PROMETHEUS
SECURITY GROUP GLOBAL

| Solutions		Markets		
COMMAND AND CONTROL C2 · IDS · ACS · Video	ZERO TRUST ARCHITECTURE Cyber Secure from Sensor to C2	DOD	DOE	CRITICAL INFRASTRUCTURE

ZERO TRUST DATA ATHENTICATION
"from the EDGE to BDOC and beyond"

DIGITAL ENCRYPTED SECURITY INTERFACE (DESI)

Product Overview

PSG developed a revolutionary module that replaces the traditional supervised loop end of line resistor or the simple switched voltage relay controls with a state-of-the-art miniaturized computational element located within the security device housing. The Digital Encrypted Security Interface (DESI) is a revolutionary approach for upgrading current security and control interfaces and gathering authenticated, confidential data from the edge. DESI is deployed over the existing infrastructure and provides data authentication and confidentiality. DESI extends data protection right to the fielded security component. DESI provides true edge to cloud authentication and encrypted data for sensing and control applications such as Intrusion Detection, Burglary Systems, Access Control, Fire, Supervisory Control and Data Acquisition SCADA, Building Controls etc.
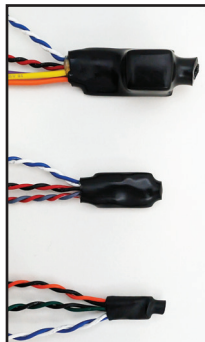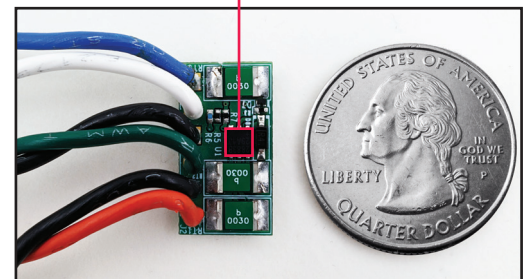

DESI-R: A single form-C relay output for controlling electromechanical device controller
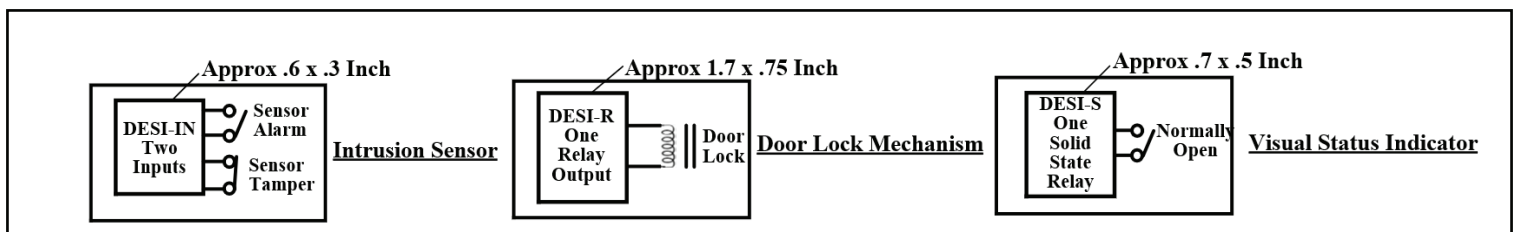
DESI-S: Single form-A solid state-relay output (N.O.) for controlling low output device controller

DESI-IN: Dual input edge device for monitoring sensors

DESI Chip

Current stocked variants

Approx .6 x .3 Inch — DESI-IN Two Inputs — Sensor Alarm / Sensor Tamper — **Intrusion Sensor**

Approx 1.7 x .75 Inch — DESI-R One Relay Output — Door Lock — **Door Lock Mechanism**

Approx .7 x .5 Inch — DESI-S One Solid State Relay — Normally Open — **Visual Status Indicator**
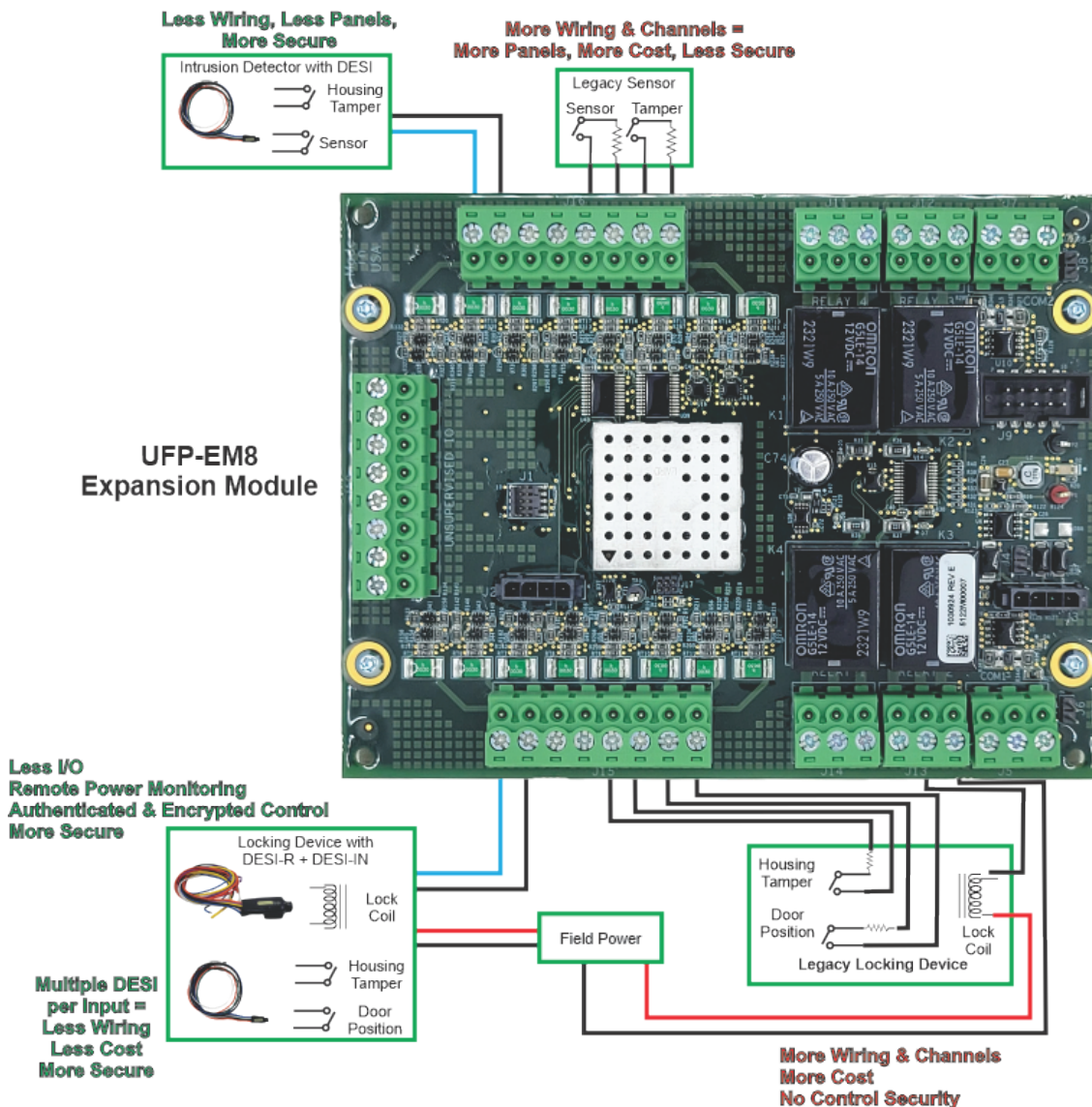
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DESI provides a FIPS compliant public key cryptography interface (PKI) which uses elliptic curve digital signature algorithm (ECDSA) signing operations paired with elliptic curve Diffie-Hellman (ECDH) key exchange for field commissioning without need for symmetric key databases. This PKI approach allows the integration of DESI from various manufacturers without the need for insecure master keying arrangements. The device can generate private keys internally which are never exposed, not even to the field panel. It supports four PKI rekey events over the life of the device and features write authenticated protection of rekey operations.

The device actively monitors for authentication failures and upon detection of a tamper responds by sending an alert. DESI carries a unique identifier that provides supply chain traceability so sensors and electro-mechanical devices can be authenticated as genuine products of their manufacturer.

DESI Architecture versus Legacy Analog

Specification	Description
Number of DESI on a field panel	Up to 64 DESI on a UFP-GW / EM16, 32 DESI on a EM8, any mix. *(4) DESI per single channel is typical, but some channels may have more due to site requirements.* *Contact factory for application specific guidance when exceeding more than (4) DESI per channel.*
Sensor Inputs	Dry contact w/ programmable rising or falling edge latch
DESI-R Control Relay	SPDT, FORM-C, 120VAC/28VDC at 12A (Resistive or Inductive)
DESI-S Solid State Relay	SPST, FORM-A, 30 VDC at 2A
Cryptography; All modules	FIPS-186 ECDSA P256, FIPS-198 HMAC w/ ECDSA, NIST SP 800-90B, SHA-256 OTP, ECC-P256
Key generation	Device can generate private key, which is never exposed, or the private key can be input from external source
Rekeying	(4) certificate re key operations across life of device. *On demand encryption rekeying using current PKI at any time*
Rekey modes	Open Rekeying, Write Protected Rekeying (requires prior material authentication before device rekeys)
Intrinsic Security Features	Tamper monitoring and alert reporting, active die shield, encrypted key storage
Form Factor	19.6mm x 10.7mm [.7717" x .4213"] (DESI-IN)
	44mm x 20mm [1.732" x .7874"] (DESI-R)
	28mm x 16mm [1.102" x .6299"] (DESI-S)
Mounting	Co-located with sensing element; custom integration with sensor and locking manufacturer housings available – please contact factory
Connection	12-18" 18 AWG stranded flying lead for DESI communications 12-18" 18 AWG stranded flying lead for inputs 12-18" 18 AWG stranded flying leads for power outputs
Environmental	-40 to 85C operation, (50C necessary for full rekey operations)
Safety & Qualification Standards	UL294, UL2610, UL62638-2, ROHS
Supply Chain Standards	Made in the USA, NDAA/TAA/BAA *Each DESI carries a globally unique identifier to provide supply chain* *Secure Supply Chain via authenticated inventory.*