PABX

Telephone switch

Models:

- TC-2000 A
- TC-2000 H
- TC-2000 P
- TC-2000 PP

Instruction Manual

- Functions -   *-Page -*

Chapter 1: Brief Introduction

1.1 Precautions

1.1.1 Keep the unit away from heating appliances and electrical noise generating devices such as motors and televisions, these noise sources can interfere with performance of machine.

1.1.2 Keep away from AC power source when install the telephone cables.

1.1.3 Avoid using the same power supply outlet for computers and other office equipments, otherwise, the system operation may be interrupted by the induction noise.

1.1.4 Unplug during install or remove the expansion boards, and the boards should be installed or removed vertically to avoid short circuit.

1.1.5 After system is started, if it does not operate properly, please restart it, if it is still works improperly, please contact with your dealer.

1.1.6 This unit should be kept free of dust, moisture, high temperature and vibration, and should not be exposed to direct sunlight.

1.1.7 Never attempt to insert wires, pins, etc. Into the vents or other holes of this unit.

1.1.8 Do not use benzine, thinner, or the like, or any abrasive powder to clean the cabinet. Wipe it with a soft cloth.

1.2 Technical Index

No	Names	Specifications
1	Capacity	CO line: 1 to 6; Extension: 4 to 32
2	Ringing current	Model TC-2000H=AC65V/36Hz Other models= AC65V/50Hz
3	Communicate Channel	7 channels
4	Transmission Attributes	* Extension to extension ≤ 1.5dB * Extension to trunk line ≤ 2.0dB
5	External Music Input Power Level	1Vrms ,Resistance:10K
6	Feedback current	DC48V/25mA
7	Degree of unbalance about Earth	* 300Hz --- 600Hz ≥ 40dB * 600Hz --- 3400Hz ≥ 46dB
8	Dial mode	DTMF
9	Signal tone	* CO line: Tone from local telecom office; * Internal dial tone: 450Hz, continuous sine wave; * Internal ringback tone: 450Hz, sine wave, 1s on / 4s off; * Internal busytone: 450Hz, sine wave, 0.3s on / 0.3s off; * Internal error tone: 450Hz, sine wave, 0.3s on / 0.3s off; * Internal confirmation tone: 450Hz, sine wave, 1s on;
10	Caller ID	* Receive: DTMF, FSK (Bell .202) ; * Send: FSK
11	Power supply	*Normal power: AC220V 10%/15VA. *Use power switch(TC-2000H): AC80V~260V/35VA.
12	Backup battery	*6V/10AH, charge current≤1A.

1.3 Names

① LED of Power supply and C.O lines
② Power supply switch
③ CO line ports
④ Extension ports from 01 to 08
⑤ Power supply jack
⑥ CO Line ports from 01 to 04
⑦ Extension ports from 01 to 16
⑧ Extension ports from 01 to 32
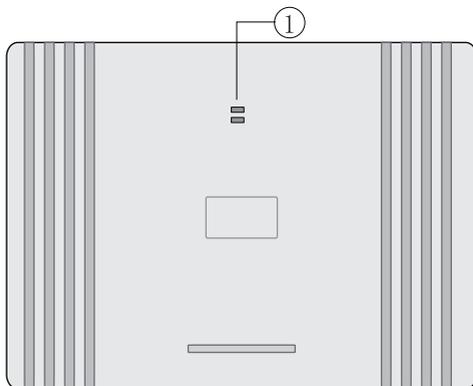
(Cabinet Front View)
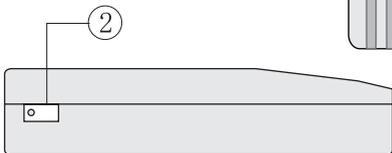
(Left View)
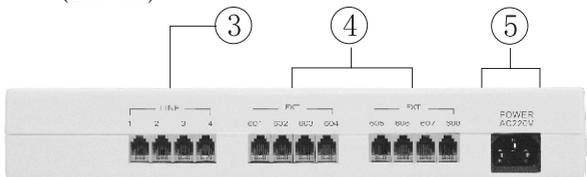
Model: 208/308 (back view)
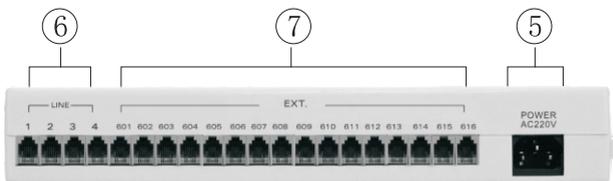
Model: 312/416 (back view)
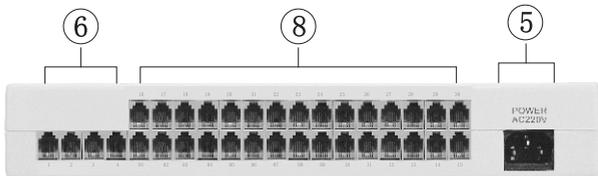
Model: 424/432 (back view)

Model: TC-2000H
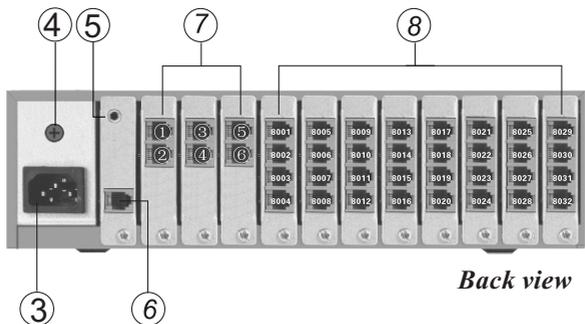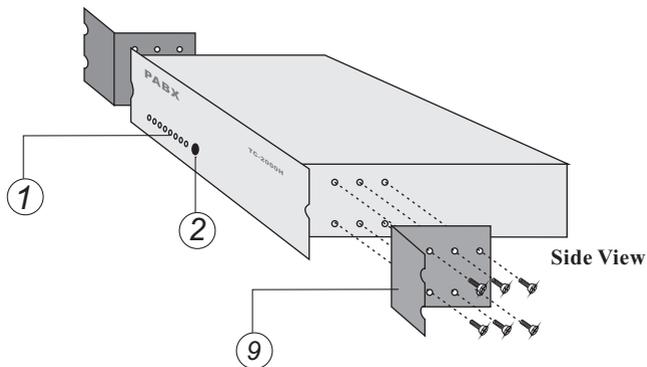
①----LED
②----Power Switch
③----Power Socket
④----Power fuse
⑤----External Music Input Port
⑥----COM Port
⑦----CO lines
⑧---- Extensions
⑨---- Expandable panel for rack mount (optional)
⑩---- Back up battery box
⑪---- 6v 4.5A/h Battery (optional)

Bottom View
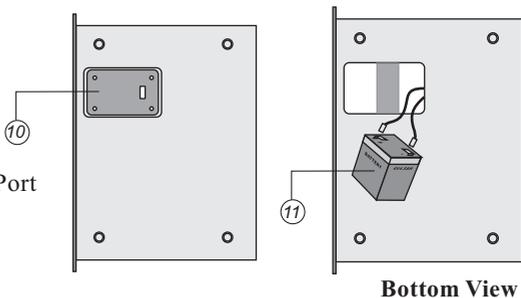
Model TC-2000H is support our PC Billing software, please install supplied software to learn details.

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2.1 Unlock System Password

Format: *** * 01 ABCD #**
      ABCD = System password (Default is 1234)
Description: Password is required for entering the system programming mode.
Example: Unlock system by password before system program:
Operating: Lifts extension 801 ⟶ Input ** 01 1234 # ⟶ Hear [System unlocked
        is successful, you can start operating] ⟶ Start programming.

☞ 1. **System programming can only be performed by extension 801.**
    2. Required Telephone Set: DTMF dial mode.
    3. Start with * key, and end with # key, no need to hangup 801 while
       programming, otherwise you need to unlock system again by password
       to start next programming.
       Allows use * key to re-program if any error occur during programming,
       need not hangup.
    4. System will inform user setting is whether successful or failured.
    5. **Herein after, all programming is after unlock system by password.**

2.2 Change System Password

Format : *** 02 ABCD #**
      ABCD = System new password.
Example: Change password to 5678.
Operating: Lifts extension 801 ⟶ Input 1234 ⟶ Input * 02 5678 #;

☞ Suggest administrator change system password before using, please
    contact with service center of supplier in case forget password.

2.3 Internal Call

Allows an extension user to make a call to another extension.
Format 1: **ABC** (When extension is at non-direct access CO line mode)
Format 2: *** ABC** (When extension is at direct access CO line mode)
      ABCD = Extension number
Example 1: Extension 808 is at non-direct access mode, he calls extension 806.
Operating: Lifts 808 (hear internal dialing tone) ⟶ Input 806
Example 2: Extension 807 is at direct access mode, he calls extension 808.
Operating: Lifts 807 (hear external dialing tone) ⟶ Input * 808.

☞ 1. Ringback tone (1s:4s) is sent indicates call made successfully.
    2. Internal call is free charge.
    3. Internal dialing tone is more reedy than external dialing tone.
    4. Internal caller ID will be displayed when intercom, say Ext.
      806 will display 808 when Ext. 808 call it. （For model
      TC-2000H and TC-2000PP）

2.4 Outside (CO) Line Connection Assignment

Format : *** 3 ABCDEF #**
        ABCDEF = CO line jack need to be connected
Description; Assigns which CO line(s) is connected to the system or not.
Example: Connect CO lines with jack 1,2,3,4,5.
        Input format *** 3 12345 #** can enable CO line 1,2,3,4,5.

☛   When extension user make external call it will enter CO line according
        to priority. e.g, the first call will enter line1 priority, meanwhile, the
        second call will enter line 2 in case it is free. We had better connect CO
        lines used for receive incoming call frequently with after jacks because
        anterior lines are occupied by outgoing calls often.

2.5 Access Outside (CO) Line Instruction

Allows make external call by any one of following methods 2.5.1~2.5.3.

2.5.1 Access CO Line by Dial 0 or Tap Hookswitch

Example: Extension 808 is at non-direct access mode, he makes external call.
Operating: Lifts extension 808 →Press 0(or tap hookswitch)→Input number.

☛   Related setting please refer **2.5.4**.

2.5.2 Access CO Line Directly

Example: Extension 808 is at direct access mode, he makes external call.
Operating: Lifts extension 808 →Input number will enter free CO line.

☛   Related setting please refer **2.5.4.**

2.5.3 Access Preferred CO Line

Format 1: **# M** (At non-direct access CO line mode)
Format 2: *** # M** (At direct access CO line mode)
        M= CO line jack number
Example: Extension 808 is at non-direct access mode, he wants to make external
        call via CO line 3.
Operating: Lifts extension 808 → Input #3→Input phone number.

2.5.4 Direct / Non-Direct Access CO Line Assignment

Format 1: *** 8 ABC N #**
        ABC = Extension number
        N = 0 = Non-direct access CO line mode
        N = 1 = Access CO line directly
Format 2: *** 8 000 # (Disable access CO line directly for all extensions)**
Description: **When N = 0**, extension will be at intercom state as soon as off-hook,
        user can input extension number directly to make internal call, but
        he must dial 0 or tap hookswitch to get external dial tone before input
        phone number when he needs to make external call.

When **N = 1**, extension will enter free CO line as soon as off-hook and user can input phone number directly, but he must input * ABC when he needs to make internal call.

☞ 1. Suggest assign N = 1 (access CO line directly) for extensions which make external calls frequently.
2. Related operating please refer **2.5.1 / 2.5.2.**

2.6 Ringing Extensions of Certain CO Line (For Operator Attendant Service)

Format : *** 1 M ABCD #**
M = CO line jack number
ABCD = Last digit of extension number.
Description: Assign which extensions will ring when has incoming call via certain CO line.
Example: Assign extensions 803 and 804 will ring when has incoming call on CO line 2.
Operating: Input * 1 2 34 #

☞ 1. Allows assign up to eight extensions are ringing at the same time for each CO line, the new setting will replace the old one.
2. Ringing extension can be selected from jack NO.01 to 08 only.

2.7 Answer Incoming Call
2.7.1 By Ringing Extension
Description: Extension user can answer the phone by lifts ringing exension which pre-assigned for operator attendant mode purpose, however, none of extension will ring at auto-attendant mode until caller input extension number or dial related number to access operator.

2.7.2 By Non-Ringing Extension (Call Pick Up)
Formate 1 : **# 7** (At non-direct access CO line mode)
Formate 2: *** # 7** (At direct access CO line mode)
Description: User can answer the phone which ringing at other extension.

2.8 Answering Mode Assignment
2.8.1 Operator Answering Mode
Format 1 : *** 21 #** (All CO lines at Operator Answering mode)
Description: Operator lifts ringing extension can answer incoming call.

2.8.2 Auto-Attendant Answering Mode
Format 1 : *** 20 #** (All CO lines at Auto-attendant Answering mode)
Format 2 : *** 20 M #** (Certain CO lines at Auto-attendant Answering mode)
M = CO line jack number

Description: External caller will hear outgoing message (OGM) when he enter
line which is at auto-attendant service mode, none of extension ring
until he input extension number or call operator.

☞ When need to assign some CO lines at auto-attedant answering mode,
we can assign all CO lines at operator answering mode first by ***21#**,
then assign auto-attendant mode for certain CO lines by *** 20 M #**.

2.9 Attendant Extensions Assignment

Format 1: *** 25 ABC #**   (Attendant1, default setting is extension 802)
Format 2: *** 26 ABC #**   (Attendant2, default setting is extension 803)
          ABC = Extension number
Description: Allows assign two attendant extensions for service at **auto-attendant
mode**, when caller dial 0 call will go to attendant 1, and it will be auto-
transferred to attendant 2 when attendant 1 is busy, however, system
will search free extension from extension 802 to 808 for answering
when both attendant extensions are busy.

2.10 Outgoing Message (OGM) For Auto-Attendant Service

2.10.1 OGM Recording

Format 1: *** 22 N #**   (For model TC-2000H)
          N = 1 = OGM 1 = 15 seconds
          N = 2 = OGM 2 = 7.5 seconds
          N = 3 = OGM 3 = 7.5 seconds

Description: Allows record up to three pieces OGM for auto-attendant service.
          Following examples of OGM which is played in different conditions:

OGM 1: "This is A company, for the sales division, press 803; for the service
division, press 806; for fax, press 808; to call operator, press 0 ".

OGM 2: "Sorry the extension you dialed is busy, please dial another extension
or dial 0 for operator ".

OGM 3: "Sorry the extension you dialed is not answering, please dial another
extension, or dial 0 for the operator ".

Format 2: *** 22 #**   (For other models)
Description: Allows record up to 15seconds OGM for auto-attendant service,
          refer above OGM 1 as example.

2.10.2 Listen Recorded Message

Format 1: *** 23 N #** (For model TC-2000H only)
Format 2: *** 23 #**   (For other models)
          N = 1 = Listen OGM 1
          N = 2 = Listen OGM 2
          N = 3 = Listen OGM 3

Description: Allows to play back recorded message to verify its performance.

☞ Recording by high quality handset in quiet environment can get
better timbre, A beep tone indicates user can start recording and
the last recording will replace the old one.

2.11 Call Permission Management

☞ **Following 2.11.1 ~ 2.11.4 are ineffective for model TC-2000H, please refer 2.11.5 ~ 2.11.7 about model TC-2000H.**

2.11.1 Class Assignment for Certain Extension
Format 1: *** 51 ABC M #**
ABC = Extension number
M=0=Only call numbers with permitted front digits. (Refer 2.11.4)
M=1=No restriction.
M=2=International call is forbidden (default setting).
M=3=Long distance call is forbidden.
M=4=Not allowed call numbers with front digits in group A. (Refer 2.11.3)
M=5=Not allowed call numbers with front digits in group B. (Refer 2.11.3)
M=6=Only permit to make internal call.
Example 1: Assign extension 806 is not allowed make long distance call, extension 809 is not allowed call numbers with forbidden front digits in gourp A, extension 816 is only permitted to make internal call.
Operating: Input * 51 806 3 # ⟶ 809 4 # ⟶ 816 6 #

2.11.2 Class Assignment for All Extensions
Format : *** 51 M #**
M is the same as 2.11.1
Example : Assign extension 804 and 810 are not allowed to make international call (M=2), others are not allowed to make long distance call (M=3).
Operating: Input * 51 3 # ⟶ 804 2 # ⟶ 810 2 #

☞ We can use * 51 3 # do assignment for the most extensions first.

2.11.3 Forbidden Phone Number
Format 1: *** 52 ABCD # (Group A)**
Format 2: *** 53 ABCD # (Group B)**
Format 3: *** 52 # (Cancel Group A)**
Format 4: *** 53 # (Cancel Group B)**
ABCD = Front digits of forbidden phone number
Description: Phone numbers with these front digits are forbidden.
Example: Assign front digits 573/8 to group A.
Operating: Input * 52 573# ⟶ 8#

2.11.4 Permitted Phone Number
Format 1: *** 54 ABCD #**
ABCD = Front digits of permitted phone number
Format 2: *** 54 # (Clear permitted front digits)**
Description: Only permit call phone numbers with these front digits.
Example: Assign 0757 / 010 as permitted front digits, and extension 803 is only permitted to call numbers with front digits 0757 / 010.
Operating: Input * 54 0757 # ⟶ 010 # ⟶ *51 803 0#

☞ Allows assign up to ten pieces front digits and maximum of four digits for each piece.

☚☞ **Following 2.11.5 ~ 2.11.7 are only effective for model TC-2000H.**

2.11.5 Class Assignment for Certain Extension

Format 1: *** 5 8 ABC M #**

ABC = Extension number

M=0= No restriction.

M=1 ~4=Not allowed call numbers with front digits in groups 1 to 4.(refer 2.11.7)

M=5~ 6=Only permit call numbers with front digits in groups 5 to 6.(refer 2.11.7)

M=7=Only permit internal calls.

2.11.6 Class Assignment for All Extensions

Format : *** 58 M #**

M is the same as 2.11.5

Example : Assign extension 804 to class 2 (M=2), others to class 3(M=3).

Operating: Input * 58 3# ⟶ *58 804 2 #.

☚☞ We can use * 58 3# do assignment for the most extensions first.

2.11.7 Front Digits of Phone Number Management

Format 1: *** 5M ABCD #**

ABCD = Front digits of phone number

Format 2: *** 5 M # (Clear front digits of certain group)**

M=1 ~4= Numbers with front digits in these groups are forbidden.

M=5~ 6=Only call numbers with permitted front digits in these groups.

M=7=Only for internal communication.

Example: Assign front digits 0757 / 010 to group 1, and extension 803 is not allowed to call numbers with front digits 0757 / 010.

Operating: Input * 5 1 0757 #⟶ 010#⟶ *58 803 1 #.

☚☞ Each group can have up to ten pieces front digits and maximum of four digits for each piece.

2.11.8 Extension is Permitted Use Certain CO Line Only

Format : *** 42 M ABC #**

MN = CO line jack number

ABC = Extension number

Description: The assigned extension is permitted use only designated CO line to make external call.

Example: Input *** 42 4 803 #** can assign extension 803 is permitted use only CO line 4.

☚☞ 1. Any incoming call can be transferred to this assigned extension, and this extension user can pick up any incoming call.

2. This extension can have only one CO line to make external call.

2.11.9 Exclusive CO Line of Superior Extension

Format : *** 41 M ABC #**

  M = CO line jack number

  ABC = Superior's extension number

Description: The superior has exclusive CO line which is forbid used by normal
  extension users, moreover, this superior can also use other CO lines.
  Each exclusive line can be shared by up to four superior extensions.

Example: Input *** 41 3 808 #** can assign CO line3 as exclusive line for superior
  whose extension is 808.

1. The last setting will replace the previous one
2. Use format * 3 ABCDEF # can cancel settings 2.11.8 and 2.11.9.(refer 2.4)

2.11.10 Executive Busy Override (EBO)

Format : **# 9 N**

  N = CO line jack number

Description: Authorized user (superior) can interpose a busy line.

Example: Extension 801 wants to interpose CO line 4 even it is busy.

Operating: Lifts 801 → Input # * 94 → Access line 4 after two seconds.

Only extension 801 is permitted use this function, we are
irresponsible for any result from use this function.

2.11.11 External Call is Time-limited

Format 1: *** 9 ABC MN #**   **(Assignment for certain extension)**

Format 2: *** 9 ABC #**   **(Cancel time limited for certain extension)**

  ABC = Extension number

  MN = Limit time = 01 ~ 99 minutes

Description: The line will disconnected automatically when time is up.

Example: Assign time limit is 15 minutes for extension 805

Operating: Input * 9 805 15 #

1. Input time by two digits, *example,* 1 minute is denoted as 01.
2. Only effective for external call.

2.12 Call Transferring Management

2.12.1 Busy Transferred

Format 1: **# 0 ABC   (Assign busy transferred)**

ABC = Entrusted extension number

Format 2: **# 0 000   (Cancel busy transferred)**

Description: Extension user can input **# 0 ABC** on his phone to assign calls are transferred to entrusted extension automatically when his phone is busy.

Allows serial transferring up to five extensions,it is say, the entrusted extension can entrust other extension to answer incoming call when it is busy, and so on.

1. The new setting will replace the old one.

2. This function is ineffective for model TC-2000H.

2.12.2 Unconditional Transferred

Format: **# * ABC**

ABC = Entrusted extension number

Description: Extension user can input # * ABC on his phone to assign calls are transferred to entrusted extension automatically at any time.

The extension cannot be used until setting is cancelled, just need to lift that extension and then on-hook can cancel setting.

2.12.3 Transfer Incoming Call by Man

Format : **Tap hook-switch + ABC**

ABC = Extension number

Description: Extension A wants to transfer an incoming call to extension B, he should tap hookswitch and input extension number of B, they can build internal communication as soon as B lifts handset.

However, if B is busy A will get back to external caller, unless B has been assigned busy transfer function , so the call will be transferred to entrusted extension automatically.

External caller is listening music while transferring, whoever A or B is hangup the remain party will get through caller.

Different conditions would happen when extension B is free:

Condition 1: A doesn't hangup, B answer the phone within 25 seconds can build internal call with A, whoever A or B is hangup the remain party will get through to caller.

Condition 2: A doesn't hangup, B doesn't answer the phone within 25 seconds, A will get back to caller.

Condition 3: A hangup, B answer the phone within 25 seconds can get through to caller.

Condition 4: A hangup, B will stop ringing if he doesn't answer the phone within 25 seconds, then A start ringing if it is free;if A is busy or no answer within 25 seconds the line will be disconnected.

2.13 Party Conference (1 CO & 2 Extensions)

Format : **Tap hook-switch** + ***** + **ABC**

ABC = Extension number

Description: When an extension user is on the phone with external party he can add one more extension on the same line by tap hook-switch then input * ABC (ABC is additional extension number).

2.14 Flash Time

Format: *** 81M #**

M = 1 = 750ms
M = 2 = 1000ms (default setting)
M = 3 = 1200ms
M = 4 = 1500ms
M = 5 = 2000ms

Description: Flash Time is duration between on-hook and re-off-hook, if user doesn't off-hook when flash time is up will be regarded as hangup; if user off-hook within flash time will be regarded user is ready to transfer call**.**

Example: Flash Time is 1200ms, if user doesn't off-hook after 1200ms will be regarded as hangup; if user off-hook after 1200ms will be regarded ready to make call; if user off-hook within 1200ms will be regarded ready to transfer call.

2.15 External Call Waiting

Format: **Hookswitch + #99**

Description: When extension user is on the phone with external caller, when has Beep tone is heard may indicates has another call is incoming, if user want to answer this call he can tap hookswitch and then input #99 to place current call is on holding and answer new call, this user will get back to the first caller as soon as the second caller is on-hook.

☞ Should apply this service from local telecommunication carrier first.

2.16 Verify Holding Music

Format : *** 24 #**

Description: User can verify holding music performance.

☞ 1. Model TC-2000H is allowed input external music as holding music, it has a volume switch can adjust holding music, sometimes mute is caused by the volume is adjusted to minimum.

2. Verifying just for reference, real timber should be verified in practise.

2.17 Extension Number Assignment

Format 1 : *** 7 abc ABC #**

abc = Original extension number at factory setting(801~832)

ABC = New extension number

Description: Allows change extension number for certain jack.

Example: Change current extension number 803 to 333, 804 to 128.

Operating: Input * 7 803 333# ⟶ 804 128#.

☞ 1. Same extension number is unallowable .

2. Extension number can be assigned from 100 ~ 999 freely.

2.18 Extension Number Confirmation

Format 1: **# 82 (For model TC-2000H)**

Description: Extension user input this format on his phone can see its jack number and current extension number.

Example: Original extension number 804 has been changed to 123, user can see 804123 is displayed which indicates original number is 804 and current extension number is 123.

Format 2: **# 81**

Description: System will report extension number and its port number afer user input this format on his extension.

☞ This programming is ineffective for model TC-2000H.

2.19 Restore All Extension Numbers

Format : *** 7 000 #**

Description: Restore all extension numbers to factory setting 801 ~832.

2.20 Factory Settings (Default)

Format : *** 6 000 #**

Description: All data can be restored to factory setting except followings:

1. Outside line connection assignment.

2. Extension number settings.

Some factory settings for your reference as following:

No	*Function*	*Default Setting*
1	Service mode	Operator attendant
2	Ringing extensions	801 / 802 / 803 / 804
3	Attendant extensions for auto-attendant	802 / 803
4	Access CO line mode	Dial 0 or tap hookswitch
5	Caller ID signal	Adapt with FSK, DTMF
6	Hookswitch flash time	1000ms (M=2)