KEYSTONE MASTERMIND AS-INTERFACE CONTROL HEAD - FIGURE 784
INSTALLATION AND MAINTENANCE INSTRUCTIONS

Before installation these instructions must be fully read and understood

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2 INTRODUCTION
2.1 Control head use
The F784 AS-interface control head is a plug-
in Automated Valve Interface Device (AVID),
allowing instant connection to all AS-interface
networks.
2.2 Application area
The control head has been designed for use
in any industry where network valve control
is desired, such as the food, beverage and
pharmaceutical industries.

3 FEATURES
3.1 General features
• World recognized open network control
  system
• Extended mode allowing up to 62 A+B slaves
• Compatible with version 2.0 masters
• FLASH re-programmable micro for custom
  requirements
• Plug-in control module, switches and
  solenoids
• Fully adjustable limit switches
• IP67 enclosure
• High visibility network and valve status LED
  indicators
• Integral fault diagnostics
3.2 Module features
• Fully AS-Interface 2.1 compatible A/B slave
  device
• 3 limit switch/sensor inputs
• 3 solenoid outputs
• Low power consumption, under 70mA in
  normal operational mode (main solenoid
  energized, 1 input sensor on)
• Bus powered with external power option
• Built-in short circuit protection to 500 mA on
  any output
• External LED indication of valve position,
  solenoid status and fault status
• Internal open/closed limit fault timers
• Double indication/error indication
• Customers preference for field connections
  - Flying lead with “micro” socket
  - Bulkhead fitted socket
  - Open wiring system using standard cable
    gland

4 TECHNICAL DATA
4.1 AS-interface 4 in, 3 out bit-mapping
(see appendix B).
AS-interface inputs:
Input 0  Valve closed position
Input 1  Valve open position
Input 2  Fault indication
  The fault indication bit is set in the
  following circumstances:
  1. The main solenoid output is de-
     energized and the closed limit switch
     is not made and the FTC timer has
     expired.
  2. The main solenoid output is energized
     and the open limit switch is not made
     and the FTO timer has expired.
  3. Both limit switches are made at the
     same time [double indication] under
     this condition both position indicators
     flash RED.
Input 3  Auxiliary input switch (for an external
  sensor, such as seat lift confirmation/
  flow indication)
  S-interface outputs:
Output 0  Main cylinder solenoid
Output 1  Lower seat lift
Output 2  Upper seat lift
4.2 Parameter word bit-mapping
The fail to open/close timer is set according to the following parameter bit settings. The open timer starts as soon as the main solenoid output (O0) is energized. The fault bit (input bit 2) is set when the FTC timer expires. The close timer starts as soon as the main solenoid output (O0) is de-energized. The fault bit (input bit 2) is set when the FTC timer expires.

Parameter bit P2 controls the reset mode of the fault bit. If P2 is set, the fault bit I2 will reset as soon as the fault is cleared. If P2 is unset, the fault bit I2 will remain set until the reset bit P2 is toggled ON then OFF.

The purpose of this bit is to aid the tracing of erratic valve faults.
Parameter bit P3 is not used.
(Note: X = bit set, O = bit unset)

<table>
<thead>
<tr>
<th>Timer (seconds)</th>
<th>P0</th>
<th>P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>10</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>7.5</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

4.3 LED indicators
Green power
(far left)  On constantly while power is applied to device
Red bus fault
(2nd from left)  On while AS-interface not running or address = 0
Amber solenoid
(3rd from left)  On while output 0 is energized
Upper Bi-color
Indicates valve closed position (programmable to display green or red)
Lower Bi-color
Indicates valve open position (programmable to display green or red)
Upper small amber
Indicates output 2 is energized (upper seat lift)
Lower small amber
Indicates output 1 is energized (lower seat lift)

4.4 Cable connections
Standard
• M20 cable gland suitable for AS-interface round cable
Optional plug connections
• 0.6m flying lead with MICRO male plug (12 mm) fitted, pre-wired to the 6 pin module plug, for direct connection to ribbon tap as shown to the right.
• Bulkhead fitted MICRO male plug (12 mm) pre-wired to the 6 pin module plug.

5 MOUNTING
Mounting is made via an easy-to-fit, universal mounting adaptor, designed with a robust vibration resistant locking system.

6 TYPICAL SPECIFYING SEQUENCE
Example:
F784  AS-I V2.1 CH CG+0.6M FL

Communication type
AS-Interface version 2.1 A/B slave device

Connection type
CG = Cable Gland only
CG+0.6M FL = Cable Gland + 0.6m Flying Lead with male plug
BH MICRO = Bulk Head MICRO male plug
APPENDIX A - TECHNICAL SPECIFICATION

General characteristics
The device has been tested as compatible with the AS-Interface specification version 2.1, as an A/B slave.

Power supply
30 Volts DC

Main solenoid using V114 pilot coils (low current)
0.4 Watt, $C_v = 0.5$

Seat lifters using V114A coils (high flow)
1.1 Watt, $C_v = 0.16$

Number of slaves
62

Data cycle time for A+B slaves
max. 10 ms

Connected for Bus power only:

Load current in [mA] [AS-Interface power LED always on]
1 input, no outputs (main solenoid OFF with 1 proximity ON) 35 mA
Normal Valve closed situation
1 input, 1 output (main solenoid ON with 1 proximity ON) 63.5 mA
Normal Valve open situation
1 input, 1 output (main solenoid OFF, with 1 seat lift solenoid and 1 proximity ON) 93.5 mA
Normal valve cleaning situation

Auxiliary power drawn when connected:

Load current in [mA] [AS-Interface power LED always on, power relay energized]
1 input, no outputs (main solenoid OFF with 1 proximity ON) 34 mA
Normal Valve closed situation
1 input, 1 output (main solenoid ON with 1 proximity ON) 55 mA
Normal Valve open situation
1 input, 1 output (main solenoid OFF, with 1 seat lift solenoid ON and 1 proximity ON) 83 mA
Normal valve cleaning situation

Bus power when auxiliary power connected:

Load current in [mA] [AS-Interface power LED always on]
1 input, no outputs (main solenoid OFF with 1 proximity ON) 19 mA
Normal Valve closed situation
1 input, 1 output (main solenoid ON with 1 proximity ON) 22 mA
Normal Valve open situation
1 input, 1 output (main solenoid OFF, with 1 seat lift solenoid ON and 1 proximity ON) 22 mA
Normal valve cleaning situation

Control head material
Plastic parts: NYLON GF25
Steel parts: SS 304
Seals: NBR

Air supply pressure
The air supply pressure must be between 3 and 8 bar. We recommend to use clean dry air.

Environment demand specifications
Temperature: max. 50°C
Protection class: IP 67
EMC Directive: 89/336/EEC
APPENDIX B - WIRING AND CONNECTORS

J-Tag factory programming port
Manual configuration push buttons
For valve mode and Future Analog sensor setting

Solenoid loom connector
Auxiliary switch/sensor connector

Upper limit sensor connector

Future analog Sensor connector

Lower limit sensor connector

AS-Interface Connector
If 5 & 6 only are connected, then module is BUS powered. If external power source is connected to 3 & 4 then module auto switches to draw from external power source.

Output 1 -
Output 2 -
Output 3 -
Common +
Input 1
Input 2
Input 3
Analog
Aux.
Input 1-5V