

OCS-I/O

HE959CPU300 Quick Reference Guide

1 - General Specifications

1.1 General Specifications	
Required Power (Steady State)	630 mA at 24VDC
Required Power (Inrush)	24VDC switched 35A for 200µs
Primary Power Range	10-30VDC
Real Time Clock (RTC)	Battery backed; lithium coin cell CR2450
Battery Life	10 years (RTC Support)
Relative Humidity	5-95% non-condensing
Operating Temperature	-10°C to 60°C
Storage Temperature	-20°C to 70°C
Weight	9.5 oz (270 g)
Mounting	35 mm DIN Rail
Housing Material	Plastic
Dimensions	114.8mm x 117.5mm x 74.3mm 4.52" x 4.63" x 2.92"
Certifications (UL/CE)	North America: https://hornerautomation.com/certifications/ Europe: https://www.hornerautomation.eu/support/certifications-2/



1.2 Connectivity	
Serial Ports	1 x RS-232, 1 x RS-485
CAN Protocols	CsCAN, CANopen, DeviceNet, J1939
CAN Port Speeds Support	125kb, 250kb, 500kb, 1Mb/sec.
Ethernet	2 x 10/100Mbps
Ethernet Protocols	TCP/IP, Modbus TCP, FTP, SMTP, EGD, ICMP, ASCII, Cscape, Ethernet IP
microSD	SDHC, SDXC in FAT32 format
Communication Support	WebMI, E-mail, TCP/IP, Modbus, FTP, Datalogging
Remote I/O	OCS-I/O
Removable Memory	microSD, SDHC, SDXC (in FAT32 format), support for 32GB maximum. Application Updates, Datalogging
USB Type A (500 mA max)	USB 2.0 (480Mbps) for USB flash drives (2TB), Wi-Fi, cameras, mice and keyboards
USB Type C	Programming

1.3 Control and Logic	
Control Language Support	Register-Based Advanced Ladder Logic (RBAL), Variable-Based Advanced Ladder Logic (VBAL), IEC 61131-3 Languages
Logic Program Size	2 MB
Non-Retentive Memory	128 kB
Internal Storage Memory	16 MB
Total Program Memory	2.5 MB
Logic Scan Rate	0.02ms/kB
PID Support	32
%I (Digital Inputs)	2048
%Q (Digital Outputs)	2048
%AI (Analog Inputs)	512
%AQ (Analog Outputs)	512
General Purpose 16-bit Registers (%R) Retentive Registers	50,000
General Purpose 1-bit Registers (%T) Temporary Bits	16,384
General Purpose 1-bit Registers (%M) Retentive Bits	16,384

USB Webcams

USB Webcams should support the UVC (USB Video class) protocol for the OCS to be able to display video. Most USB-based video devices support this today. Special feature such as zoom and high definition are not supported by the OCS.

2 - INSTALLATION NOTICE

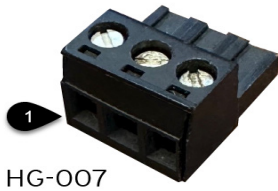
When products are installed in environments of extreme Electromagnetic Interference (EMI), it is advised to take extra measures to ensure correct operation. In addition to the installation procedures, Horner APG recommends the following steps to ensure additional immunity in potential extreme EMI situations:

1. Always use a high-quality power supply. EMC ratings that include both EN61000-6-2 and EN55022 Class B can provide a reasonable amount of immunity with minimal emissions. NOTE: Power supplies that permit or create occasional transients can disrupt a system and can be nearly impossible to troubleshoot.
2. Power lines should be twisted and as short as possible.
3. Always attach ground wire with the heaviest gauge and shortest wire as possible.
4. Route cabling perpendicular to peripheral equipment wiring. Never install cabling parallel to any power or high voltage lines.
5. CAN cabling used should be Belden DeviceBus 3084A or 3082A. If CAN power is required externally, apply power as close to the CAN port as possible. Avoid powering CAN through the network cable. Always connect the common (OV, black) wire between devices and leave the +24 volt (Red) wire open when independently powering each node.
6. The CAN cabling should have a 360° clamp installed on the braid shield at both ends of the cable and attached to ground. In certain noise environments, attaching the shield at one end only provides the necessary immunity.
7. All analog input and output cabling should be Belden 8441 or equivalent, and in some noise environments may require a clamp as shown in the previous step.
8. Run all cable in metal conduit, separate from power and high voltage lines.
9. Attach a ferrite with a minimum of two turns to interconnect lines to the device. This includes power, analog, and communication lines. Horner offers a Ferrite Core (part number HE-FBD001) on the Horner APG website



3 - ELECTRICAL INSTALLATION

The Primary Power Range is 10-30VDC ± 20%



HG-007

Primary Power Port Pins		
PIN	Signal	Description
1	Ground	Frame Ground
2	DC-	Input Power Supply Ground
3	DC+	Input Power Supply Voltage

DC Input/Frame

- Solid/Stranded Wire: 12-24 AWG (2.5-0.2mm)
- Strip length: 0.28" (7mm)
- Torque, Terminal Hold-Down Screws: 4.5 - 7 in•lbs (0.50 - 0.78 N•m)
- DC- is internally connected to I/O V-. A Class 2 power supply must be used.

4 - INSTALLATION

The HE959CPU300 is compact and mounts on a DIN-rail. Each I/O module installed adds width in increments of 19mm.

NOTE: The distance between wiring duct and surrounding modules should be at least 50mm apart.

OCS-I/O modules can be added after the OCS-I/O base has been installed on the DIN-rail and can not be hot swapped with power applied.

I/O modules are physically added with the following procedure:

1. Connect the bus connectors together to form a backplane that can accept up to 8 modules, including the CPU300 or another base.
2. Snap the bus connectors into the DIN rail. The DIN rail should be 35 mm x 7.5 mm and made to EN 60715 standards.
3. Place the CPU300 to the leftmost connector.
4. Insert modules by latching at the top of the DIN rail first, then rocking each module down until the latch at the bottom of the DIN rail engages.
5. To remove a module, insert a flat-blade screwdriver into the metal DIN rail latch at the bottom of the module. Pry downwards to release the latch, then rock the module up and off the DIN Rail.

NOTE: Modules may be removed while powered; however, I/O scanning on the remaining modules will stop and I/O will go to the default state until a new module is inserted and all modules in the configuration are present.

5 - WARNINGS

WARNING - If the equipment is used in a manner not specified by Horner APG, the protection provided by the equipment may be impaired.

WARNING - EXPLOSION HAZARD - Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous
AVERTISSEMENT - RISQUE D'EXPLOSION - Ne débranchez pas l'équipement tant que l'alimentation n'a pas été coupée ou que la zone n'est pas dangereuse.

WARNING - EXPLOSION HAZARD - Substitution of any component may impair suitability for Class I, Division 2
AVERTISSEMENT - RISQUE D'EXPLOSION - Le remplacement de tout composant peut nuire à la compatibilité avec la classe I, division 2

WARNING - POSSIBLE EQUIPMENT DAMAGE - Remove power from the I/O Base and any peripheral equipment connected to this local system before adding or replacing this or any module.

AVERTISSEMENT - DOMMAGES POSSIBLES À L'ÉQUIPEMENT - Coupez l'alimentation de la base d'E / S et de tout équipement périphérique connecté à ce système local avant d'ajouter ou de remplacer ce module ou tout autre module.

WARNING - Outputs should be connected to the same voltage levels (all connect to 24V supply sources)

WARNING - Digital Outputs are non-isolated and considered hazardous live.

WARNING - Loads for outputs require a Class 2 or Limited Power Source from a UL Listed power supply.

6 - SAFETY

- a. All applicable codes and standards should be followed in the installation of this product.
- b. Shielded, twisted-pair wiring should be used for best performance.
- c. Shields should be grounded at one end only, preferably at the end providing the best noise shunting.

7 - TECHNICAL SUPPORT

For further details, please refer to the Datasheets on the Horner website.

For assistance, contact Technical Support at the following locations:

North America
+1 (317) 916-4274
www.hornerautomation.com
APGUSATechSupport@heapg.com

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