SnapREG Service Manual

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Contents

1   Introduction

This manual is for use with AVTs' SnapREG system, an on-web registration system.

Typographic Conventions

To make this manual easier to follow, bold letters are used to show touch- control buttons, icons, or view names, such as **OK**, **Apply**, or **Press Status**.

Note: Notes contain specific information. They may explain why a certain step should be performed. Sometimes they contain tips about a particular step in a process.

Helpful Hints

Helpful Hints may appear at the end of sections. They contain tips on how to use the SnapREG system more effectively.

WARNING: Warnings appear when specific instructions must be followed to avoid creating a problem.

2 Warnings

2.1 Warning Labels

WARNING: Warning labels as shown at left indicate electric shock hazard zones on the equipment. **DO NOT remove guards or place hands in these locations at any time that power is applied.**

WARNING: Warning labels as shown at left indicate that there are no user serviceable parts inside. Customer Service can assist you if system components need to be exchanged or replaced.

WARNING: Warning labels as shown at left indicate a crush hazard in this area. Hands can be crushed between moving machinery while it is in operation.

WARNING: General warning labels as shown at left indicate there is a threat to personal injury or health.

2.2   Operator Warnings

A shock hazard exists on the inside of the Camera Control Module (CCM) equipment cabinet. The cabinet door should remain locked at all times. Only authorized electricians should access this cabinet. **DO NOT place hands inside the Camera Control Module equipment cabinet at any time that power is applied**.

A shock hazard exists on the inside of the Register Interface Box (RIB) enclosure. This enclosure should remain sealed at all times as there are no user serviceable parts inside. **DO NOT place hands in RIB enclosure at any time that power is applied.**

There exists a potential pinch hazard between the SnapREG scan heads and the transports. The force required to stall the transport motors is much less than is usually required to cause bodily harm. However, **DO NOT place fingers in the area of the scan heads at any time that power is applied**.

SnapREG Service Manual
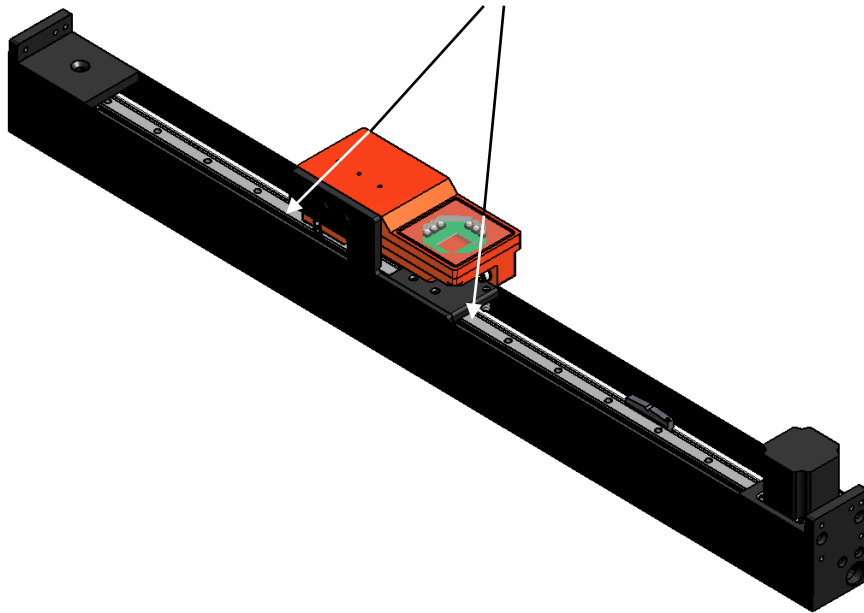
3 System Overview

This section describes the SnapREG system components, how the system operates, and how to power On/Off the SnapREG on-press unit.

3.1 SnapREG System Description

SnapREG is an optional, add-on module to the Clarios on-press, in-line color control system or to the Mercury ink control system. The system is composed of an on-press unit and a scan head working in conjunction with the Clarios or Mercury system.

SnapREG controls the plate positions by measuring the distance between the marks on the registration targets. It changes the plate positions as necessary to maintain proper registration.

The SnapREG software and display runs on the Clarios or Mercury server.

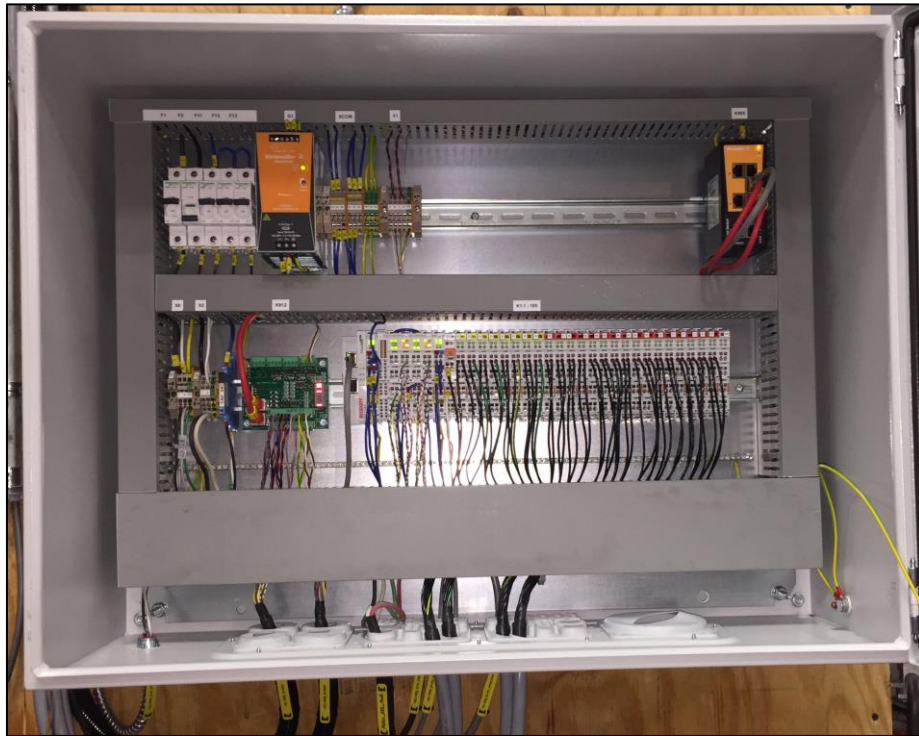## 3.2 SnapREG System Components

The system components include:

- **SnapREG Camera Control Module (CCM)**

  The Camera Control Module contains the encoder interface, scan head interface, and transport control PLC, if using an optional motorized transport.

- **SnapREG Register Interface Box (RIB)**

  The Register Interface Box contains the register motor control PLC.

- **SnapREG Scan Head**

  The Scan Head finds the register targets on the web and performs the required measurements.

  The scan head has a pre-defined IP address and can be found on the label. Most common IP addresses are 172.31.51.51 for the upper surface and 172.31.51.52 for the lower surface, however the IP address can be anywhere in the 172.31.51.xx range. The IP address defines where the camera is located on the system, so the cameras should not be mixed up or the system may control the wrong motors.

- **SnapREG Motorized Transport**

  The Motorized Transport moves the Scan Head to the correct location to find the marks using a motor control. This is optional equipment. Some systems use a manual camera bar.


- **Clarios or Mercury / SnapREG Server**

  All job data is created by the operator on the Clarios or Mercury/SnapREG server in the SnapREG application. The application receives runtime scan data from the SnapREG scan head, which triggers plate motor moves when necessary.

- **Digital Encoder**

  Each Master/Folder needs an encoder to get the accurate speed and position of machine. The encoder should mount on 1-to-1 ratio to the plate cylinder.
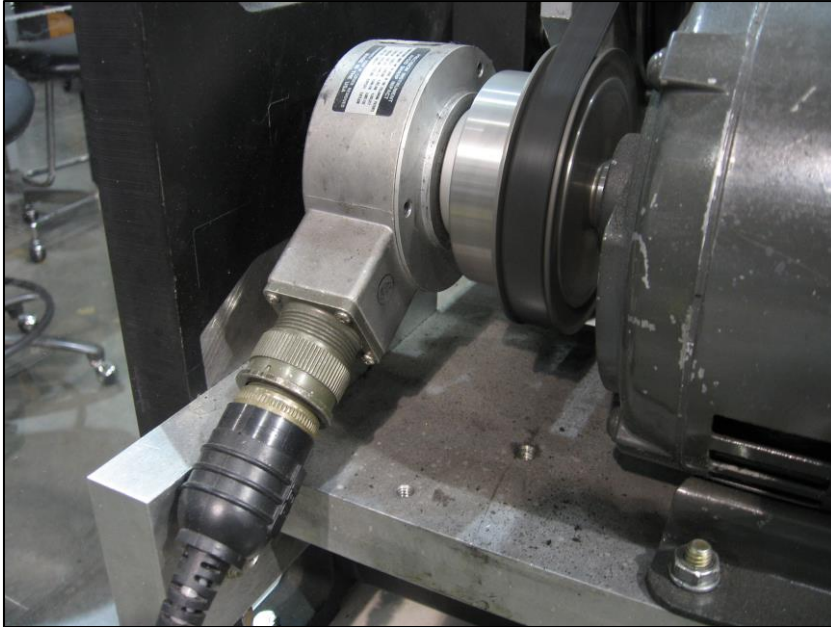
3.3 On-Press Power

Camera Control Module

Power to the Camera Control Module is controlled by a main AC breaker inside the enclosure. Refer to the detailed electrical drawings supplied with your system for further information.

Register Interface Box (RIB)

Power to the Register Interface Box is controlled by a main AC breaker inside the enclosure. It normally should not be necessary to power this unit off. Thus unit typically has an additional power source to power the register motors. This is usually press power.

Refer to the detailed electrical drawings supplied with your system for further information.

4 Maintenance

There are several SnapReg parts that require regular maintenance by the customer to ensure continued precise and safe operation of the system.

WARNING: Only trained personnel should service any SCAN HEAD parts.

WARNING: Turn OFF all power to the SCAN HEAD before servicing.

WARNING: SCAN HEAD maintenance should be performed when the press is not running.

4.1 Cleaning SnapREG Probe Head

This procedure is designed for use with SnapReg probe head, PN 055G400873.

Customer Supplied Supplies

What You Need
➢ Glass cleaner or alcohol
➢ Micro-fiber lens cleaning cloth

Clean Probe Head Procedure

Perform the following steps as needed to maintain proper probe head performance. The frequency of this procedure will vary greatly depending on the environmental conditions.

1	For motorized transports, select the **wash-up** button on the GUI to move the head to the home position.
2	For non-motorized transports, manually move the **scan head** to the home position.
3	Clean the **glass lens** cover with glass cleaner and a micro-fiber lens cleaning cloth.
4	Press the **wash-up** button again to move the head back to its previous position or, in the case of a non-motorized transport, manually move the head back to its previous position.

5 Replacement Parts

When AVT Customer Service sends replacement parts, trained personnel can install them according to the instructions in this chapter.

The following parts are user-replaceable:

- Scan Head
- Encoder
- Ethernet switch
- 24V power supply
- CTC 4 Junction PCB
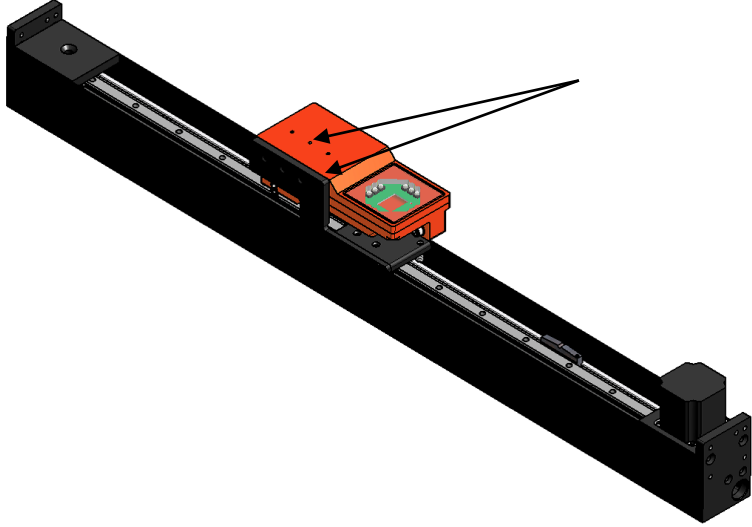- Beckhoff modules (except CX5010)
- Motorola Level / Pulse converter

5.1 Replace Scan Head

WARNING: Only trained personnel should service any of the parts, including the scan head.

WARNING: Before servicing, turn OFF all power to the on-press unit.

WARNING: Do not service the scan head while the press is running.

1	For motorized transports, press the **probe head control** button to move the head to the home position. The button should light up.
2	For non-motorized transports, manually move the scan head to the home position.
3	Turn power to the CCM **OFF,** using the circuit breaker inside the enclosure. Be sure the press is not running.
4	Unplug the cable from the scan head by lifting straight up on the locking ring to disengage it.

5	While holding the scan head, remove the three Allen-head screws, holding the scan head to the transport using a 2.5mm Allen wrench.
6	Attach the new scan head to the mount with the three screws. The new scan head should have the same IP address as the camera you removed. If not, contact AVT Customer Service for assistance.
7	Reconnect the cable to the scan head by rotating the connector until it engages, then pushing down on the locking ring.
8	Turn **ON** the power to the CCM using the circuit breaker.
9	Press the **probe head control** button to move the head back to its previous position or manually move the head back to its previous position.

5.2   Replace Motor Control Relays

The motor control relays used in some register systems are actually a solid state Interface Module and consist of a DIN mounted module with a replaceable fuse. There is a LED indicator that lights up when the input side of the module is activated. There is one relay for every direction on every motor.

For most troubleshooting, a simple replacement of the fuse is all that is required. This fuse is 3 AMP, 5mm x 20mm and can be replaced by pulling the tab. The fuse is captured within the tab after it is pulled out.

In some instances, these modules may go bad. These cannot be tested with a simple multi-meter to measure continuity.

To test the modules, the following items are required.

What You Need
➢ An AC voltage source between 12 and 280 volts, .5 – 3A. (12VAC recommended for safety.)   ➢ An AC load, such as a light bulb or motor, which matches the AC voltage you are going to use.   ➢ A DC voltage source between 4 and 28 volts. A standard 9 volt battery will work for this purpose.   ➢ Some lengths of hookup wire.

It should be possible to switch both of the voltage sources on and off easily.

DO NOT APPLY ANY VOLTAGE UNTIL INSTRUCTED TO DO SO!

1	Connect a wire that will carry the AC voltage to Terminal 1.
2	Connect a load between Terminal 2 and the neutral for the AC voltage.
3	Connect the positive DC to Terminal 3.
4	Connect the negative DC to Terminal 4.

5	Apply the AC voltage source. The load should not work at this point, as the DC voltage is off.

6	Apply the DC voltage source. At this point, the LED on the relay should light up and the load connected to the AC side of the module should work.
	
	    a) If the LED lights up and the load works then the module is good.
	
	    b) If the LED lights up, but the load does not work, check the fuse. If the fuse is good, then the module is bad and should be replaced.
	
	    c) If the LED does not light up, check the DC power source to make sure it has sufficient voltage and amperage to drive the relay. (Minimum is .5 amps at 4VDC.) If this is OK, then the module is bad and should be replaced.

6 Technical Specifications

6.1 Physical Specifications

Weight and size varies dependent on the width of the press and the transport option.

Camera Control Module

Average Weight: 20 lbs./9.0 kg.

Average Dimensions:

      Length: 23.6 in./0.60 m.

      Width: 8.3 in./0.21 m.

      Height: 15 in./0.38 m.

Noise Pressure Level at operator station is < 70dB(A).

PLC Color Register Control

Average Weight: 20 lbs./9.0 kg.

Average Dimensions:

      Length: 24.1 in./0.61 m.

      Width: 10 in./0.25 m.

      Height: 5.1 in./0.13 m.

Noise Pressure Level at operator station is < 70dB(A).

Scan Head and Transport

Average Weight: 20 lbs./9.0 kg.

Average Dimensions:

      Length: 51.2 in./1.30 m.

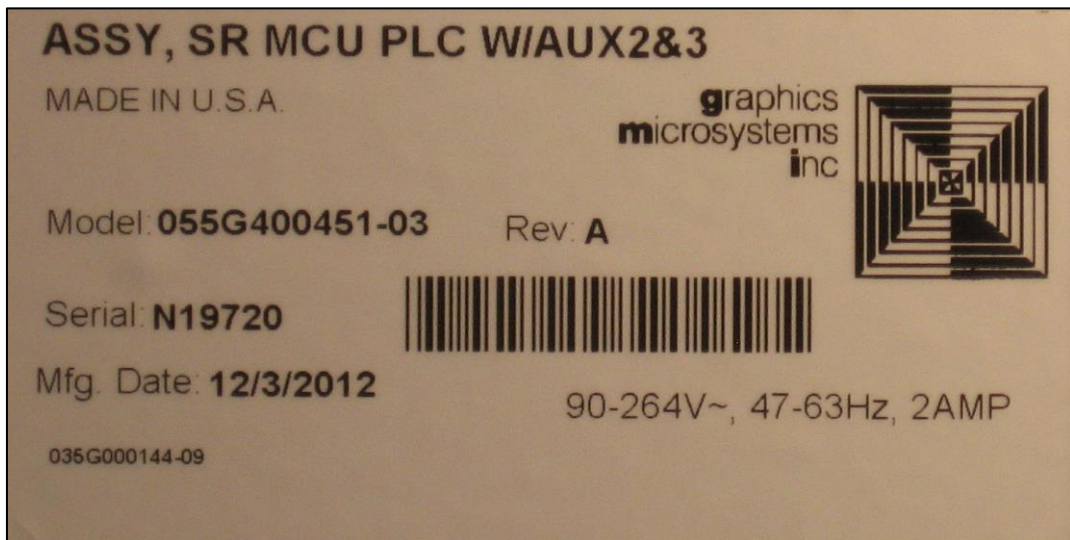   Width: 5.2 in./0.13 m.

      Height: 3.1 in./0.08 m.

Noise Pressure Level at operator station is < 70dB(A).

6.2   Manufacturer's Nameplate

Camera Control Module

PLC Color Register Control (Optional Equipment)

Revision History

Revision Date	Revised By	Version	Section/Page Numbers	Revision Description
1/9/2013	RR	A	All	Initial release.
4/17/2013	TR	B	7, 9, 14	Added camera IP information.
3/18/2015	SL	C	1, 2	Updated logo & address.
1/24/2018	SW	D	3, 4, 5	• Changed all GMI to AVT. • Updated screen shots, as needed. • Changed Clarios references to be Clarios or Mercury. • Changed PLC Color Register Control to Register Interface Box; updated scan head IP addresses; deleted PQ Relay Box; updates to steps for cleaning probe head; added more replacement parts.