ACB Basic Functional Health Tester

Product Information Brochure - Rev0

Item	Details
Product	ACB Basic Functional Health Tester
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Application	Incoming inspection and preventive maintenance of Air Circuit Breakers

Overview

The ACB Basic Functional Health Tester is designed for panel builders, electrical consumers, and maintenance teams who need a simple and reliable method to verify the basic operating health of Air Circuit Breakers during incoming material inspection and preventive maintenance.

The tester provides an adjustable 0-440 VAC output to operate the ACB during inspection and maintenance checks. A NO/NC indication arrangement is provided to observe breaker status and contact changeover during operation.

Figure 1: Illustrative image of ACB Basic Functional Health Tester with pendent

1. Intended Use

The equipment is suitable for:

- Incoming quality inspection of purchased ACBs before panel assembly
- Preventive maintenance checks of spare or removed ACBs
- Functional checking of ACB operation
- Verification of ACB status through NO/NC contact indication
- Maintenance workshop and panel shop use

Typical users include:

- Panel builders
- Electrical maintenance departments
- Utility and plant maintenance teams
- Incoming material quality inspection teams

2. Basic Test Philosophy

The tester provides controlled supply and direct command outputs to operate the ACB in a workshop or maintenance environment. The operator observes whether the breaker charges, closes, trips, and releases correctly, and verifies status feedback through front-panel indications.

The tester focuses on practical health checks:

- Does the spring charging motor operate?
- Does the closing coil close the breaker?
- Does the shunt release trip the breaker?
- Does the UV release hold/release correctly, where applicable?
- Does the breaker status indication change correctly?

3. Main Features

- 19-inch rack-mount, 5U dimensions
- Manual variac-based AC output setting
- 0-440 VAC adjustable output
- Digital AC voltmeter for output voltage monitoring
- Transformer-based control supply arrangement
- Pendent control station for operator convenience
- 1 NO and 1 NC front-panel ACB status indication
- Protected output circuits
- Clear terminal interface for ACB control and status wiring
- Rugged operation suitable for workshop use

4. ACB Functions Supported

The tester is suitable for checking basic ACB operating functions as part of a practical functional health check.

Function	Typical Check
Spring charging motor	Motor runs and charges the closing spring
Closing coil	Breaker closes when CLOSE command is given
Shunt release / shunt trip	Breaker trips when SR command is given
Undervoltage release	Breaker holds/releases as per UVR supply condition
ACB status contact	NO/NC status changes as expected
Trip indication contact	Trip status contact changes after operation
Spring charged contact	Spring charged indication contact changes after charging

5. Pendent Control Station

The pendent allows the operator to stand near the ACB while operating the control functions. This helps the operator safely observe mechanical response, spring charging, closing, and tripping action.

Typical pendent controls:

Control	Recommended Type	Purpose
Motor	Maintained switch	Energize spring charging motor
Close	Momentary push button	Energize closing coil
SR / Trip	Momentary push button	Energize shunt release
UVR	Maintained switch	Enable or remove UVR supply
Emergency	Emergency switch	Emergency interruption of control operation

The pendent is wired to the main rack unit and allows the operator to operate the ACB while observing the breaker mechanism directly.

6. NO/NC Contact Indication

The tester includes front-panel indications for ACB status verification. These inputs are used to check whether one NO contact and one NC contact are open or closed during different breaker states.

Provision:

- 1 NO contact indication
- 1 NC contact indication
- Low-voltage continuity sensing
- Lamp or LED indication on front panel

7. Typical Test Procedure

1. Connect ACB control terminals to the tester output terminals as per wiring chart.
2. Connect required ACB status contacts to NO/NC indication terminals.
3. Set the required ACB control supply voltage using the variac and AC voltmeter.
4. Operate the spring charging motor from the pendent, if applicable.
5. Operate CLOSE command and confirm ACB closing action.
6. Operate SR/TRIP command and confirm ACB trip action.
7. Check UVR operation, if UVR is fitted.
8. Observe NO/NC status indications during each operation.
9. Record pass/fail observations as per customer maintenance format.

8. Product Positioning

This tester is best described as:

> A basic functional health tester for checking ACB operation and status indication during incoming inspection and preventive maintenance.

9. Technical Configuration

Item	Configuration
Dimensions	19-inch rack-mount, 5U
Input supply	230 VAC, 1 phase, 50 Hz
Output control	Manual variac
Output measurement	Digital AC voltmeter
Output type	0-440 VAC adjustable AC control supply
Contact indication	1 NO and 1 NC continuity input with front-panel ACB status indication
Operator control	Wired pendent control station
Protection	fuse, output protection, earthing, internal wiring protection
Construction	Workshop-grade metal enclosure

10. Summary

The ACB Basic Functional Health Tester provides a practical and economical way to verify the basic operating health of Air Circuit Breakers. It is especially suitable for users who purchase ACBs, build panels, and need a repeatable incoming inspection and preventive maintenance check using simple operator controls.