Interconnection circuits

• The interconnection is the electrical circuitry that connects the railroad equipment and the traffic signal controller to perform preemption.
Interconnection circuits

Barriers:

• Controller manufacturers and firmware developers differ.

• Lack of understanding the details of preemption operation

• No TxDOT standard to address interconnection circuits and operation
Interconnection circuits

Circuits for the traffic signal interconnection design:

• Advanced preemption circuit
• Supervision circuit
• Simultaneous preemption circuit
• Gate down circuit
• Traffic signal health circuit
• Maximum preemption timer
Preemption circuit operation

No Train - Normal Operation

Railroad Bungalow
- ADV PE
- SUPV
- SIM PE
- GATE DOWN
- TSH

Traffic Cabinet
- ADV PE
- SUPV
- SIM PE
- GATE DOWN
- TSH
Preemption circuit operation

Train Detected - Start Advance Preemption - Begin RWTT

Railroad Bungalow

Traffic Cabinet

ADV
PE
SUPV

ADV
PE
SUPV

SIM
PE

SIM
PE

GATE
DOWN

GATE
DOWN

TSH

TSH

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Preemption circuit operation
Correct preemption operation
Correct preemption operation
Benefits of preemption expertise
Preemption circuit operation
Preemption circuit operation
Preemption circuit operation
Preemption circuit operation
Preemption circuit operation
Preemption circuit operation

Train Departs Island Circuit - Crossing Warning Deactivates - Back to Normal Operation
Preemption circuit operation
Implementing the enhanced interconnection can become a challenge:

• Electrical requirements
• Terminal facilities
• Functional operation
CTC’s highway products

Railroad Preemption Interface

✓ Notifies traffic signal controller of approaching train
✓ Safeguards railroad preemption sequence in the controller
CTC’s highway products

Traffic Signal Health Expansion Card

✓ Coupled with CTC’s Railroad Preemption Interface, provides additional safety layer to ensure preemption sequences at grade crossings operate as designed.
CTC’s highway signal products

IGOR™ - next generation signal operations recorder system.

✓ The only recorder with video capability.
CTC services and products

• Highway-rail expertise
• Highway-signal products
• Preemption inspection
• Quiet-zone engineering
• Railroad-signal engineering
• Crossing-signal construction
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