HAPP CONTROLS INDUSTRIAL DIVISION

Capability Case

Case Number 107

Industrial Control Components and Systems

Happ Controls Engineering Develops New Membrane Switch System, Reduces Install Time 60%, Cost 35%

Mounts with 'peel & stick' Method

Designed to Meet NEMA Requirements

The Situation:

- Medical, industrial, and marine manufacturers are demanding a new method of controlling equipment functions.
- Rapid product/ model changes require control switches that can be redesigned easily.
- Market conditions are dictating cost reductions & low installation costs.

The Problem:

- The present NEMA style switch requires many steps to install and relatively complex hand movements. Costs are high.
- Existing membrane switches are not capable of high amperage switching.
- Users are looking for switch capacity higher than present offerings.

The Customer Request:

- Design a switch with high amperage capacity and resistance to water.
- Bring down material and labor costs 60%.
- Pushbuttons must meet robust quality of present offering.
- Make weight reduction up to 75%.
- Assure switch system designed to meet NEMA requirements.

Background:

The present method for designing and installing a membrane switch includes:

- Tools required – nut wrench, keyed hole punch, screwdriver, terminal-crimping pliers.
- Part count – 12-switch assembly including 12 NEMA switches, 12 locking rings, 12 waterproof boots, 12 legends, wiring.
- Installation steps:
    1. Design and layout the assembly. Make consideration for graphics.
    2. Punch (keyed) holes in panel.
    3. Take NEMA switch apart and set aside back rings.
    4. Fit NEMA switches – one at a time – into panel.

(Continued on page 2)

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5. Affix a label to each switch (i.e. STOP START) using custom design engraving or decal.
6. Screw each ring onto back of switch.
7. Draw wire and crimp wire.
8. Done.

The Happ Controls Solution:
Happ engineers met customer requirements with a new membrane switch system*. A unique, waterproof membrane with adhesive backing is used as a platform to mount up to 20 amp capacity membrane* switches as well as standard LED's. Layout planning is improved because the platform will fit standard modular components for unique designs.
*Patent Pending

Easy assembly with new Happ Controls Device:
- Tools required – Non-keyed hole punch, crimping pliers.
- Part count - 1 part.
- Installation steps:
    1. Punch non-keyed holes to Happ switch specifications.
    2. Peel off sticker switch paper.
    3. Gut and crimp wire.
    4. Done.

Other benefits to this unique system:
1. Operating temperature –40° C to +70° C. Allows indoor and outdoor service.
2. Mechanical & electrical life cycles exceed 1,000,000. Takes MTBF issue away from electro - mechanical components.
3. Low panel depth 1/2" to 3/4". Allows engineers greater equipment design flexibility. Lowers material cost.

Review:
We want to solve your control problems. Our capabilities include:
- **Broad range of existing control device platforms** available to save development costs.
- **SolidWorks™** software used to make design decisions faster, easier.
- **Engineering, testing, and solid modeling departments** at Happ Controls consistently deliver a prototype within required deadline.

Happ Controls combines a cost-effective high capacity manufacturing arm and a quick response engineering team to generate custom solutions.

Call us to find how Happ Controls can solve your control components and system requirements.

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