



|                     |               |                    |               |
|---------------------|---------------|--------------------|---------------|
| Client:             | Project Name: | Project No:        |               |
| Area:               | Drawing No's: | Date:              | Sheet: 1 of 3 |
| Check Conducted By: | Signature:    | Check Approved By: | Signature:    |

## INTRODUCTION

### HLI – High Level Input: (Chiller)

The on-site commissioning procedure aims to check the operation of a Chiller HLI to verify their wiring and operation.

For each point, a change of flow of the equipment should be simulated or produced, and the monitoring function of the Systems is be verified on the software online tool. For each control point, the corresponding equipment's should be controlled by the software online tool to manually command outputs to be driven to the desired value. The following procedures describe the best practice steps to commissioning each device to verify its correct operation.

It is expected that the point's lists are used to record the results of the point to point commissioning.

### Procedure recommended general checks

1. Visibly check installation against approved shop drawings (size, type, model etc.)
2. Check that general construction and standard of finish is acceptable
3. Record name point information and compare against the approved specification
4. Check the chiller has been commissioned by the manufacturer
5. Check that the network between the HLI and the BMCS is complete
6. For MS/TP connection ensure Mac Address, Device instance and baud rate are set as per the System Topology Schedule
7. For BACnet/IP ensure Device Instance, Ethernet network number, IP Address/Subnet mask/Gateway address are set as per the System Topology Schedule
8. Check communications has been established to the HLI using the BMCS
9. Check values are reading correctly for function testing
10. Check point descriptions are in line with the mapping table provided by the manufacturer
11. Sign off on **Point to Point Sign Off Sheet**

### Procedure recommended for testing operation

Each test should be performed in both manual and automatic modes.

1. Control the equipment being monitored to run under normal operating conditions by generating the appropriate control command. Verify the value of the Chiller HLI point against the control criteria and verify the operational



performance of the equipment.

If the BMCS displays the desired value then the test has been successful and "S" should be recorded in the commissioning schedule/inspection and test plans. If the Chiller does not display the desired value then the test has failed and "F" should be recorded in the commissioning schedule/inspection and test plans.

2. While the Chiller displays the desired value adjust the device or equipment that the point is monitoring, e.g. increase the supply water temperature setting via Chiller HLI.

If the Chiller changes its value to the expected value then the test has been successful and "S" should be recorded in the commissioning schedule/inspection and test plans. If the Chiller does not change to the expected value then this test has failed and "F" should be recorded in the commissioning schedule/inspection and test plans.

3. While the Chiller displays the desired value, generate an alarm (where applicable).

If the Chiller changes state from normal operating conditions to alarm condition then this test has been successful and "S" should be recorded in the commissioning schedule/inspection and test plans. If the point does not change state to alarm condition then this test has failed and "F" should be recorded in the commissioning schedule/inspection and test plans.

4. At the conclusion of the test return the equipment and the BMCS to displaying the status, condition and desired values for normal operating conditions.

When a point is commissioned tick the Checked Out box which will indicate the user, time and date checked out, then add comments in the Checkout Notes box (Actual, Recorded, and Offset)

## **REFERENCE STANDARDS**

CIBSE Commissioning Code C – Automatic Controls



**CHECKLIST**

| <b>Chiller HLI Testing</b>                         |   |                            |               |               |
|--|---|----------------------------|---------------|---------------|
| BMCS Drawing Number                                |   |                            |               |               |
|  | <b>ITEM</b>   | <b>VERIFICATION METHOD</b> | <b>RESULT</b> | <b>RESULT</b> |
| 1  | Check installation against approved shop drawings (Size, type, model etc.)  | Site Inspection            |               |               |
| 2  | Check that general construction and standard of finish is acceptable  | Site Inspection            |               |               |
| 3  | Record name point information and compare against the approved specification  | Data / Point Sheet Record  |               |               |
| 4  | Check the chiller has been commissioned by the manufacturer   | Data / Point Sheet Record  |               |               |
| 5  | Check that the network between the HLI and the BMCS is complete   | Data / Point Sheet Record  |               |               |
| 6  | For MS/TP connection ensure Mac Address, Device instance and baud rate are set as per the System Topology Schedule                                | Data / Point Sheet Record  |               |               |
| 7  | FOR BACnet/IP ensure Device Instance, Ethernet network number, IP Address/Subnet mask/Gateway address are set as per the System Topology Schedule | Data / Point Sheet Record  |               |               |
| 8  | Check communications has been established to the HLI using the BMCS   | Data / Point Sheet Record  |               |               |
|  | Check values are reading correctly for function testing   | Data / Point Sheet Record  |               |               |
| 9  | Check point descriptions are in line with the mapping table provided by the manufacturer  | Data / Point Sheet Record  |               |               |
| 10   | Sign off on <b>Point to Point Sign Off Sheet</b>  | Data / Point Sheet Record  |               |               |
| Certified By Sub Contractor (initial):             |   |                            |               |               |
| Date:  |   |                            |               |               |
| Confirmed By (Head Contractor / Client) (initial): |   |                            |               |               |
| Date:  |   |                            |               |               |