

# XLT AND XHT PFA DRY CONTACT/RELAY SENSORS

## SENSOR WIRING AND REPLACEMENT INSTRUCTIONS

Standard EE 70194/CT70300 (assembly) and  
High Temperature EE70199/CT705XX (Assemblies)

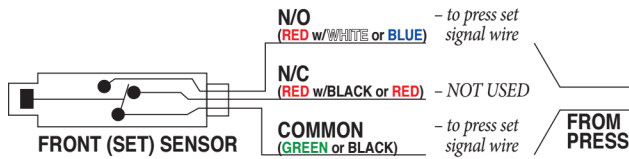


Fig. 1 - Single Sensor Wiring

PFA Relay-style sensors (CT70300 assembly CT70520/21/22... High Temperature Assembly) function as a true dry contact switch. In normal usage, when the target comes “in range” of the sensor, the magnet inside the switch closes a contact to complete the circuit.

### CT70300 ASSEMBLY SPECIFICATIONS

- Part No. on Sensor: EE70194
- Cylinder Designation: -XLT
- Contact Type: SPDT (Single-Pole, Double Throw)
- Contact Rating: 2 Amps @ 120VAC  
1 Amp @ 240VAC  
1 Amp @ 24VDC
- Temperature: -40°F (-40°C) to 257°F (125°C)
- Pressure: 3000 psi max.
- Install Torque Max.: 50 in-lbs. max.

### CT70520/21/22... ASSEMBLY SPECIFICATIONS

- Part No. on Sensor: 72-16222-F4
- Cylinder Designation: -XHT
- Contact Type: SPDT (Single-Pole, Double Throw)
- Contact Rating: 4 Amps @ 120VAC  
2 Amp @ 240VAC  
3 Amp @ 24VDC
- Temperature: -40°F (-40°C) to 400°F (204°C)
- Pressure: 3000 psi max.
- Install Torque Max.: 50 in-lbs. max.

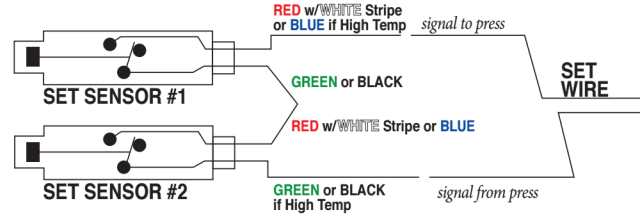
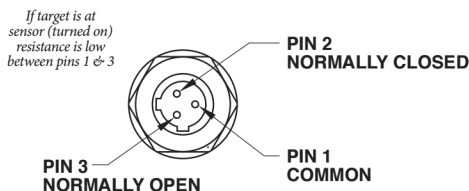


Fig. 2 - Multiple Sensor Wiring (Series)

Relay-style switches offer many benefits to the user. They have no voltage drop when closed nor do they have leakage current when open. In most applications the Normally Open (N/O) connection is used so that when the cores reach set or pull, the relay contacts close to give that indication to the press. In most cases, the Normally Closed (N/C) connection is not used, but is available for use as part of PFA's **SWITCHMAX®** Mold Wiring solution.

Connection between the KOR-LOK® Side-Action System and the press, is as simple as connecting two set sensor wires and two pull sensor wires to the two pair of machine control wires. The order of connection for each pair is not important.

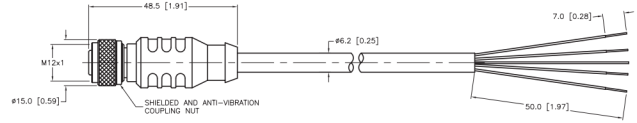
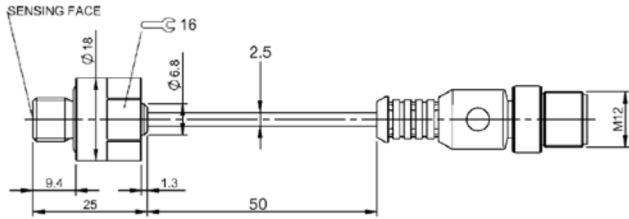
Multiple set sensors may be wired in series to provide a single set indication to the press. Similarly, the pull wires may be connected in series. For situations where a core or other part of the mold may be damaged if opened with cores set, it is recommended that a redundant sensor be placed on the core itself and wired in series with the main unit sensors to ensure the core is retracted prior to mold opening.

PFA's **SWITCHMAX®** Mold Wiring solution is also available to provide cross checking of sensors to verify proper sequencing and provide operator side LED light indication. For additional information on **SWITCHMAX®**, please view the information online at [www.pfa-inc.com](http://www.pfa-inc.com).



# PNP LOW PROFILE PFA PROXIMITY SENSORS

## SENSOR WIRING AND REPLACEMENT INSTRUCTIONS EE70600/CT70600 Assembly

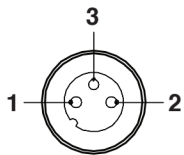


Example: Front (Set) Sensor

PFA Low Profile -PNP sensors (EE 70600/CT 70600 assembly with seal) function as typical high pressure proximity sensor, with a solid state device that senses the metal target of the lock or piston and outputs the input voltage (24VDC) to the machine control.

### CT70600 ASSEMBLY SPECIFICATIONS

Part No. on Sensor:	PFA-EE70600
Cylinder Designation:	-PNP
Contact Type:	Solid State PNP/NO
Contact Rating:	100 mAmps @ 24VDC
Supply Voltage:	10-30 VDC
Voltage Drop:	≤2.5 VDC
Temperature:	-13°F (-25°C) to 175°F (80°C)
Install Torque Max.:	50 in-lbs. max.



- 1 = Brown (Power + 24 VDC)
- 2 = Blue (Neutral 0 VDC)
- 3 = Black (Signal)



Low Profile PNP sensors offer benefits to the user when fitting The KOR-LOK unit into demanding small applications or when Integrating with other actuators using similar PNP sensor logic. PFA's PNP option has a low voltage drop, typically allowing multiple sensors to be connected together to facilitate a single input to the machine control. Sensor integration is easily accomplished with PFA's **SWITCHMAX**® connectivity solution with PNP designated splitter cables.

In a generic application the Normally Open Sensor is paired with an individual cable to provide power and route the signal. To use the sensors individually, Power +24VDC (Brown wire) and Neutral 0 VDC (Blue wire) is required, as well as some method of integrating the sensor signal (Black wire) to the press. Various schemes are used to accomplish this task for molds with multiple cylinders, however, PFA recommends **SWITCHMAX**® to provide a plug and play serial connection of sensors into single inputs for set and pull, while also providing operator side indication and troubleshooting capability.

While proper indication is expected, PFA cautions that for situations where a core or other part of the mold may be damaged if opened with cores set, it is recommended that a redundant sensor be placed on the core itself and wired in series with the main unit sensors to ensure the core is retracted prior to mold opening.

For details on **SWITCHMAX**® options, please view the information online at [www.pfa-inc.com](http://www.pfa-inc.com).

# SENSOR REPLACEMENT

Read instructions completely before beginning work. If you have questions or need technical assistance, please contact PFA for support.

**WARNING!**

*The sensor is not solid metal! Torque values are very low - in-lb not ft-lb!*

The XLT Relay Sensor Assembly consists of the Sensor Body (EE70194), O-Ring Seal (2-013), and purple Loctite® (#545) thread compound. The Loctite® is provided to give the sensor resistance to loosening/leakage under normal use.

The XHT (High Temperature) Relay Sensor Assembly consists of the Sensor Body (EE70199), High Temp (VI) O-Ring Seals, Adaptor Body (LR08100) and purple Loctite® thread compound.

The PNP (Low Profile) Solid State Sensor Assembly consists of the Sensor Body (EE70600), O-Ring Seal (2-013) and purple Loctite® thread compound.

## PREPARATION FOR SENSOR REPLACEMENT

Ensure all hydraulic pressure is removed from the unit. Hoses may then be disconnected or the associated hydraulic system vented and secured to prevent pressurization of the KOR-LOK® Side-Action System Main Unit.

**CAUTION!**

*Fluid may eject from the sensor hole or ports under pressure or rod movement. Sensor is capable of handling Large Voltage and Current levels. Observe proper safety precautions.*

Ensure the main unit is in a safe orientation so that the rod cannot move or apply a load on the cylinder, which might result in applied pressure to fluid still inside the unit.

Disconnect or secure power to the sensor from associated equipment.

**All PFA KOR-LOK®, DIE-LOK™ and SWITCHMAX® application and use recommendations are advisory only.** KL/DL preload force ratings are geometry dependent and based on PFA recommended sizing methods. Process variations may affect actual performance. **PFA recommends use of PFA's SWITCHMAX® cross connected sensor checking and independent 2nd pull sensor (redundant) "core pulled" sensing on molds where opening with cores set could damage the mold.** False readings in the event of single sensor failure, cylinder contamination, core to cylinder separation, attachment failure, etc. may occur. PFA is not responsible for situations arising from false sensor readings, product failure, misuse, or abuse - proper form, fit and function are the responsibility of the customer. PFA "Terms of Sale" apply.

## REMOVAL OF OLD SENSOR

With pressure removed and vented and electrical power secured to the sensors, locate the front or rear sensor, as appropriate. Remove the cable from the sensor by unscrewing the retaining ring in a counterclockwise direction and unplugging the cable. For direct wire -XHT sensors, disconnect from power or controls.

Remove the sensor by rotating or unscrewing with a counterclockwise rotation on the hex nut connector (a 5/8" deep wall socket is recommended to avoid damage to the connector plug for XLT sensors). For PNP sensors, use a 5/8" or 16mm socket with cutout for cable.

## INSTALLATION OF NEW SENSOR (RECOMMENDED PREFERRED METHOD)

Inspect the sensor hole and surrounding sealing surface. Remove any debris from the surface, degrease threads, and ensure the surface is not damaged.

**CAUTION!**

*Sensor is designed to seal finger tight. Do not exceed 50 in-lbs (inch-pounds) of torque.*

Degrease threads in housing and sensor. Ensure threads are clean and dry. If available, apply Loctite® Locquic® Primer T (7471) or equivalent to threads and wait until dry.

Add a small drop of purple Loctite® (#545) to the sensor threads and insert the new sensor in the hole turning clockwise. (Turn the sensor using fingers only until resistance of the o-ring seal is encountered - continue turning sensor clockwise against the seal resistance until the sensor seats on the sealing surface). The o-ring will seat with minimal torque and is fully seated by 30 in-lbs. At this level the sensor no longer turns freely.

Torque to 45 in-lbs (a 5/8" deep wall socket is recommended to avoid damage to the connector plug). **EXCESSIVE TORQUE WILL DAMAGE THE SENSOR.**

Connect cable and turn the connector retaining ring clockwise until play is removed or reconnect wiper as appropriate.

Allow Loctite® to set for 5 minutes and reinstall KOR-LOK® unit in mold.