

Data Sheet

AD-10738-115

CSINT-200W - WUXI

Part No: AA-10365-xxx

PROPRIETARY INFORMATION

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Rev.	Remarks /changes	created		checked		released	
0.1	Initial	AST	20.12.2023	-	-	-	-
0.2	Changed description of status feedback	AST	20.12.2023	-	-	-	-

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1.0. Purpose

The purpose of this document is to describe the function of the CSINT-200W-WUXI. The CSINT-200W-WUXI handles the powering of gate drive units in an assembly. The powering of the GDU's is made via a current loop. The optical interfaces are built around the well-known and widely used AVAGO HFBR-xxxx glass fibre.

1.1. Other related documents

Ref	Document Type	Document number / Link	Rev	Content
[1]				
[2]				
[3]				

Table 1: Related documents

1.2. Abbreviations and Terminology

GDU	-	Gate drive unit
CS	-	Current source

Preliminary

2. Function

2.0. Block diagram

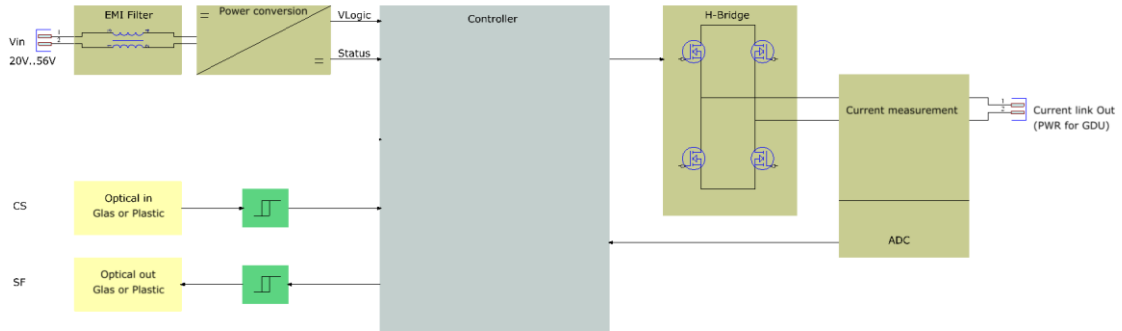


Figure 1: Block diagram

2.1. Power supply

The CSINT-200W converts the external DC only voltage into a pulsing current for powering gate drive units and power supplies. The external power supply for the CSINT-200W will be provided by the customer. For a detailed specification of the input voltages see also [Electrical interfaces CSINT-xxxW](#).

2.1.1. Electrical interfaces CSINT-200W

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Auxiliary power DC in	V_{Sup_aux}	DC	21	24	73	VDC
Ripple of the DC voltage	V_{ripple}				1	V
Quiescent current @48V		$V_{Sup_aux}=48V$, CS_{out} short, no load	-	0.23	-	A
Input current					5	A
Auxiliary power consumption	P	Depends on repetition rate f and the number of connected devices	5	-	200	W
Ground connection			0.75	-	-	mm ²
Connector type Power supply		MSTBA2,5/3-G-5.08				
Connector type cable		MSTBA2,5/3-ST-5.08				(1)

(1) part of delivery

2.2. Optical interface

2.2.1. Dynamic interface

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Trigger repetition rate	f	Depends on ext. application	-	-	TBD	Hz
Delay time	Td	CS in to optical out	-	-	1.5	μs

2.3. Optical Control Signal (CS)

2.3.1. Glass Fiber

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Control signal CS power hi	P _{Inp_high}	HFBR-2412	-9.2	-	-	dBm
Control signal CS power lo	P _{Inp_low}	HFBR-2412	-	-	-40	DBm
Optical connector					FST-M/M-D001	

2.4. Optical Status Feedback (SF)

2.4.1. Glass Fiber

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Optical feedback SFx power hi ¹⁾	P _{Out_high}	HFBR-1414MZ	-10	-	-	dBm
Optical feedback SFx power lo ¹⁾	P _{Out_low}	HFBR-1414MZ	-	-	-40	dBm
Optical connector					FST-M/M-D001	

2.5. Power input

The power input will be done with a Phoenix connector : MC 1,5/ 3-STF-3,81.

Parameter	Symbol	Description
Electrical input	DC+, DC-	Power input
Protection	Protective Earth	Earth connection

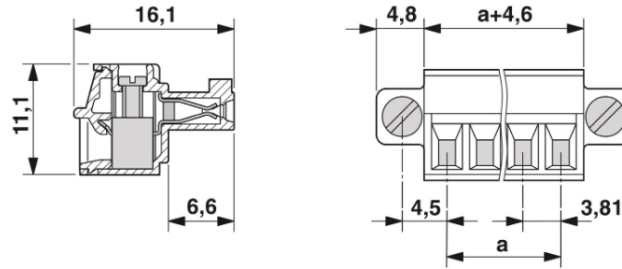


Figure 2: Current link output

2.6. GDU current link output

The current link output will be made with PEM fastenings clinch nuts.

Parameter	Symbol	Description
Electrical output	GDUPWR1,2	Current out



Figure 3: Current link output

2.7. Indicators

Parameter	Symbol	Description
Power LED (green)	PWR_LED	Power and configuration is ok
Current source active LED (green)	Active_LED	Is on when the current source delivers power to the gate units and everything is ok
Current source load warning LED (yellow)	Load_LED	Is on when the current source cable is disconnected or the impedance of the load is too high.
Current source error LED (Red)	Error_LED	Is active when there is an error (input voltage range or power stage failure)

Place of LED's will be defined during PCB Layout.

Figure 4 : User IO Connections CSINT-200W-WUXI

3. Interface

3.0. CS - Control Signal

The Cs signal is used to control the output of the power AC line. Light on the input corresponds to CSINT works in normal state. No light corresponds to no AC output and the CSINT is set in stand by mode.

3.1. SF - Status feedback

The status feedback gives information about the status of the current source. The following errors lead to an error feedback signal:

- Power supply over- / undervoltage (see DC input min/max values in 2.2.1)
- Current output control error (overcurrent)

An error will be shown with an active high CS signal. If the CSINT does have an internal error, one will see it with an inverted (no error) or not inverted (error) feedback signal. For details, see the timing diagram below.

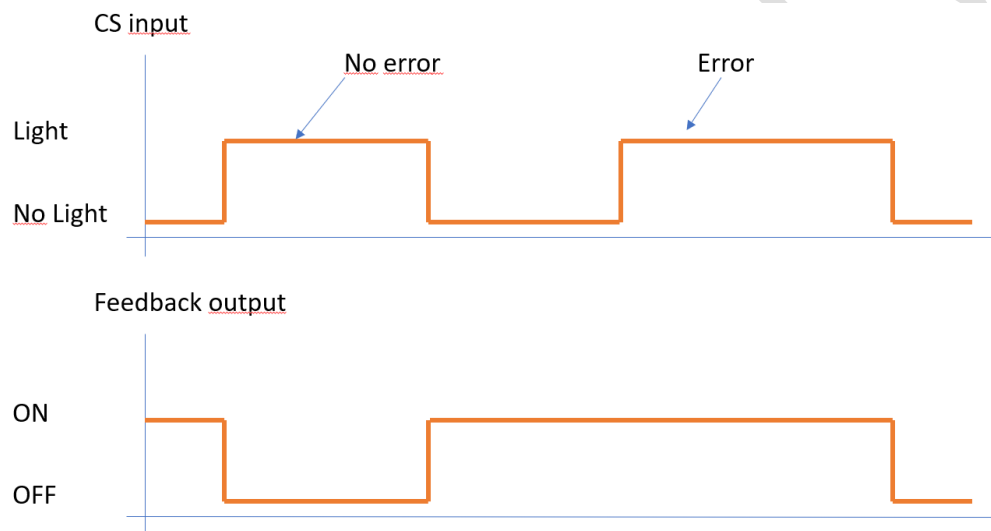


Figure 5: Status feedback

3.2. Dual CSINT redundancy

In case of failure, switch to the standby power supply in time and ensure that the load is powered on continuously. The maximum switching time needs to be assessed.

4.0. Mechanical drawing

The mechanical dimension may change slightly during design process but the maximal dimensions of the previous version will not be changed.

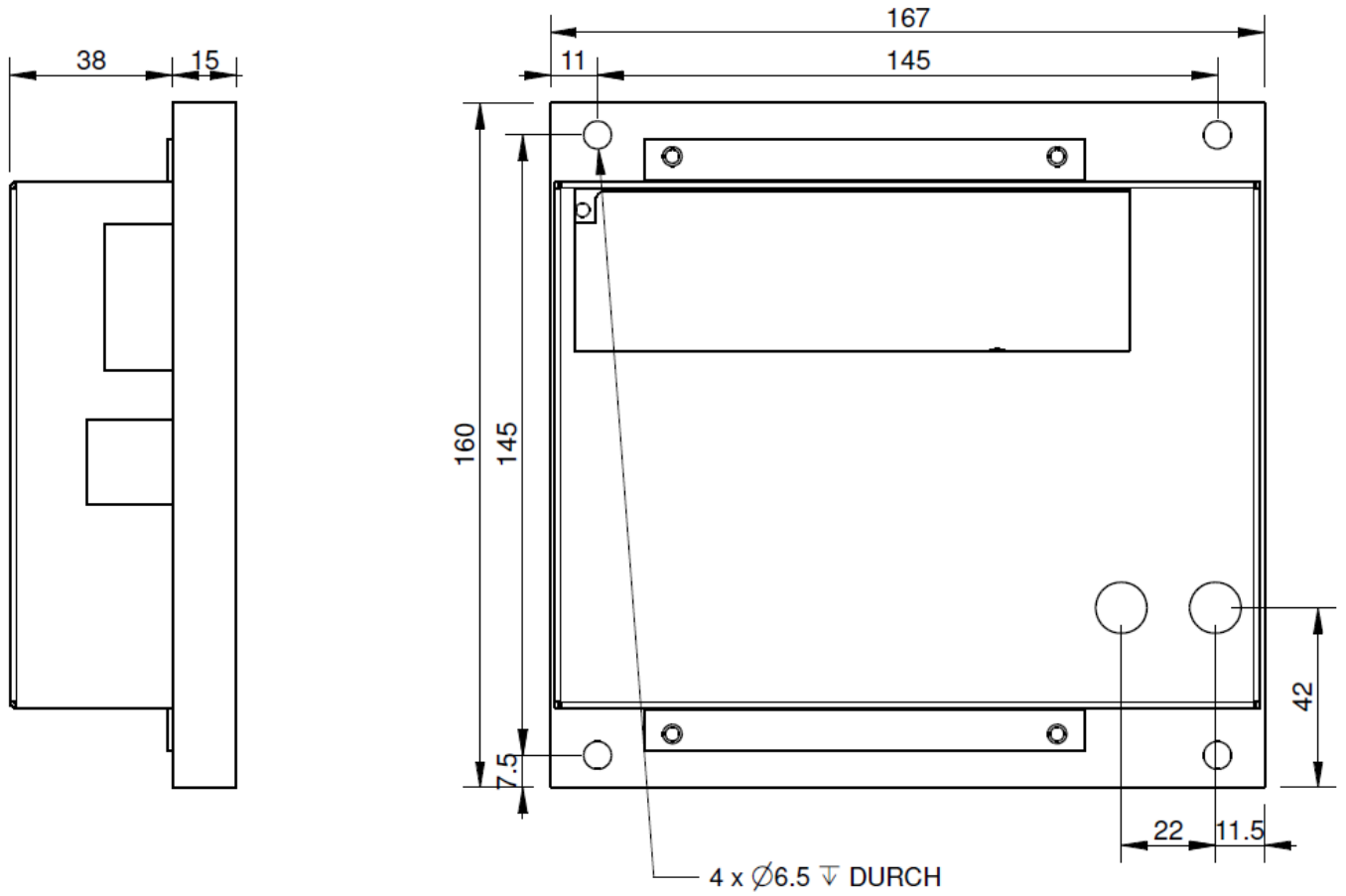


Figure 6: Mechanical drawing

4.1. Labels for CSINT-200W

4.1.1. Bottom side

- Type label with serial number

4.1.2. Top side

- Terminal (1, 2)
- CS
- SF
- Aux. power

5. Environmental specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Ambient temperature	T _{amb}	-	-25	-	+85	°C
Storage temperature	T _{store}	-	-25	-	+85	°C
Humidity month average	Hum @25°C	Non condensing	-	-	90	% RH
Humidity daily average	Hum @25°C	Non condensing	-	-	95	% RH
Operating altitude	Alt	-	0	-	3000	m
Protection class	-	-	-	-	-	-
Vibration intensity	-	-	-	-	0	m/s ²

6. Applicable Standards

For documents on this list, the latest released version shall be applied.

6.0. Printed circuit board

The device are produced according to the WEEE and ROHS guidelines.

Ref	Document Type	Document number	Conditions	Content	V/D
[1]	IEC Standard	IEC 60715	-	Standardized mounting on rails for mechanical support of electrical devices in switchgear and control gear installations	D
[2]	ANSI Standard	IPC-A-600	-	Acceptability of printed boards	D
[3]	ANSI Standard	IPC-A-610	-	Acceptability of electronic assemblies	D
[4]	ANSI Standard	IPC J-STD-001	-	Requirements for soldered electrical and electronic assemblies	D
[5]	ANSI Standard	IPC-6011/601B2/6013	-	Performance of printed boards	D
[6]	ANSI Standard	IPC-SM-840	-	Requirements for solder resist mask	D

D = Designed; V = Verified

7. Quality Standards

7.0. Quality standards

Functionality and quality are ensured by design, production quality and used components according to ISO9001:2008.

7.1. Safety

7.2. Coating

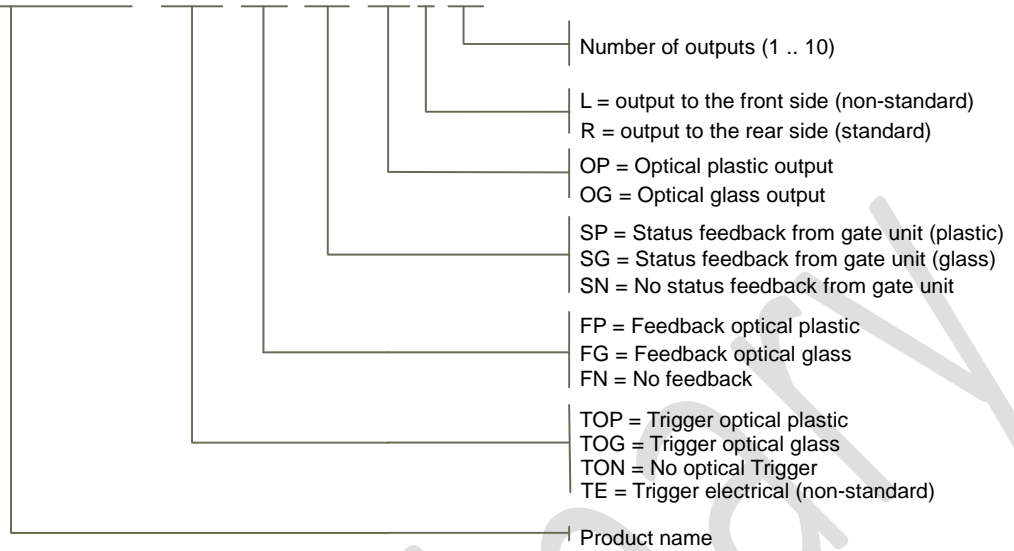
The CSINT-200W is film coated against aggressive environment with HUMISEAL1B73 (UL recognized, qualified to MIL-I-46058C/IPC-CC-830)

8. Warranty

Details are described in "Astrol terms and conditions".

9. Oder code

CSINT-xxxW-xxx-xx-xx-xxxxx



Example: **CSINT-200W-TOG-FG-SN-OGR10**

Order codes already defined:

10. Addendum

10.0. Optical connector FST-M/M-D001



Features

- One-Piece Design
- Full ceramic ferrule

Specifications

Strain relief	Crimped, 100 N (depending on cable type)
Operating temperature HQ	-20 °C to +85 °C (depending on cable type)
LEAN	-25 °C to +75 °C (depending on cable type)
Min. mating cycles	500
Finish	Gluing and polishing
Connection	Physical contact (PC)
Connection system	bayonet
Standard	IEC 61754-2
Ferrule material	Full ceramic ferrule
Connector material	Brass nickel-plated
Adapter material	Brass nickel-plated, slotted zirconia ceramic ferrule

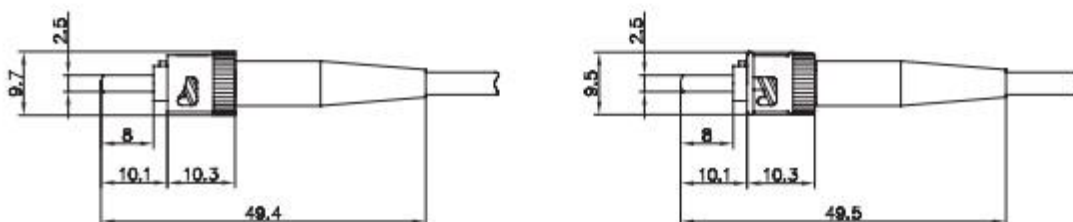


Figure 7: FST-M/M-D001 optical connector

10.1. Electrical connector CSINT-200W

10.1.1. Power connector cable

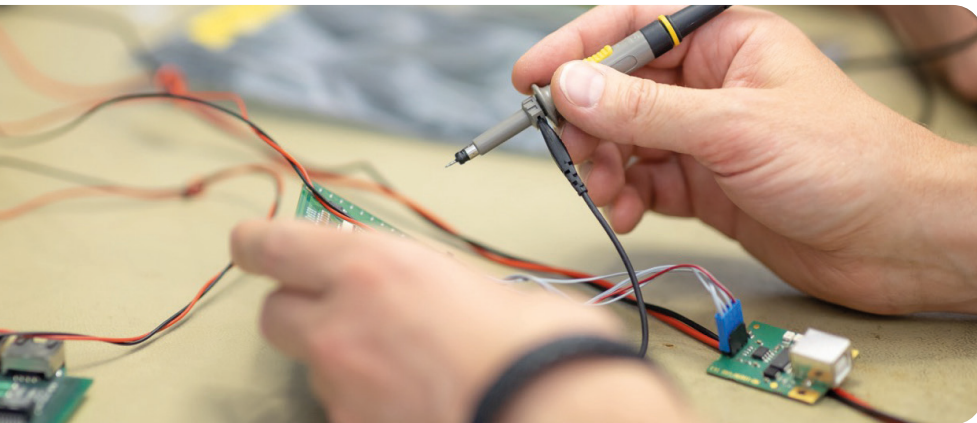
Power connector on the cable side: MC 1,5/ 3-STF-3,81.



Figure 8: Power connector cable

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About Astrol



Technology leader in pulsed power switches and solid-state circuit breakers

Astrol is a Switzerland based innovator and manufacturer of state-of-the-art power control and switching solutions. We design and produce electronic parts for technical high demanding industries such as medical, energy distribution and pulsed power applications since 1996. In our 25-year history we have developed from a designer of custom-built electronics to a technology leader in pulsed power switches and solid-state circuit breakers with a wide range of products and a world-wide customer base consisting of operating companies and research institutes.

Our main focus lies on power switching in the medium voltage range, from optimized gate drive units to fully integrated solutions of up to 100kV. Our products are designed, manufactured and tested in our production location and high voltage test laboratory in Othmarsingen and therefore are able to withstand harsh environments, extended temperatures and have a long lifetime.

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