yes
Method of Control on Voltage and Current:	Electronically Smart
Differential of Current in relation to Voltage:	0.8A for every 10VDC changes
Others:	• Isolated input and output up to 2000V • Offer able with plastic or metal Cover

Mechanical Drawings of Power Supply external box and sizes:
WPS-2005-PS ➔ Drawing of mechanical external size of power supply cover


1
2
3
4
A
B
C
D
E
F
127±0.5
115±0.5
34±0.5
67±0.5
R2.5±0.5
8.49±0.5
34±0.5
102±0.5
3±0.5
FILE NAME PS COMPLETE BOX
FSCM NO
SHEET 01
SCALE 1:1
SIZE A4
DRAWN 2017/07/14 World Part Supplier Co.
CHECK 2017/07/22 Engineering Dept.
APPR. 2017/07/11 Eng. Dep. of WPS
ISSUED 2017/07/14 World Part Supplier Co.
REV D
CONTRACT NO Exclusive Design as per request
Power Supply ASM
External View of Power Supply
DWG NO WPS-2005-PS


9mm +1mm −1mm
6mm +1mm −1mm
6mm +1mm −1mm
R3mm +1mm −1mm
67mm +1mm −1mm
52mm +1mm −1mm
117mm +1mm −1mm
14mm +1mm −1mm
115mm +1mm −1mm
Material of Heat Sink: Alloyed AL
Thickness of Heat Sink: 3mm
This part's dimensions is designed exclusively to be used on locomotive PLC module boxes. your need may vary. Please in case of need for different size, contact World Part Supplier at info@WPSupplier.com
This part is equal in both new and old version of power supplies designed by World Part Supplier.
RevNo
Revision note
Date
Signature
Checked
FILE NAME PS Mounting Pad
FSCM NO
SIZE A4
SHEET 2 of 2
SCALE 1:1
DRAWN 2017-07-22
MFG DWG
CHECK Engineering Dept.
APPR. 2017-07-22 B. M.
PS DWG
ISSUED 2017-07-22 World Part Supplier
PS Heat Sink and Mounting Pad
REV D
DWG NO WPS-2005-PS
CONTRACT NO N/A