TeleWell ISDN TA TW-128 CI ohjeistus

Windows 95/98/NT4/2000, Linux ja Mac

Finish and English user manual

CE

TeleWell ISDN -laitteiden käyttöehdot

Ohjekirjassa oletamme, että asiakas tuntee käytettävän käyttöjärjestelmän perusteet.

Easytel Oy:n asiakastuki antaa neuvoja mikäli ISDN -laitteen asennus ei onnistu tämän ohjeen kanssa. Asiakastukemme ei anna ohjeita mikäli asiakas ei ole lukenut tätä TeleWell -ISDN -laitteen mukana tullutta suomenkielistä ohjetta.

Ensiasennustuki on avoinna arkisin klo 10-17 puh: 03-6101850
Muu tuki puh : 0600 92486 ark. 9-19 11,90 mk / min + normaalit puhelinkulut

Asiakastukemme ei kouluta modeemin, käyttöjärjestelmien, tietoliikenne- ja Internetohjelmien käyttöä puhelimitse.

TeleWell ISDN -laitteiden asiakastuki antaa neuvoja vain tuotteiden perusasetuksissa.

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Käyttöympäristön oletukset

Tuetut käyttöjärjestelmät;
Windows 95 a,b,c, Windows 98/98SE, Windows NT4 SP5 tai uudempi
Windows 2000 , Macintosh kaapelit ja ajurit hankittava erikseen
Linux (KPPP -ohjelmalla suoraan TTY -porttiin, erillistä modeemiajuria ei tarvita)

- ISDN NT1-verkkopääte asennettuna.

-1 vapaa S0-väylä verkkopäätteessä (NT1).
-2 analogista puhelinta tarvittaessa.
-1 vapaa RS232 -liityntä joka on vähintään 16550 UART **COM1 tai COM2** tai 16650 UART jos käytetään 230.000 DTE nopeutta TeleWell HK-10 16650 HIGH SPEED kortti, jossa on 230K nopeusJos käytät TeleWell HK-10 16650 UART-korttia, poista COM 2 biosista ja aseta TW HK-1 COM 2 osoitteeseen (IRQ4,COM2) ja nopeuskerroin x2(3.6) asentoon.
Mitään erillisiä COM -portin ajureita ei tarvita
Käytä ohjelmissa päätelaitenopeutta 115200 yhteensopivuussyistä (nopeus on nyt 230 000).
tai
-USB -liityntä kun koneessa on Windows 98/2000 käyttöjärjestelmä
(Kun käytät USB -liityntää niin RS232 kaapeleita ei saa kytkeä)
-1 vapaa sähköliityntä ISDN sovittimen 230V AC **DC 7V 1A**. muuntajalle.
-TCP/IP ja PPP tuki käytettävässä tietokoneessa, jos kyseessä on Internet yhteys/NT Server yhteys.
-Windows tai Mac-käyttöjärjestelmän perusteiden hallinta puhelinverkkotoimintojen osalta.
-ISDN / MSN (omat puhelinnumerot käytettävissä) asennuksen aikana joista 2 ISDN numeroa puhelinporteille TEL-A/B ja 1 ISDN numero saapuville Data-kutsuille tarvittaessa.

Laitekuvaus

TeleWell ISDN TA 128 CI aktiivinen sovitin on tarkoitettu käytettäväksi ISDN-puhelinverkossa **S0-väylään (NT 1) kytkettynä**. Laitetta käytetään tietokoneen **RS232 porttiin** kytkettynä (UART vaatimus 16550 tai TW HK-1, jossa 115200/230.000 bps modeemiporttinopeus tai **USB porttiin** kytkettynä Windows 98/2000 ympäristössä.
RS232 ja USB portit eivät saa olla kytkettynä samanaikaisesti.

-Laitteessa on vakiona sisäiset **PPP** 64K ja **MLPPP** 128K yhteysprotokollat Internet yhteyksille tai 2:n tietokoneen välisille yhteyksille, kun käytetään TCP/IP protokollaa.
-Laite toimii tavallisen modeemin tapaan ISDN yhteyksille.
-Laite ei ole tarkoitettu yhteyksille analogisiin modeemeihin.
-Laitteessa on vakiona "FLASH BIOS" ohjelmallisille päivityksille.

HUOMAUTUS !
Oletuskoodia ei tule vaihtaa ilman maahantuojan suostumusta.
-Laitteessa on kaksi puhelinporttia: TEL A ja TEL B (analogiset) on tarkoitettutavallisille puhelinlaitteille (ei ISDN puhelimille). Kyseisiin portteihin kytketään fax,modeemi,puhelin.
-Laite tukee vain äänitaajuusvalintaisia laitteita (DTMF)
-Molemmissa analogisissaporteissa on oletuksena saapuvan numeron näyttö ja niissä testatut puhelimet; Telematic Ilmo puhelin ”uusi malli”,Doro mallistoja Doro ja Telematic -numeronnäyttölaitteet

Kytkettäviä laitteita voi olla vain 1 laite per TEL A tai TEL-B.

Tekniset standardit

-HDLC,V.110, V.120, X.75, G3/fax RVS ohjelmalla Win95/98/NT 4:ssä.
-Laitteessa on vakiona sisäiset **PPP** 64K ja **MLPPP** 128K yhteysprotokollat Internet yhteyksille tai 2:n tietokoneen välisille yhteyksille, kun käytetään TCP/IP protokollaa.

Numeronnäyttö (Caller ID)

TeleWell TA128 CI lähettää saapuvan numeron analogiselle laitteelle kun keskus lähettää kutsujan numeron. Saapuva numero välitetään 1:n ja 2:n hälytysäänen välissä sille puhelinportille jota kutsuttiin. Mikäli käyttäjä ei odota vähintään 2 hälytystä niin saapuvaa numeroa ei näytetä.

Numeronnäyttö asetetaan päälle komentosarjalla

Nnumero informaatio ei välity puhelimille ellei puhelimen anneta hälyttää vähintään 2 kertaa. Lisäksi puhelinyhtiön tulee välittää numerotieto saapuvasta puhelusta. **Puhelinkeskukset eivät välitä tietoa suojatuista numeroista.**
Mikäli samassa ISDN SO-väylässä on ISDN –puhelimia ja niihin vastataan 1:n ja 2:n hälytyksen aikana niin puhelimesta voi kuulua lyhyesti analogisen portin CALLER ID –tieto vaimeana äänenä. Toiminto ei sekoita ISDN –puhelinten toimintaa.

TEL-A JA TEL-B porteille ja se tehdään vain kerran
Testatut puhelimt; Ilmo Phone (98/48 valmistettu) ja Doro X50 puhelimet sekä Ilmo -numeronäyttölaite. Jos numeronnäyttölaitteen paristot eivät ole kunnossa niin tieto ei välity tai jos puhelinyhtiö ei välitä tietoa.

AT$AC1<Enter> TEL-A-portti
AT$BC1<Enter> TEL-B-portti
AT$ED1<Enter> DTMF -koodaus päälle
AT$ER1<Enter> CID 1:n ja 2:n soiton välissä
AT$ES1<Enter> CID:n **aloitus sekvenssi -A-**
AT&W<Enter> Tallentaa asetuksen
CID= Saapuvannumeron näyttö toiminto

Puhelinverkon PLUS -palvelut

Tämä toiminto on puhelinyhtiön tarjoama palvelu ja sitä käytetään seuraavasti.
Soiton siirto toiseen numeroon .
Nosta luuri ylös ja odota vapaa ääntä.
Näppäile > ***21*numero#** kuuntele keskuksen viesti.
Luuri alas.
Siirron peruutus **#21#.**

Plus -palvelut edellyttävät että ISDN numerot on ohjelmoitu analogisiin portteihin.

Analogisten puhelinporttien ohjelmointi

Kytke tavallinen puhelin siihen porttiin jota ohjelmoit esimerkiksi **TEL A.**
a) Nosta puhelimenluuri ja odota valintaääntä
b) Paina näppäintä **R/Flash** (95ms katkos)
c) Näppäile ****128** ja odota merkkiääntä
d) Näppäile **10***<**numero**>**** ja odota merkkiääntä
e) Näppäile lopuksi **#*#** ja odota merkkiääntä **→Tiedot tallentuvat**
Toista sama TEL -B portille TEL-B liittymän liittimen kautta

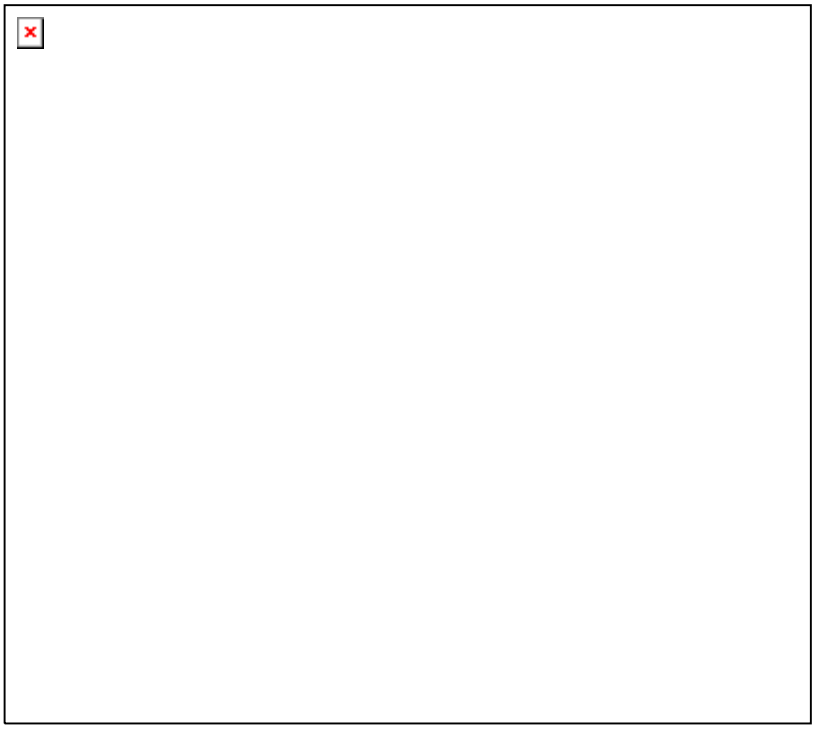
Analogisten puhelinporttien ohjelmointi Hyperterminal -ohjelmalla

1. Käynnistä HyperTerminal -ohjelma (Käynnistä / Ohjelmat / Apuohjelmat /HyperTerminal).
   Jos HyperTerminal ei ole asennettuna koneelle, se on asennettava Lisää/Poista sovelluksesta (Käynnistä / Asetukset / Ohjauspaneeli / Lisää/Poista sovellus / Windows asennus / Tietoliikenneyhteydet / Tarkenna / HyperTerminal / OK)

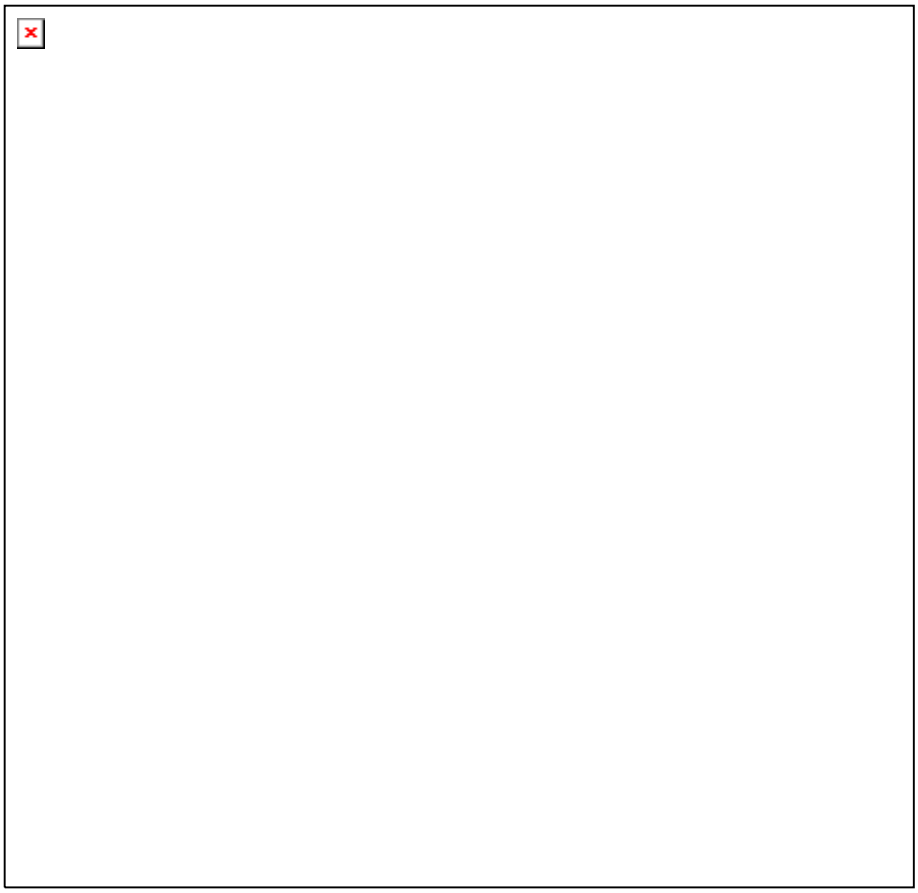
2. Kaksoisklikkaa Hypertrm.exe kuvaketta.

3. Kohtaan "Yhteyden kuvaus" anna haluamasi nimi yhteydelle

4. Kohtaan "Yhdistä käyttäen" laita suoraan COM-porttiin x (katso kuva alapuolella), jossa x = COM portin numero, johon TA128CI on asennettuna.



5. Kohdassa "Ominaisuudet COMx" aseta COM portin nopeudeksi 38 400 bittiä sekunnissa. Muihin käy Windowsin oletuksena tarjoamat asetukset (8, Ei mitään, 1, Laitteisto). Katso kuva seuraavalla sivulla. Lopuksi hyväksy asetukset painamalla OK painiketta.



6. Seuraavaksi avautuu HyperTerminal ikkuna. Anna siellä komento AT&F +
   Enter. Jos antaa vastauksen OK, niin voit jatkaa eteenpäin. Huomaa, että kirjoittamasi merkit eivät välttämättä tule näkyviin ruudulle.

7. Anna komento AT$AN=puhelinnumero jonka haluat määritellä TEL A portille. Vastaavasti TEL B portille saat määriteltyä numeron komennolla AT$BN=puhelinnumero.

   Dataportin MSN numeron saat määriteltyä komennolla
   AT%n=msn-numero on puhelinyhtiön antama ISDN -numero.

8. **Tallenna** vielä tekemäsi muutokset TA128 CI:n muistiin komennolla **AT&W<Enter>**

TeleWell TA 128 CI asennus ja käyttöönotto

Kytkentä laitteen RS232 tai USB porttiin
Sammuta kaikki toisiinsa kytkettävät laitteet jos RS232 -kytkentä
Molempia portteja ei saa käyttää samanaikaisesti

RS232

-Kytke **TA 128 CI** RS232 kaapeli tietokoneen vastaavaan **RS232 liittimeen COM1 tai COM2.**
-**Jos RS232 kytkentä tulee Mac-tietokoneeseen**, niin liitä Mac-kaapeli (erikseen hankittava) mukana tulevan RS232-kaapelin jatkoksi, ja kytke kaapeli Macin modeemiporttiin.
-Kytke mukana tuleva RJ45 ISDN-kaapeli ISDN-sovittimen ja ISDN-verkkopäätteen välille.
-Kytke sähkömuuntaja laitteen sähköliittimeen DC 7V 1A (tarkista muuntajan päältä oikeat tiedot jännitteistä)
-Kytke TEL A ja TEL-B portteihin tarvittavat analogiset laitteet
-Paristokoteloon asennetaan tarvittaessa 6 KPL vuotamattamia AA -paristoja (paristojen maksimi käyttöaika on maksimissaan 1 tunti kaikille toiminnoille)
-Terminaattorikytkin on paristokotelossa ja sen asentoa ei tarvitse muuttaa ellei ole teknisiä ongelmia S0 -väylässä)

USB

Jos käytät USB -porttia niin kytke sähkömuuntaja ja ISDN -kaapeli ensin laitteeseen ja sitten vasta USB -kaapeli koneen ja TA128 CI:n välille
USB portin käyttö on kohdassa Windows 98/2000 USB käyttö.

Merkkivalot

Power > **Vihreä valo osoittaa että laite on kunnossa**

Connect >

Vihreä merkkivalo ;Puhe tai Data yhteys päällä

Punainen merkkivalo; Molemmat ISDN kanavat käytössä ML PPP 128 internet yhteys

TX/RX >

Vihreä merkkivalo vilkkuu

Tiedon lähetys tai vastaanotto menossa

LINE >

Vihreä merkkivalo

Laite on kytkeytyneenä S0 -väylään

Käyttöjärjestelmät ja niiden erityisvaatimukset

Windows 95/98/NT 4 ja Windows 2000 asennus

Aktiivinen ISDN sovitin TeleWell TA 128CI asennetaan kuin tavallinen modeemi ja ulkoisen modeemin / ISDN -laitteen asennusohje on Windows käyttöjärjestelmässä.

Yhteyden muodostukseen käytetään Puhelinverkkoyhteydet toimintoa.

Modeemiajuri ja USB -ajurit ovat samalla asennuslevyllä.
CAPI protokollia ei käytetä ei tueta. Laite toimii AT -komennoilla

Asennuslevy A:

\WIN2000 > Windows 2000 USB ajurit **USB** to **COM** -port
\WIN98 > Windows 98 USB -ajurit **USB** to **COM** -port
A:**GENERAL.INF** -modeemiajuri Windows 95/98/NT4/2000

Tarkista, että olet asentanut Windowsin seuraavat osat: puhelinverkkosovitin, TCP/IP, Microsoft verkkojen asiakas. Windows 95:n versio pitää olla vähintään 4.00.950a (Tarkista: ohjainpaneeli/järjestelmä)

Huomautus Windows NT 4

Windows NT:ssä REMOTE ACCESS SERVICE tulee asentaa ensin.

Ja tarvittaessa lisätä modeemiajuri sen asennuksen aikana kohdassa (Install Modem**). PPP/LCP ei saa olla käytössä ja IP-Header Compressio ei saa olla päällä käytettäessä kahta kanavaa. SP 5 tulee olla asennettuna.**

Huomautus Windows 2000

PPP/LCP ei saa olla käytössä, jos käytetään kahta kanavaa. IP-Header Compressio ei saa olla päällä käytettäessä kahta kanavaa.

Windows 95 a,b / 98 /98SE / NT 4/ 2000 modeemiajurin lisäys

RS232 kytkentä

Siirry kohtaan **Ohjainpaneeli/Modeemit**

/Lisää/Älä tunnista/Anna Levy A:/Valitse listalta haluttu ajuri vaihtoehto ja kuittaa OK.
Internet käyttöön valitaan joko PPP 64K tai ML PPP 128K halutun nopeuden mukaan

> TW ISDN-TA (PPP-64K) Internet 64 yhteys (2:n puhekanava vapaana).

TW ISDN-TA (Soft-Fax)" Ohjelmallinen G3 faksi RVS.COM-ohjelmalla.
TW ISDN-TA (X.75)" X.75 protokolla BBS järjestelmiin.

> TW ISDN-TA (MLPPP-128K) Internet 128k nopeus
(IP-Header Compressio ei saa olla päällä käytettäessä kahta kanavaa ML PPP ajuri).

Valitse oikean COM portti ajurille ja kuittaa OK valinnalla. Valitse lopuksi valmis ja käynnistä kone.

Internet yhteys muodostetaan Puhelinverkkoyhteydet alueen kautta jossa valitaan TeleWell ISDN TA 128 CI malli

Windows 98 / 98SE / 2000 modeemiajurin lisäys

USB -kytkentä

-Kytke USB -kaapeli laitteen ja koneen välille.
(sähkömuuntaja liitettynä laitteeseen)
-Windows -tunnistaa laitteen ja pyytää ajureita
-Aseta ajurilevy A:asemaan ja määrittele Windows etsimään
ajuria **A:** asemasta seuraavista hakemistoista.
WIN2000 > Windows 2000 USB ajurit > **USB** to **COM** -port
WIN98 > Windows 98 USB –ajurit > **USB** to **COM** -port
-Windows lisää USB -ajurit ja tekee virtuaalisen COM -portin
TA128CI -laitteelle.
-Käynnistä kone ja asenna varsinainen modeemiajuri kuten asensit modeemin edellisessä kohdassa mutta valitse COM -portikse uusi virtuaalinen COM -portti ja nopeudeksi sen maksimi COM3 tai se portti jonne Windows muodosti virtuaalisen COM portin.

Internet yhteys muodostetaan Puhelinverkkoyhteydet alueen kautta jossa valitaan TeleWell ISDN TA 128 CI malli

Jäljempänä malli Windows 2000 yhteydestä Internetiin

Windows 3.11

RS232 kytkentä

Käytetään Internet Explorer 3.0a tai uudempi versio, jossa TCP/IP ja soitto-ohjelma asennettuna.
Modeemityypin valinta: **Explorer-ohjelmassa valitaan standard 28800 modeemi.**
Muuta kyseistä ajuria seuraavasti: Connection Properties/Change modem/Do not detect/Valitse/Motorola/ISDN TA 210. Tämän jälkeen poistu ja muuta Modems2.ini-tiedostossa oleva rivi Init String: Jos asetat AT%A2=6&k3 niin yhteys nopeudeksi tulee 128K. Jos asetat AT%A2=5&k3 niin yhteys on 64K.

Macintosh

RS232 liityntä (USB –ajurit tulevat mahdollisesti myöhemmin kesällä 2000)
Käytä FREE PPP ohjelmaa 2.6 tai **OPEN PPP** ajureita www.easytel.fi ISDN -ohjelmistot alueella. DTE nopeus 115200bps, RTS/CTS -vuonohjaus.
Ajurin löydät osoitteesta http://www.eunet.fi/tucows (Mac alueelta/TCP/).
Alustus komento: AT!C0=4W0X4%A2=6 128K yhteys tai AT!C0=4W0X4%A2=5 64K yhteys.

Linux

RS232 liityntä

Käytä suoraan TTY porttia jossa ISDN -laite on, DTE 115200,8,n,1 , RTS/CTS päälle.Käytä DTE speed kohdassa 230.000 jos laitteesi tukee kyseistä nopeutta.
AT&F%A2=5<Enter> > 64K,
AT&F%A2=6<Enter> > 128k

Windows 2000 ja Internet

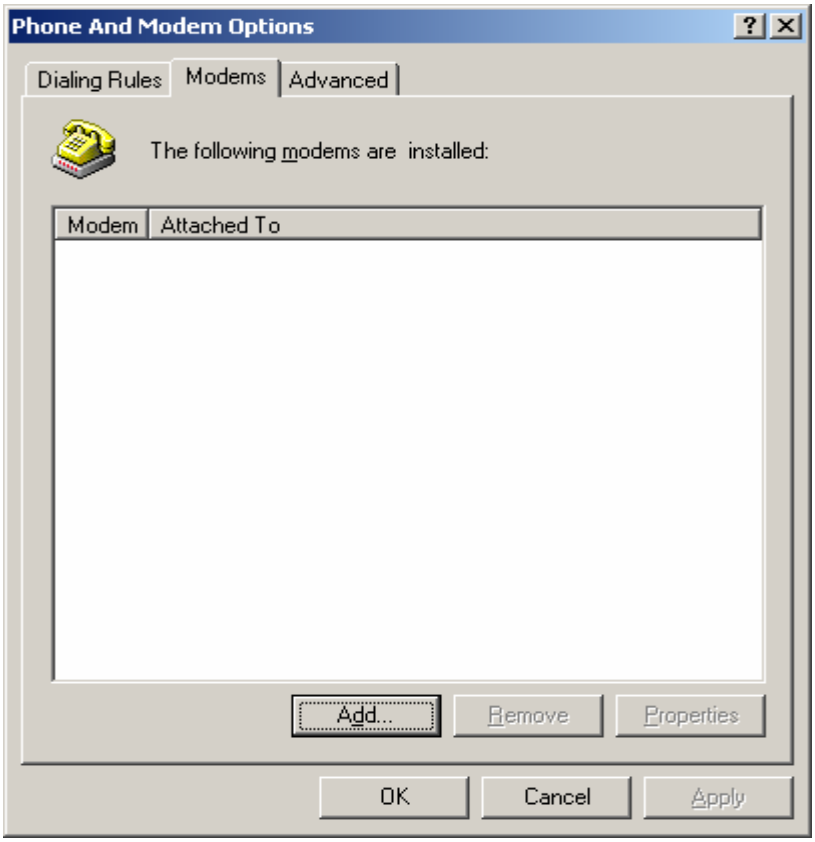
Asenna Windows 2000 niin, että TA128 CI ei ole kytkettynä tietokoneeseen. Sammuta kone ja kytke TA128 CI haluttuun modeemiporttiin (RS232 COM1 tai COM2). Jos käytät USB -porttia niin konetta ei tarvitse sammuttaa. Käynnistä Windows 2000 uudelleen arvittaessa.

RS232 -kytkentä

Jos Windows 2000 ilmoittaa että uusi modeemi löydetty niin hyväksy valinnaksi modeemin tyyppi ”Unknown model” ja valitse kohta ”Change/Muuta” ja valitse asennuslevyltä uusi ajuri TA 128 PPP 64K RS232 -kytkentä.

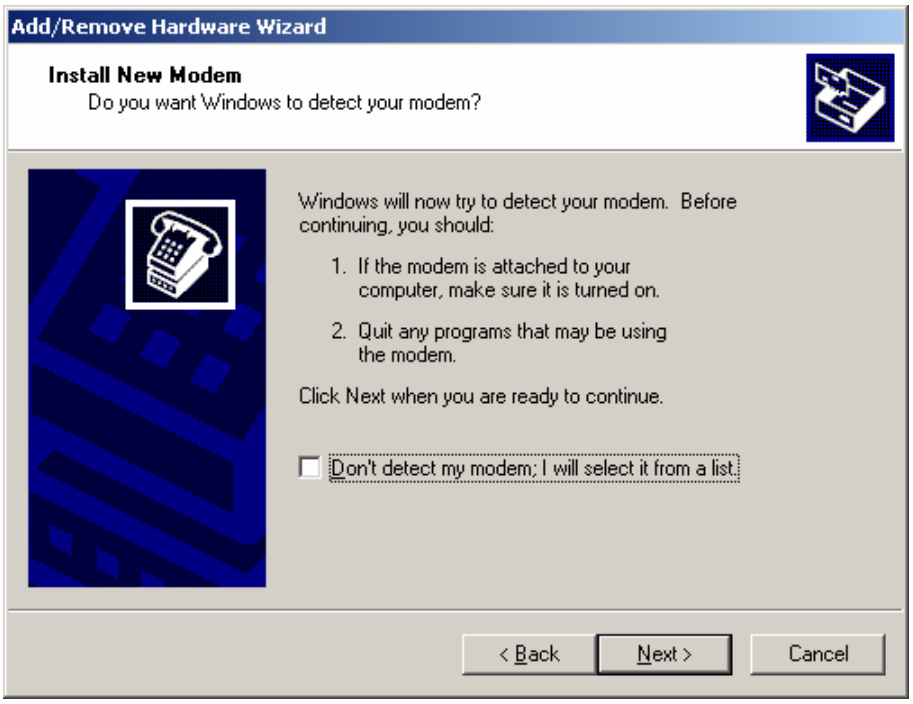
USB -kytkentä

Windows 2000 ilmoittaa että uusi USB laite löydetty. Anna ajureiden asennuspoluksi A: levyasema. Aseta TeleWell ajurilevyke A: asemaan ensin ja hyväksy valinta. USB -käytössä Windows 2000 asentaa USB -portin ja USB-serial conversion -ajurit ja muodostaa virtuaalisen COMx -portin TA 128 CI -mallille.

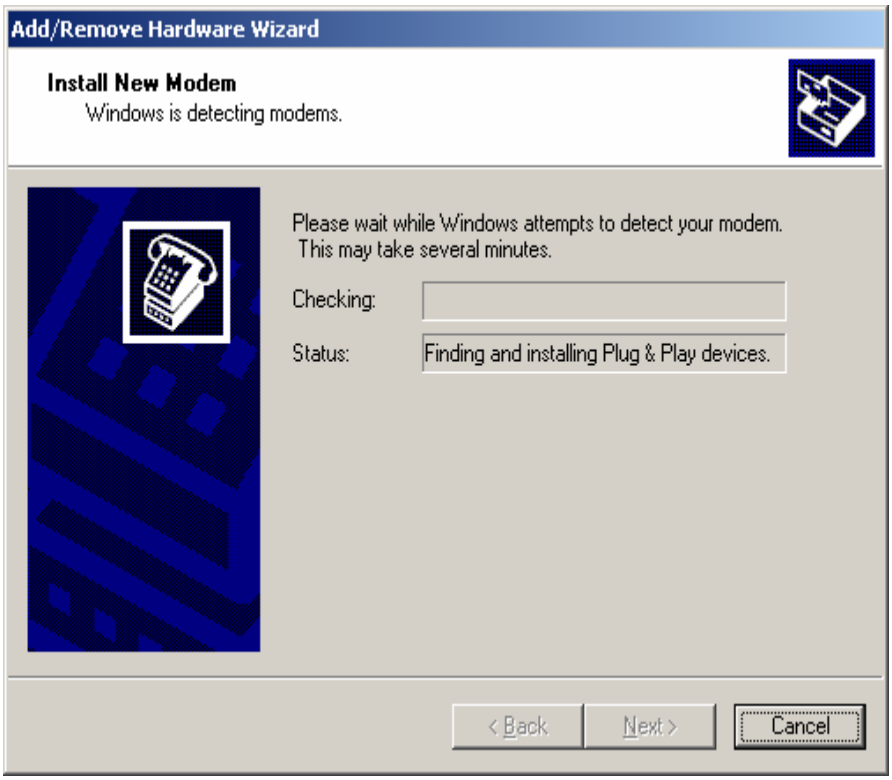


Kun RS232 kytkentä tai USB -kytkentä on tehty siirry kohtaan Ohjainpaneeli/modeemit/Lisää(Add)

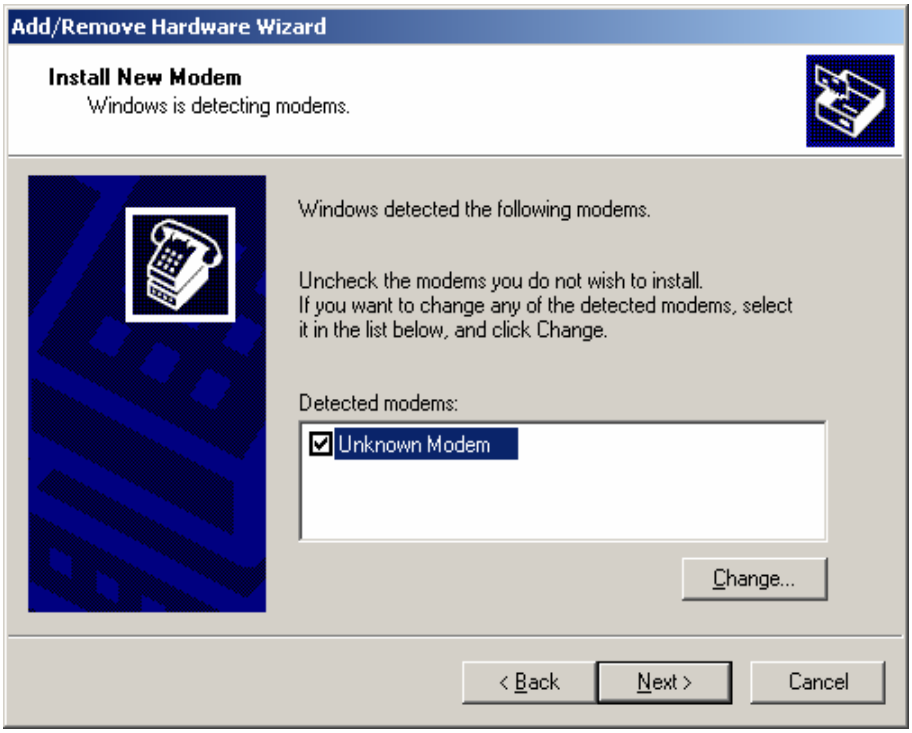
Valitse **ADD** ja anna Windows 2000:n etsiä uusi modeemi
Aseta seuraavan kuvan mukainen valinta ja **Valitse Next**



Poista rasti kohdasta Don’t detect …
Valitse Seuraava/Next ja Windows etsii modeemin



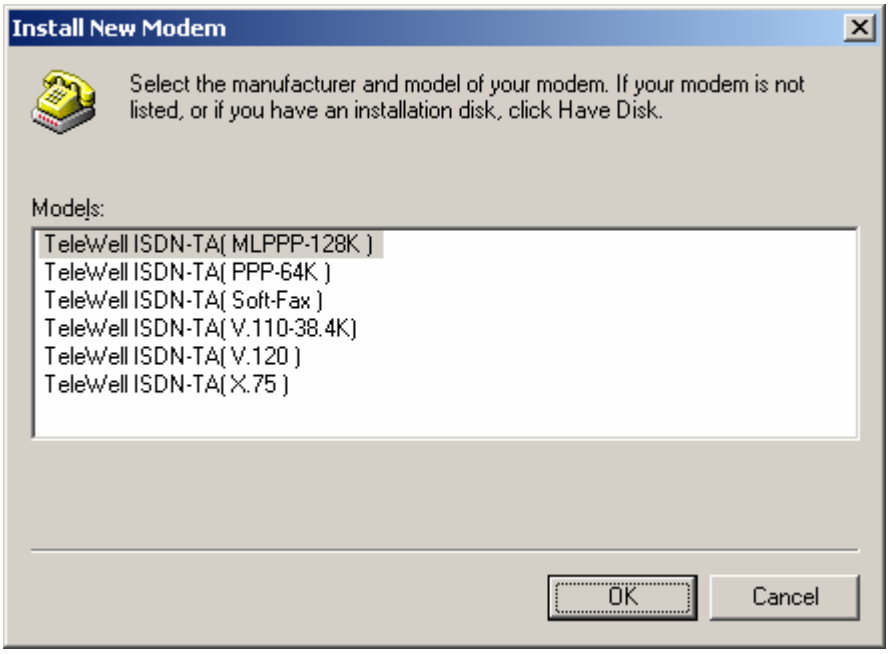
Kun TA128 CI on löydetty **tulee näytölle vaihtoehto ”Unknown modem”** valitse vaihtoehto **Change ja valitse Have a disk/Anna levy vaihtoehto ja aseta asennuslevy A:** -asemaan ja kuittaa **A:** valinta **OK** näppäimellä.



Valitse listalta haluttu ajuri

PPP-64k** ajuri on 64K nopeuksinen* ***SUOSITUS

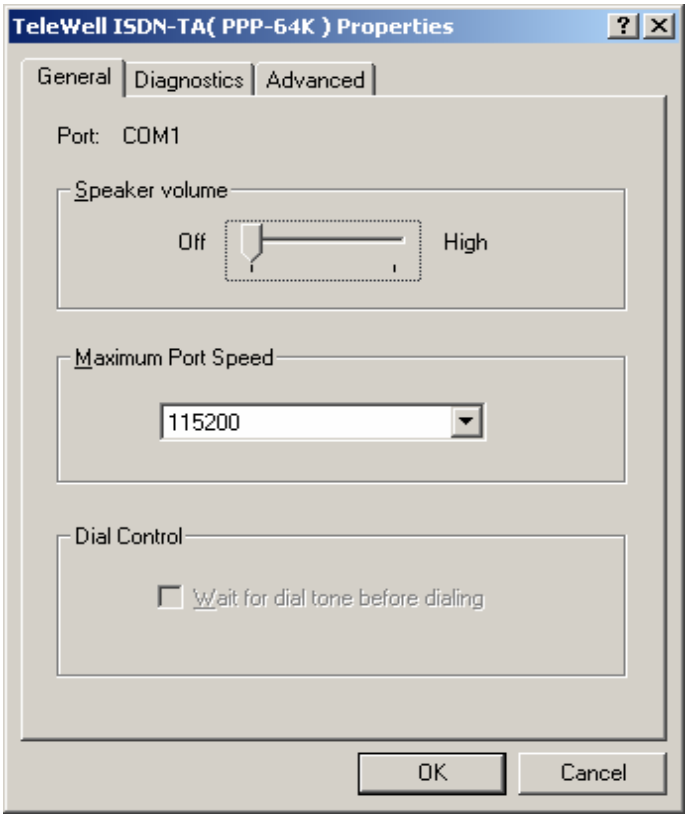
ML PPP-128K on 2 kanavan ajuri ja nopeus on 128K (2:n kertainen puhelinmaksu) (Täysi teho edellyttää 16650 Uart korttia)



Kuittaa valinta OK -näppäimellä ja valitse Next / Finnish

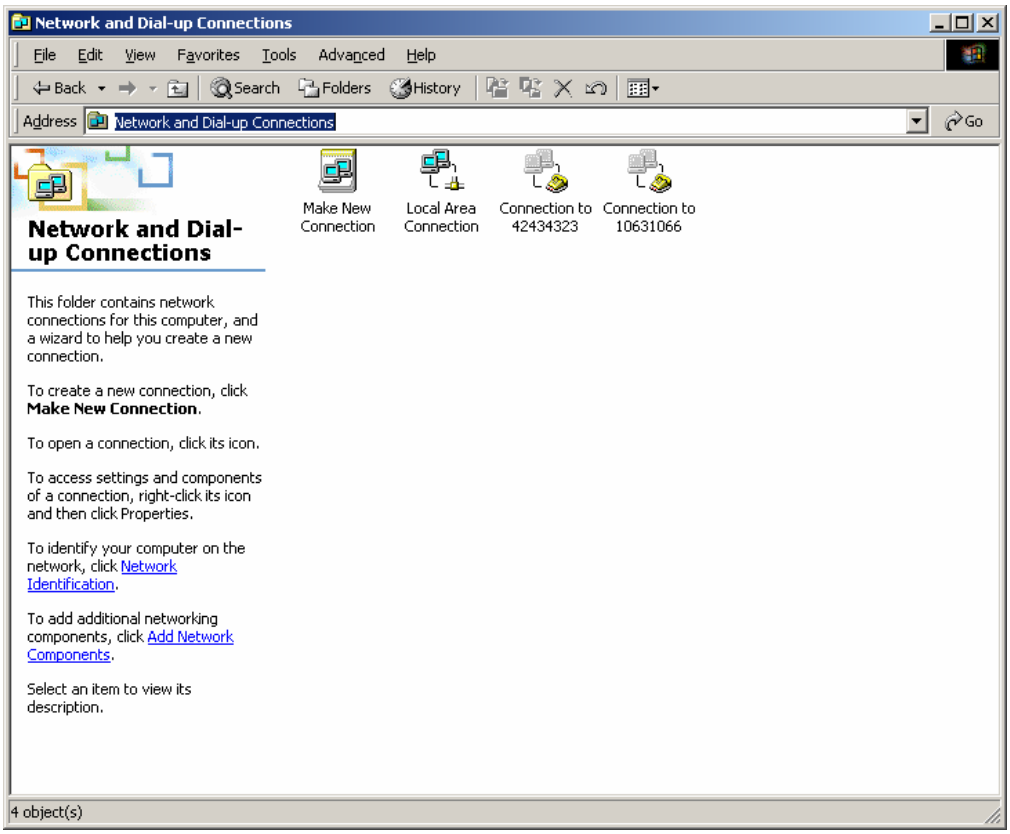
Tarkista nopeusasetus maximum port speed (Pitää olla 115200)

ML PPP-128K ajuri asettaa 230.000 mutta se ei toimi kaikissa koneissa.



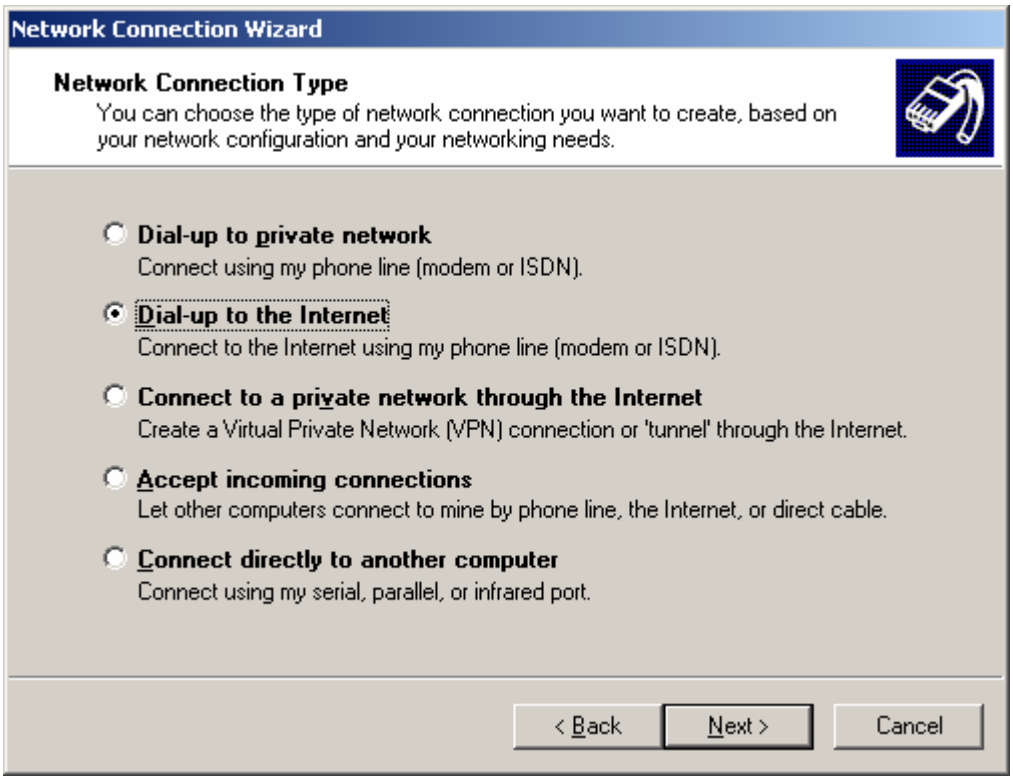
Internet yhteys

Siirry kohtaan

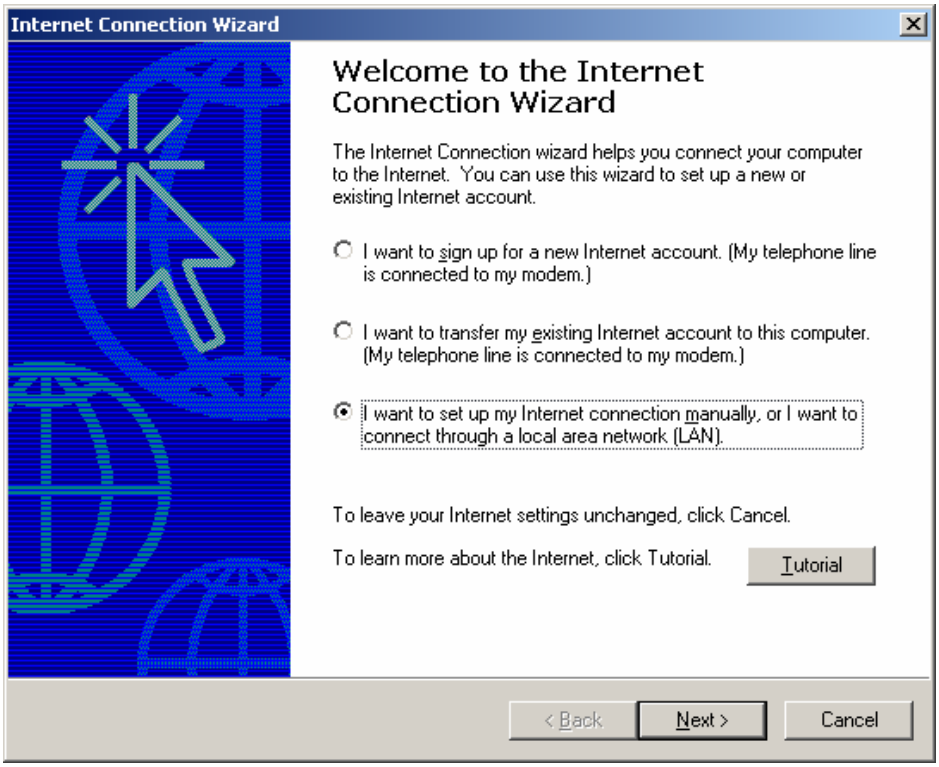


Valitse Make a New connection

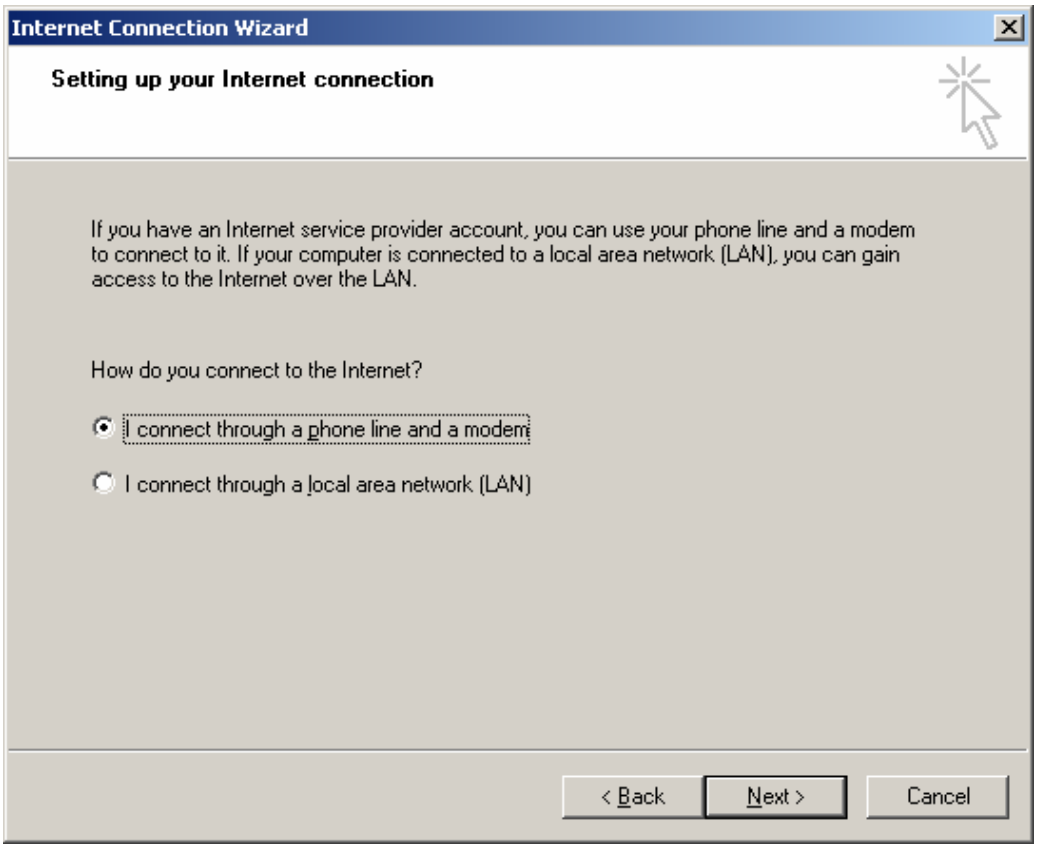
Valitse vaihtoehto alla olevan kuvan mukaan



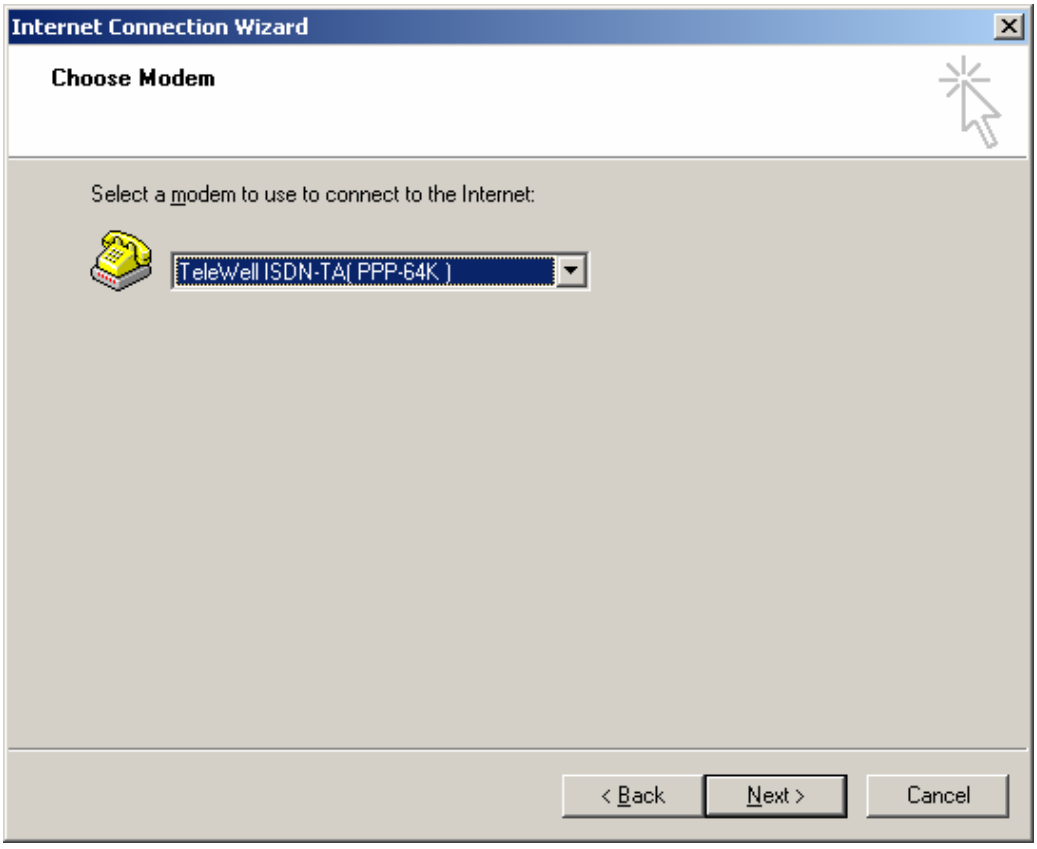
Käytä Wizardia hyväksi ja valitse vaihtoehto joka on kuvassa



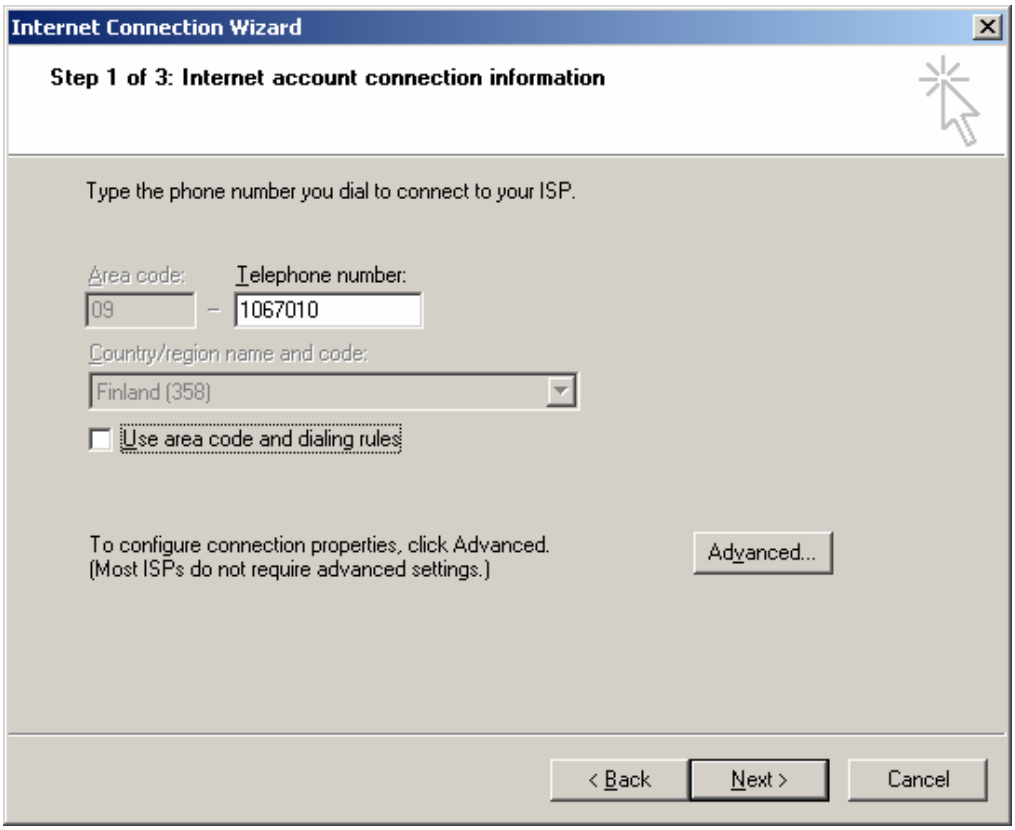
Valitse oheisen kuvan mukainen vaihtoehto



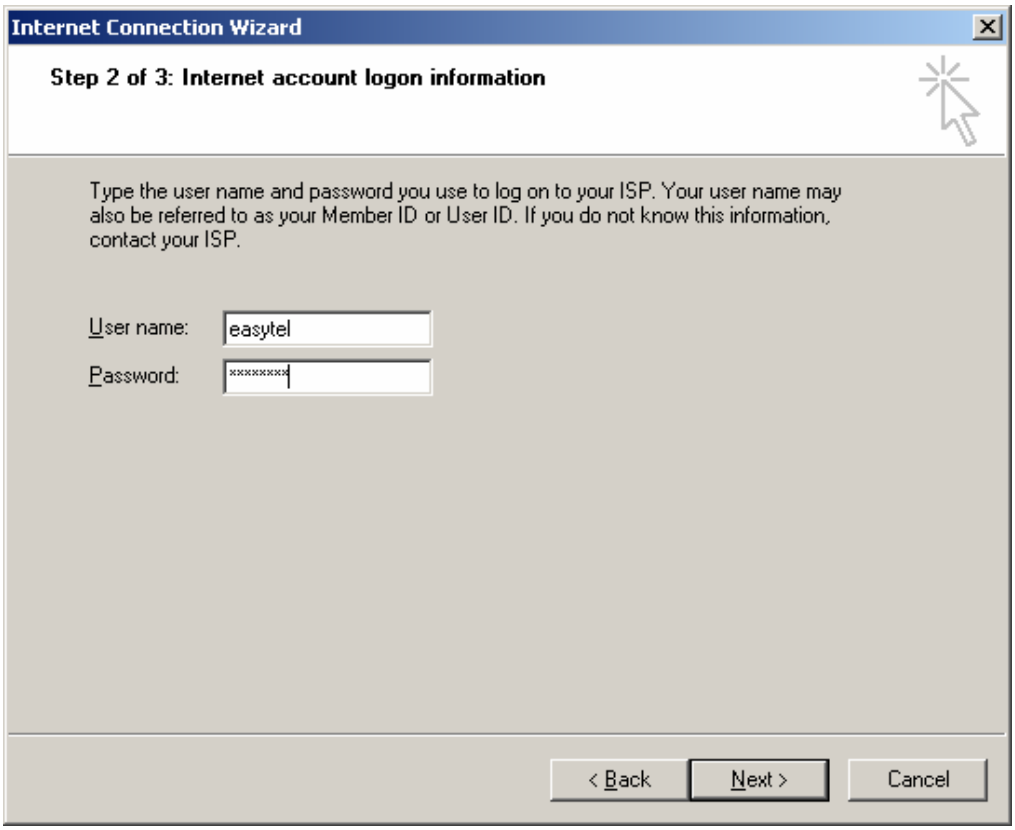
Valitse oikea ajuri



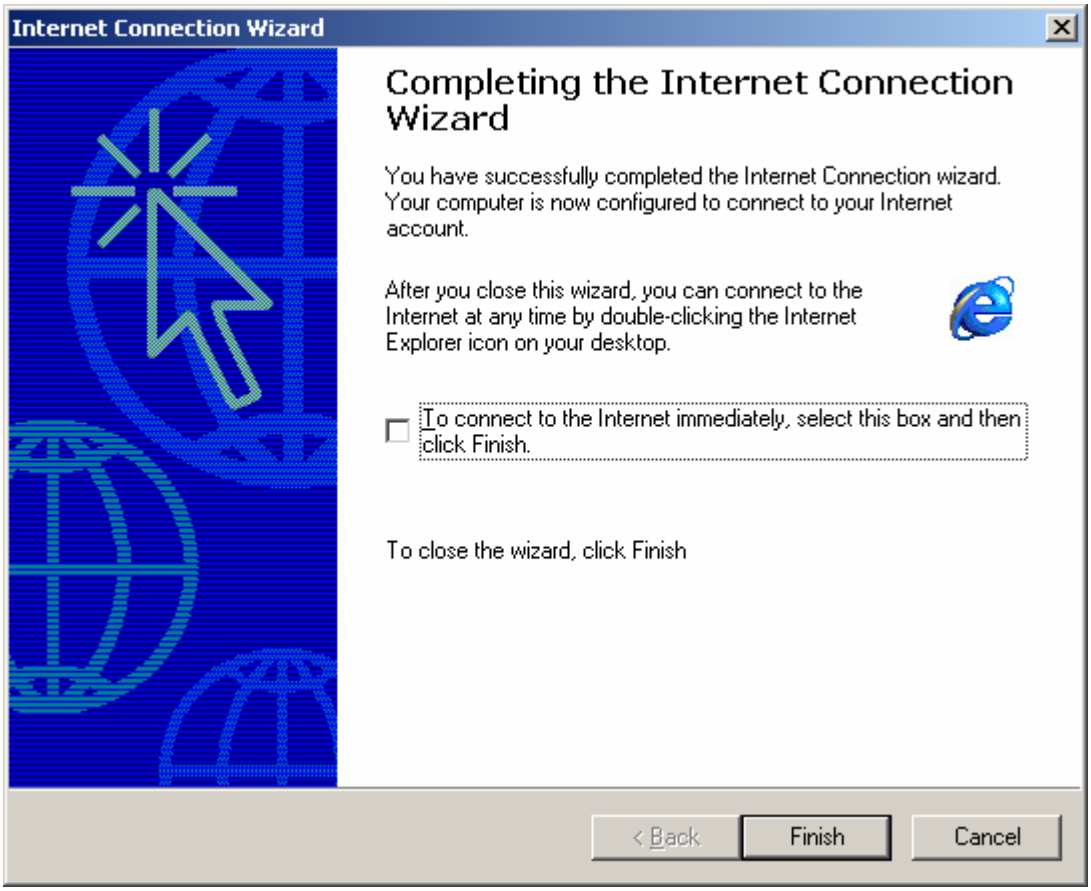
Täytä operaattorin antama puhelinnumero ilman maa ja alue valintaa



Lisää operaattorisi antama käyttäjätunnus ja salasana



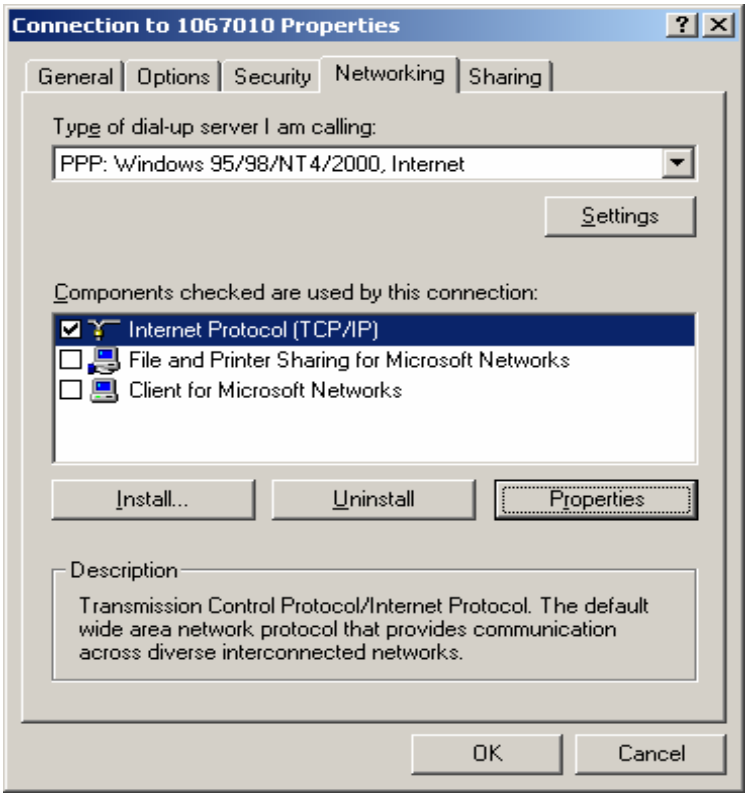
Täydennä tarvittaessa Mail (sähköpostin tiedot jotka olet saanut operaattorilta)

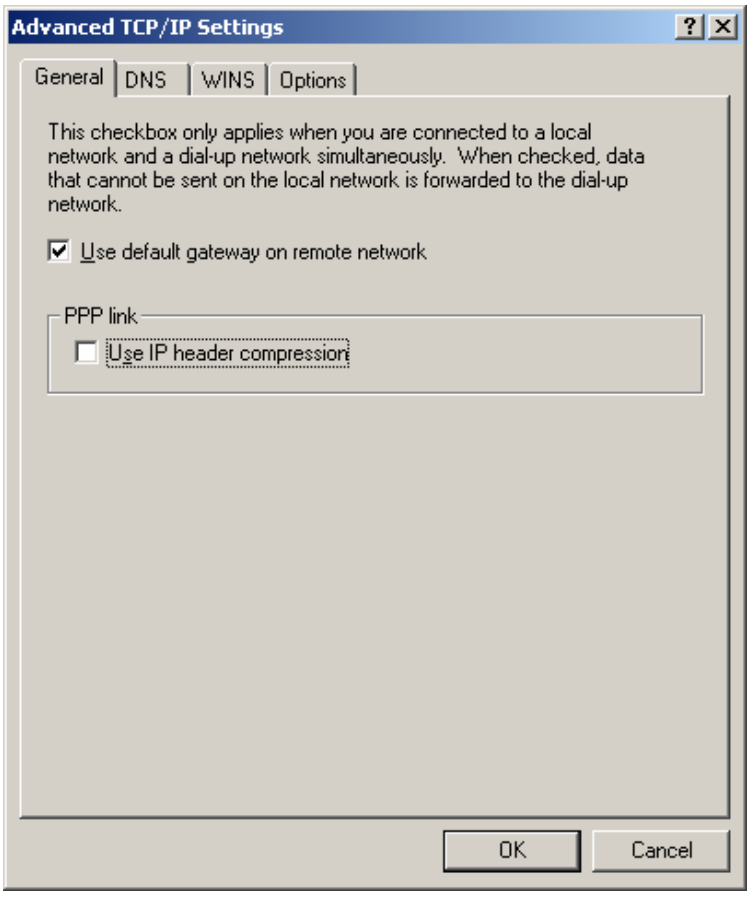


Mikäli et halua suoraan internet yhteyttä, niin poista yllä oleva valinta ja kuittaa **FINISH** -painikkeella

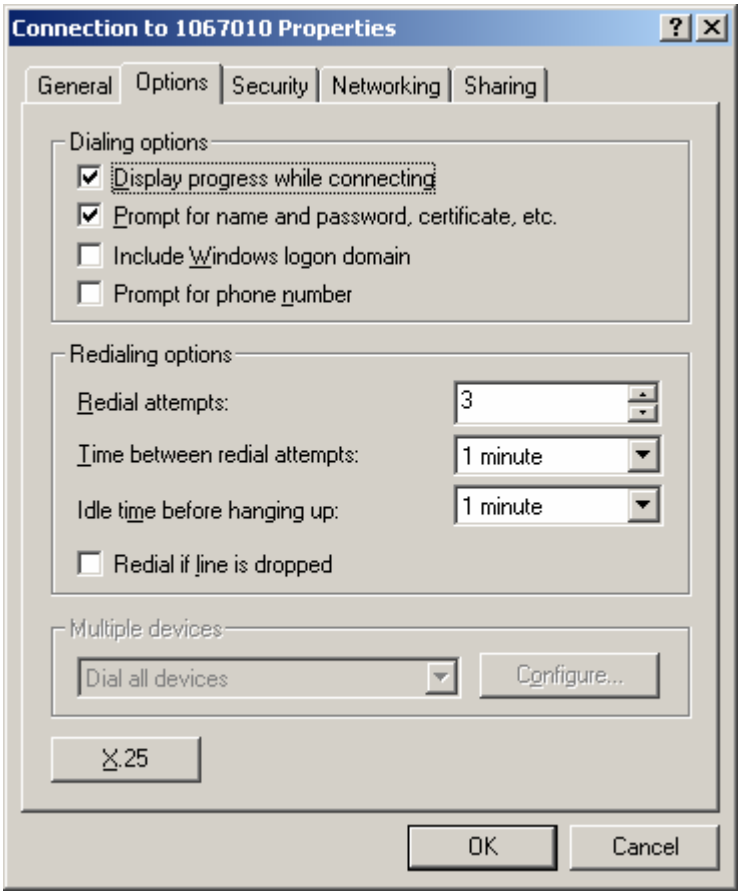
Windows 2000 ja puhelinverkkoyhteydet ja sen lisäasetukset

Mikäli käytät ML PPP128K ajuria niin tee tämä asetus Soittokuvakkeen **proberties** alueella





Mikäli tämä asetus on päällä niin ML PPP 128K nopeus on hidas. Tässä ruudussa määrittelet milloin yhteys lopetetaan jos ei ole liikennettä. Asetusta muutat kohdassa Idle time before hang UP



Dynaaminen ISDN kanavien käyttö (Call bumping)

Soita puhlimella tai vastaa puheluun kun käytät Internet 128K (ML PPP) yhteyttä. Toiminto on käytettävissä jos seuraavat oletukset toteutuvat.

-Puhelinyhtiö on kytkenyt koputuksen päälle
-ISDN –kotivastaaja ei ole samassa liittymässä
ATU1%A2=6 komento on annettu (oletuksena biossissa)
-Analogisten porttien numerot on määritelty

Dynaaminen kanavan avaus ja sulku (BOD)

AT –komennolla AT%A2=6U1S107=5

TA 128CI avaa ja sulkee toisen ISDN kanavista kapasitettin nousun ja laskun tarpeen mukaan.
Katso AT –komennot alueelta S107 komennon arvot

TeleWell TA 128 CI ohjelmallinen nollaus (resetointi)

Tarvittaessa voit alustaa laitteen aivan kuten
poistaisit sähkön hetkeksi laitteesta.
AT%Z1 <Enter> Laite vastaa OK ja toiminto kestää n 4 sekuntia.
Tämä alustus ei poista puhelinnumeroita mutta tyhjää laitteen kaikki muistit jos sinne on jäänyt jotain tietoa edellisestä yhteydestä.

Puhelun siirto sisäisesti toisen puhelinporttiin

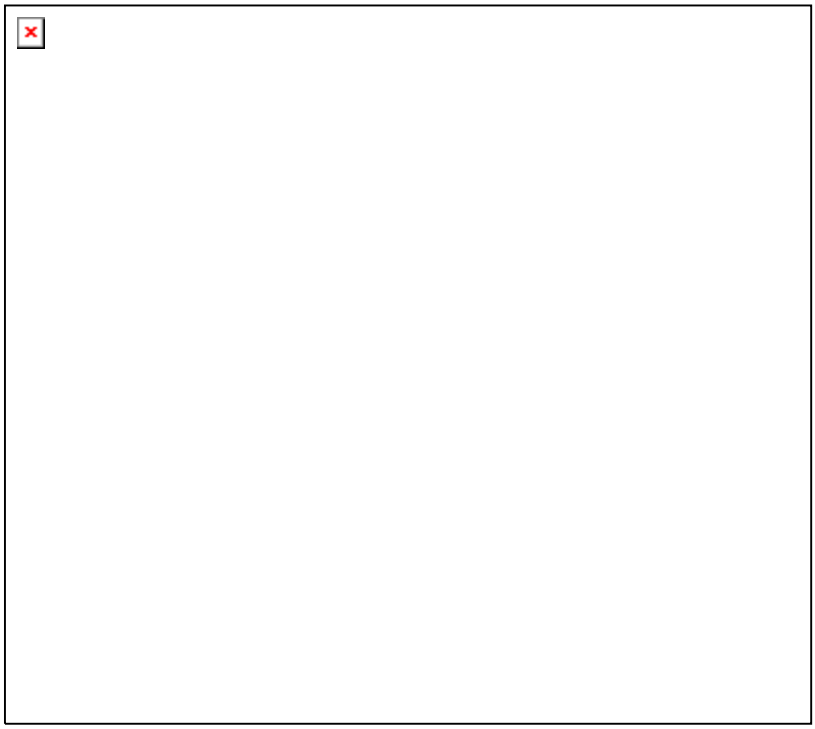
Vastaa puheluun ja paina **R/flash** -näppäintä
näppäile 2 **0 ja toinen vapaa puhelinportti hälyttää.
Sulje puhelin josta siirsit.

TA 128 CI ja biospäivitys

Tämä toiminto voidaan suorittaa vain jos Easytel Oy:n asiakastuki antaa siihen luvan. Mikäli päivitys tehdään ilman lupaa niin takuun katsotaan raukeavan välittömästi .

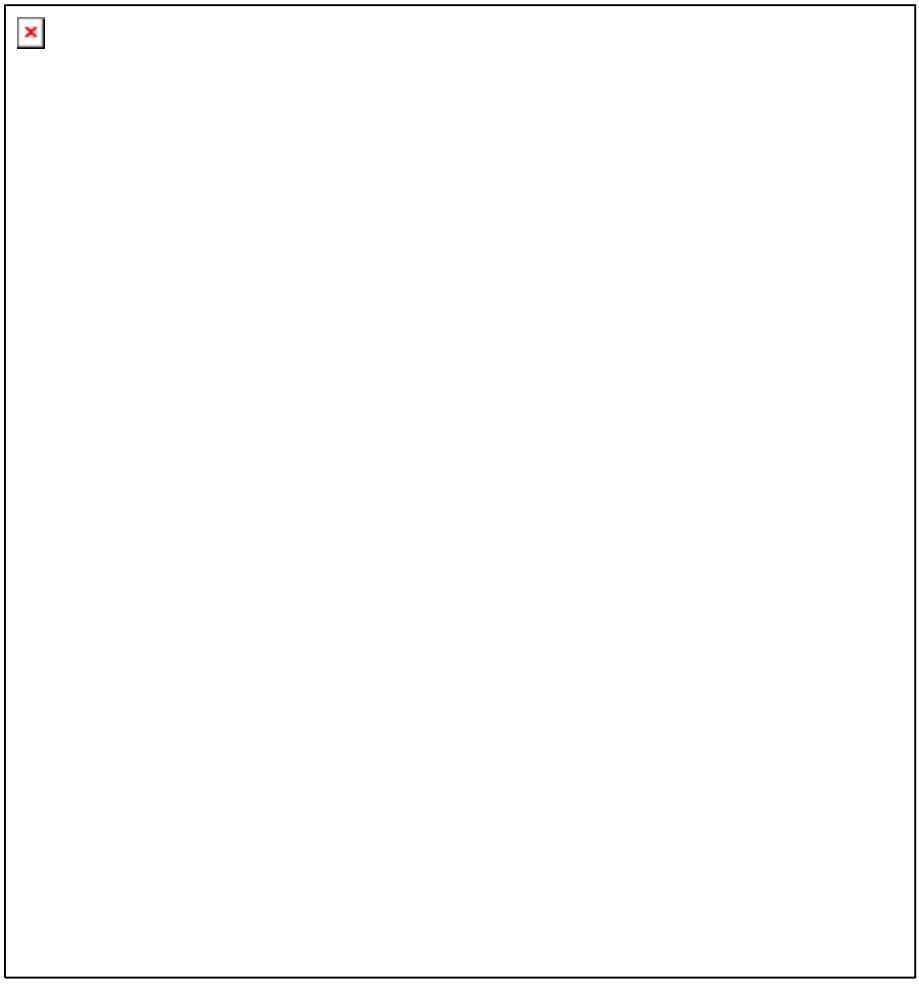
TA128/TA128A tai TA128+Nt1 koodit eivät sovellu tälle mallille.

1. Käynnistä HyperTerminal ohjelma (Käynnistä / Ohjelmat / Apuohjelmat / HyperTerminal). Jos HyperTerminal ei ole asennettuna koneelle, se on asennettava Lisää/Poista sovelluksesta (Käynnistä / Asetukset / Ohjauspaneeli / Lisää/Poista sovellus / Windows asennus / Tietoliikenneyhteydet / Tarkenna / HyperTerminal / OK)
2. Kaksoisklikkaa Hypertrm.exe kuvaketta.
3. Kohtaan Yhteyden kuvaus anna haluamasi nimi yhteydelle
4. Kohtaan "Yhdistä käyttäen" laita suoraan COM-porttiin x (katso kuva alapuolella), jossa x = COM portin numero, johon TA128CI on asennettuna.



5. Kohdassa "Ominaisuudet COMx" aseta COM portin nopeudeksi 38 400 bittiä sekunnissa. Muihin käy Windowsin oletuksena tarjoamat asetukset (8, Ei

mitään, 1, Laitteisto). Katso kuva alla. Lopuksi hyväksy asetukset painamalla OK painiketta.



5. Seuraavaksi avautuu HyperTerminal ikkuna. Anna siellä komento at + Enter. Jos tulee vastaus OK, niin laite on todennäköisesti valmis bios päivitykseen.
6. Poista TA128CI:n takaa kaikki verkkojohdot (Tel-A, Tel-B, S/T -line) ja jätä kiinni pelkästään tietokoneeseen yhdistetty RS232 kaapeli kiinni.
7. Aloita Bios -päivitys komennolla AT%FAPPS
8. Ruudulle tulee seuraava teksti:

    AT%FAPPS Application Upgrade
    FLASH PROGRAM VERSION 1.x
    Erase and reprogramme flash eprom contents (y/n)

10. Vastaa y + Enter
11. Seuraavaksi ruudulle tulee seuraavanlainen ilmoitus:

    *** WARNING ***

Erasing Flash Memory

Flash eprom upgrade procedure
Ready for ASCII download
CTS (hardware) flow control
38400, 8, N, 1
>

12. Valitse valikosta Siirrä / Lähetä tekstitiedosto ja valitse imuroimasi/purkamasi biosversio.

13. Ruudulla lähtee juoksemaan seuraavankaltainen kuvio:

>>>>>>>><<<<<<<<

..jolloin bios -päivitys on käynnissä. Tämä saattaa kestää jopa 20 min, joten ei kannata olla kärsimätön, jos ei heti tapahdu mitään.

14. Kun Bios -päivitys on valmis, tulee ruudulle seuraavanlainen ilmoitus: Code Update Successful
15. Kun bios -päivitys on tehty onnistuneesti, sulje HyperTerminal -ohjelma, ja poista TA128CI:stä virrat 5:ksi sekunniksi.
16. Kytke TA128CI:n virrat ja koeta HyperTerminalissa onko bios -päivitys onnistunut seuraavilla komennoilla:
    At + enter Jos tulee OK, niin jatka seuraavalla komennolla:
    Ati3 Jos vastaa tähän uuden bios -versionumeron, niin bios päivityson onnistunut

TeleWell ISDN
TA128CI
User‘ s Manual

ISDN TA128 CI User's Manual

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1. Introduction

The ISDN TA (Integrated Service Digital Network Terminal Adapter) is a communication product for the Internet and digital communication era. It provides high speed and high quality transmission. The TA supports two analogs and one digital port. The two analog ports act like two regular telephone lines, which can be connected to regular telephone, answering machine, fax and modem products. Also, the TA can provide flexible functions like: supplementary service, call screening, speed dial and global call function to meet user' s requirements. The digital port with the RS232 link can be connected to PC to support data communication with remote site. It supports many protocol selection such as V.110, V.120, X.75, X.25 on D channel, PPP (Point-to-Point Protocol), MLPPP (Multi-Link PPP), BACP (Bandwidth Allocation Control Protocol) / BOD (Bandwidth On Demand) function. With the MLPPP, the entire 128k ISDN bandwidth can be used to access the Internet. The BOD function can utilize dynamic bandwidth demand under MLPPP connection. Under MLPPP data connection, the TA will automatically release one B channel for voice communication when the user picks up the phone to make a call and returns to two B channels for MLPPP when the phone hangs up. With the BACP function, the 128k capacity of ISDN can be utilized fully. The TA is equipped with channel bundling feature which allows the user to use both B channels to maximize the 128k bandwidth for data transmission.

The TA complies with ITU-T Q.921, Q.931 for D channel protocol, and provides switching type selections for different countries. Following are the switch types supported by the TA:

*Euro-ISDN EDSS1	

The TA is equipped with flash EPROM for easy future software upgrade through RS232 port.

2. Features

- Async-to-Sync PPP conversion
- Support MLPPP to utilize the full 128k ISDN capacity
- **Support BACP/BOD for dynamic bandwidth demand**
- Up to 230.4k DTE speed
- One standard RJ11 modular jack for U interface
- Selectable terminating resistance (100 Ohm) inside battery pack
- 1 standard RJ45 modular jack for S/T interface to NT1 (EURO ISDN)
- **Two analog ports with RJ11 modular jack with CALLER ID**
- **One RS232 data port with DB9-Sub male connector**
- **One USB -port for Windows 98 and Windows 2000**
- LED indication
- Inner Communication
- Receive Priority, Call Screen, Speed Dialing function
- ITU-T V.110, V.120, X.75, X.25 on D protocol
- **Channel bundling function**
- Switching type selection
- Hardware CTS/RTS, Software Xon/Xoff Flow Control
- Network supplementary service
- Local supplementary service
- Easy setup from telephone keypad for analog phones

3. Outlet Description

3.1 Front Panel



1. PW - Power on/off
2. Connect - Green TA connected to the network RED when ML PPP
3. DTR - ON terminal connected to TA via DTE or USB
4. TX/RX - Data send or receive
5. LINE - Devie connected to S0 bus

3.2 Rear Panel Connection

1. DTE DB9-SUB male connector RS232 or USB
   Connect to PC or DTE equipment. USB only with Windows 98 and 2000
2. Analog Port TEL-A, TEL-B
   Connect to the regular telephone, answering machine or fax machine.
3. AC Power plug
   Connect to DC 7V adapter
4. ST
   ST interface connection. you can connect other ISDN TA phone with S/T interface to make a multi-drop bus connection.
5. FG, Frame Ground
   Optional and not connected in this model

3.3 Side panel

Battery Backup

In case of sudden loss of local power, the TA has a battery power backup solution. A total of 6 AA batteries are required to backup the TA. ***Please make sure all 6 batteries are placed correctly.***

Battery Mode Operation

In case of sudden loss of local power, the TA will switch to battery backup mode automatically. (If all 6 batteries had been installed properly.) Under the battery backup mode, all 3 data and analog ports can be operated normally.

In battery backup mode, with average brand new batteries, the TA can last at least 6 hours in standby or it can run one analog port continuously for about 1 hours.

Changing Batteries

Please inspect batteries if the TA does not work properly under battery backup mode. If the battery is low, please replace batteries. We suggest the user to replace all 6 batteries together.

4 Connection Method

4.1 Connection Procedures

1. **Plug in AC power adapter DC 7V 1A**
2. **Connect the ST interface RJ45 modular jack to ISDN port with the RJ45 cable**.
3. Connect RS232 cable between TA and PC or TA and USB put not both.
4. Plug in the regular telephone to analog port A or B with RJ11 cable.
5. Connect other ST ISDN phone or TA device with RJ45 cable

A. With this connection method user can use V110, V120, X.75, X.25 protocol to communicate with other TA.
B. Use PPP or MLPPP to connect with ISP (Internet Service Provider) for Internet access.
C. Use regular telephone make calls
D. Use inner communication between analog port TEL-A and TEL-B.

4.2 Connection With Telephone ／Fax

- Locate an available RJ11 modular jack telephone outlet.
- Take one end of the modular cord supplied with the TA and plug it into the analog port TEL-A or TEL-B modular jack on the back of the TA.
- Plug the other end of the modular cord into the modular jack on the regular telephone/fax.

4.3 Connection With PC

- Use the attached RS232 cable to connect TA‘ s DTE port and PC’ s RS232 port or use USB port with Windows 98/2000
- If the connector type of PC‘ s RS232 port does not match, you may need to use the 9-to-25 gender changer to connect between the RS232 cable and PC

4.4 Connection With Modem

- Connect the telephone to modem‘ s port labeled with PHONE then connect modem‘ s LINE port to TA’ s TEL A or TEL B port

4.5 Multi - Drop Connection

To make a multi-drop bus connection, you can connect the two TAs by the RJ45 cable

4.6 Connection Notification

Do not connect two or more telephones on the same port. It will affect the Impedance of the telephone set.

5 Installing The TA

5.1 Packing List

Unpack your **TA** and make sure that you have the following items:

- TA main unit
- Female RS232 cable and USB caple
- Power adapter 230 V ac DC 7V 1
- S/T interface cable
- User‘s manual
- Windows driver disk

When you opened your package, make sure that all of the above items are included in good order. If any of the components were damaged, please contact your dealer immediately.

5.2 What Else You Need

In order to complete your data communication system, you will need the following items:

1. Some type of communication software, if not included (like dialup network).
2. An ISDN U-interface line from the local PTT NT1

5.3 Installing The TA

The following instruction explained how to install the **TA** with a PC or PC compatible computer. If you install the **TA** into a different computer, refer to the manual that came with or contact your dealer for instructions and assistance.

IMPORTANT:

In PC environment, two serial devices configured to use the same COM port or IRQ may conflict. Existing multi-I/O cards usually occupies COM1 and COM2 using IRQ4 and IRQ3 respectively. Whereas the COM port setting must be unique, the IRQ can be shared provided that the related COM port is not being used. For example, if the PC's COM2 which uses IRQ3 is not attached to any device (print or mouse, etc.), then your TA can be set to use COM4 with IRQ3. For maximum flexibility, your PC supports IRQ2, 3, 4, 5, and 7. However, IRQ2, 5 and 7 should be used only if you have no other choice. Not all PCs and DOS versions support these IRQs. IBM PC/AT computers and compatibles should be able to use IRQ5 or 7. Check with your PC dealer or PC manual for more information.

Turn off the power on the personal computer.
Refer to section 4 to select the adequate method for connection.

5.4 Tips On Configuring Windows 95/98/NT/2000

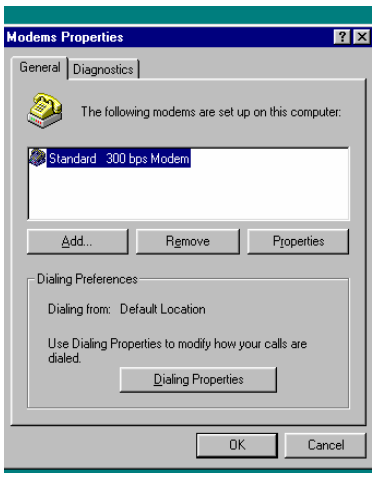
The following tips will guide you through configuration of the **TA** on your PC with windows 3.1, windows 95 and windows NT, step by step, with windows graphs of windows 95 environment. Proceed with choosing the correct COM port for your **TA**.

For other DTE configurations, please refer to the PC manufacturer manual or contact your local dealer.

Window 95/98/NT4/2000 (RS232 caple connected)

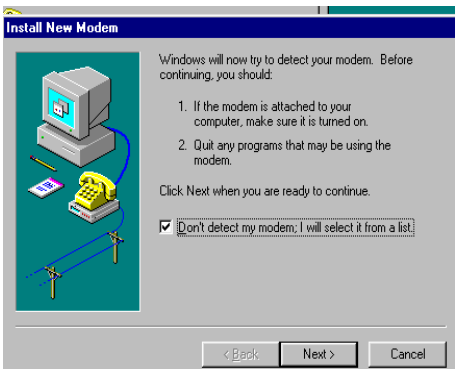
1. Choose ‘My Computer’ icon.
2. Open the ‘Control Panel’ menu box as shown on the right hand side.

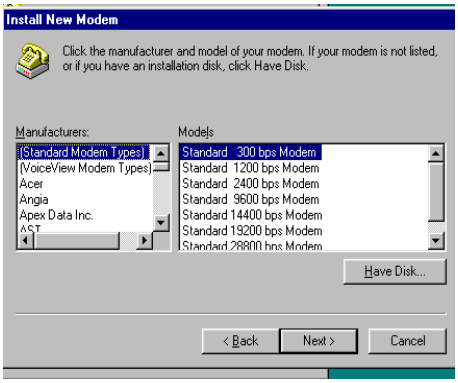




3. After double click Modem icon, ’Modems Properties’ box appear and show the existing modems which has been installed previously.
4. Click ‘Add’ button to add the TA.

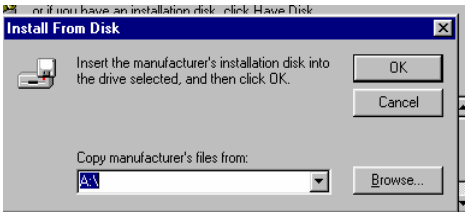
5. Tick the box (Don’t detect my modem) Choose “next” to select TA’s driver.



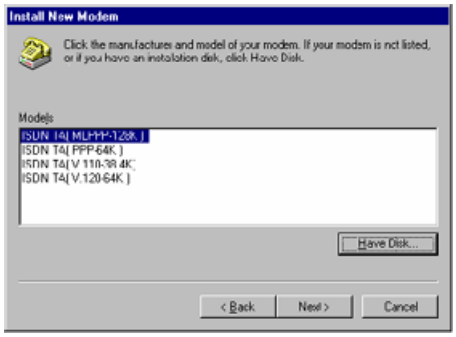


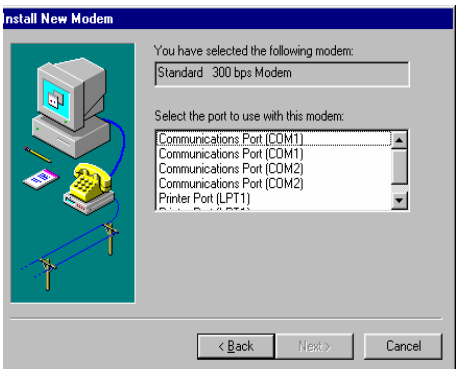
6. In 'Install New Modem', click on 'Have Disk' button and put ISDN TA CD-ROM driver disk to drive D:

7. Press 'OK' if the location of driver disk is correct. Otherwise you may press 'Browse' button to change.



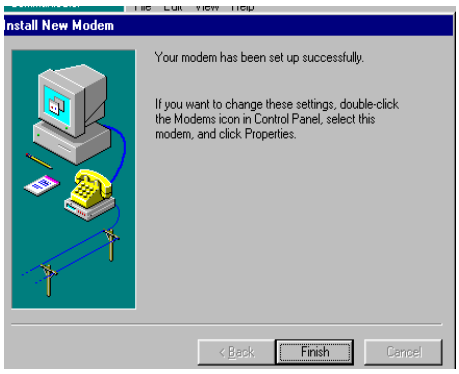
8. Select the modem to be installed. Click ‘Next’ to continue.





9. Choose an available COM port which is available (It should not conflict other devices) and click ‘Next’ button.

10. Press ‘finish’ to complete setup.



Windows 98/2000 and USB

1. **Power Plug into power plug and wait 5 seconds and the plug USB cable into USB connector of PC and TA128CI.**
2. Windows will recognise the new USB device and will ask drivers for for new USB device. Correct path is is Floppy A:. So define search path so that you specify the installation drivers path A:\.
3. **After USB -drivers installed just add the modem driver into system as you installed in previous section and select the COM -port which was created By USB to Serial driver installation.**

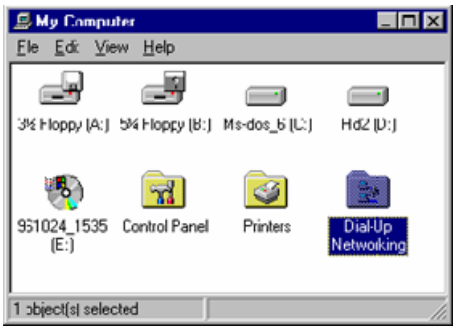
4. **Power adapter is needed when USB -connector in use because of analogports ringing signals**

Linux operating systems with RS 232

1. Use KPPP program and directly TTY port where TA is installed
   Or any similar
2. Set port 230.000 or 115200 dte speed 8,N,1
3. CTS/RTS setting ON
4. PPP / 64K connection AT%A2=5
5. ML PPP 128K AT%2=6
6. In this case do not use IP -header compression
7. If device is not working the slow down AT -command sending speed and response wait time.

5.5 Tips on configuring your Dial-Up Network

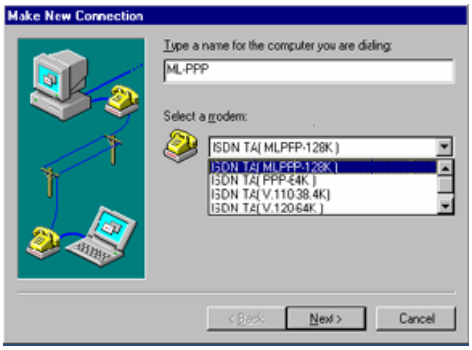
After you setup the ISDN **TA** driver completely. The next step is going to have your Dial-Up network working. Following tips will guide you how to configure your Dial-Up Network with Windows 95/98/2000



1. Choose Dial-Up Network icon from 'My Computer' window.

2. Click the 'Make New Connector' icon twice to create a connection.

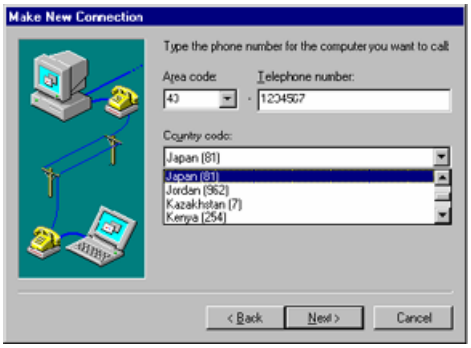




3. Choose a protocol for ISDN **TA** and give a name for this connection and press 'Next' button.

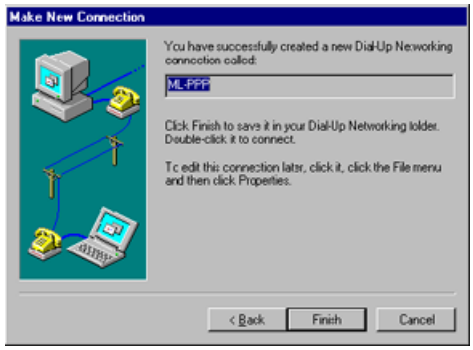
Note! If you use ML PPP 128K driver then TCP/IP header compression has to be off

And DNS -values has to be set up correctly in TCP/IP proberties.



4. Enter the correct country, area code and phone number (The phone number depends on the ISP you selected) Then press 'Next'.**IF asked**

5. Reconfirm the New connection and press Finish button.





6. The new connection of ML-PPP has been completed and a new icon will appear. You may make future modifications by checking the contents of function.

5.6 Verifying Your Connection

Start a communication program (Hyperterminal) and place the computer in terminal mode. Refer to your computer manual to find out the appropriate commands to do so.

Follow these procedures to verify your installation:

1. Type

AT[Enter]

If your system is operating properly, **TA** will response with an 'OK' message to your screen and waits for the next command.

2. Use your communication software to prepare your computer to dial a data call. For example, you can test the data connection under V.110 protocol with the following procedures.

AT%A2 = 1 ; Select V.110 communication protocol.
ATD 5552121 ; Where 5552121 is the called party's telephone number with V.110 protocol setting.

After ATD5552121 you can see the B1 or B2 LED is lighted and then, the 'CONNECT' or 'NO CARRIER' message will be displayed.

CONNECT ; Means **TA** connected with the Called Party.
NO CARRIER; Means **TA** did not connect with the Called Party, may be due to Called Party busy.

6. AT COMMAND

6.1 Description of AT Command

Hayes command set is a standard for Hayes modem commands for its Smartmodem 300. Most modem manufactures adopted this command set in order to have Hayes compatible. The command set used by the Smartmodem 300, as well as most modems or TAs today (with a few additional new advanced commands), is known as the AT command set. AT stands for attention, and is placed in front of actual content of command so that the TA knows what follows is an command directed at the modem or TA. With the exception of some "A/" and "+++" command, "AT" command is the process to place command to the TA.

Different modems or TA's may have slightly different command sets, but generally speaking, most of the TAs follow the standard set by Hayes.

6.1.1 AT Command

When you connect terminal equipment (like PC) with the TA, after typing AT command ending with [ENTER] key, TA will process the command and then return the result code to the terminal equipment. Each AT command must starts with "AT" and end with [ENTER] key (with the exception of "A/" and "+++" commands).

Command Format

The following is the format of AT command:

AT	command	value	command	value	CR	LF

Result code has two styles (Verbose and Numeric). The following are their formats:

CR	LF	Result code(Verbose)	CR	LF

Result code(Numeric)	CR

S register

The S register is used to store the settings including

auto answer mode

escape sequence character

V.110 connect speed ..... etc.

If you want to change the value of S register, you can use the ATS command.

6.2 AT Command

6.2.1 AT Command Overview

Command	Description	Default
ATA	Manual answer	
ATD	Dialing	
ATEn	Echo command	ATE1
ATH	Hang up	
ATIn	Interrogate the TA product status	
ATL	Dialing the latest number	
ATO	Return to on line state	
ATQn	Return result codes select	ATQ0
ATSn=x	Set S register	
ATVn	Verbose mode	ATV1
ATWn	Connection message format select	ATW0
ATXn	Result code set select	ATX0
ATZn	Reset recall user profile	
AT&Cn	CD signal control	AT&C1
AT&Dn	ER signal control	AT&D2
AT&F	Recall factory default setting	
AT&Kn	Flow control	AT&K3
AT&Sn	DR signal control	AT%S0
AT&Vn	Display system configuration	
AT&Wn	Write user profile	
AT&Yn	Load user configuration when power on	AT&Y0
AT%A2=n	Data port protocol selection **Default is PPP 64K**	**AT%A2=5**
AT%A5=n	Set enbloc or overlap sending mode when dialing telephone number	AT%A5=0
AT%D	Data port setting display	
AT%DC	Show disconnect cause, source, charge	
AT%FAPPS	Re-Flash the new software	
AT%N=x	Set data port directory number / sub-address	
AT%Sn	Data port call screen function enable	AT%S1
AT%Z1	Software reset	
AT$AAn	Set analog port A voice information capability in answer mode	AT$AA2
AT$AN=x	Set analog port A directory number / sub-address	
AT$AOn	Set analog port A voice information capability in originate mode	AT$AO0
AT$APn	Dial pause set up for analog port A	AT$AP1
AT$ASn	Screen incoming call for analog port A	AT$AS1
AT$BAn	Set analog port B voice information capability in answer mode	AT$BA2
AT$BN=x	Set analog port B directory number / sub-address	
AT$BOn	Set analog port B voice information capability in originate mode	AT$BO0
AT$BPn	Dial pause set up for analog port B	AT$BP1
AT$BSn	Screen incoming call for analog port B	AT$BS1
AT$CC	Display advice of accumulate charge	
AT$CD	Display all analog port setting	
AT$CGn	Global call select setting	AT$CG2
AT$CIn	Enable inner communication	AT$CI1
AT$CPn	Receiver priority setting	AT$CP1
AT$CSn	Select supplementary service function	AT$CS1

AT$CZn	Initialize charge	
AT$CFn	Call forwarding function select	AT$CF1
AT*CFAn	Enable call forwarding for analog port A	AT*CFA0
AT*CFBn	Enable call forwarding for analog port B	AT*CFB0
AT*CFGn	Enable call forwarding under global call	AT*CFG0
AT*CFA=	Set call forwarding number for analog port A	
AT*CFB=	Set call forwarding number for analog port B	
AT*CFG=	Set call forwarding number for global call	
AT$EUn	Set a-law or u-law coding	**AT$EU1**
AT$ESN	**DTMF START CODE "A"**	**AT$ES1**
AT$ERN	Set **CID** between 1st and 2nd ring	**AT$ER1**
AT$ACn	**Enable to send caller ID for analog port A**	**AT$AC1**
AT*BCn	**Enable to send caller ID for analog port B**	**AT$BC1**
AT*IDn	**Enable to send caller ID for data port**	AT*ID1
AT$EDN	Setup DTMF caller ID or FSK	AT$ED1
AT*W=n	Save settings to flash memory	
ATUn	resource BOD setup	**ATU1**
A/	Repeat last command	
+++	Escape sequence from data mode	

6.2.2 AT Command List

* means default setting

Command	Description	Value	Remark
ATA	***Manual answer*** Answer an incoming data call		
ATD	***Dialing*** Dial the destination number Max main address : 20 digits Max sub-address : 5 digits	 0-9 +	ATD4125678+ 123 • Dialing digits • Sub-address delimiter
ATDSn	***Speed dialing***	0-19	Speed dialing number
ATEn	***Echo command*** Define whether characters are echoed back from the TA to the DTE within command mode.	0 *1	• No echo • Echo
ATH	***Hang up*** Hang up the connection		Type ATH during the ***RING*** will reject the call
ATIn	***Interrogate the TA product status***	0 1 3 6	• Requests the TA product code • Checksum value • ROM Part Numbers and Revision • Supported switching type
ATL	***Dialing the latest number***		ATD4125678 Then ATDL will dial 4125678 again
ATO	***Return to on-line state***		Return from command mode to data mode
ATQn	***Return result codes select*** Defines whether or not the TA will issue result codes to the DTE	*0 1	• result code returned • not returned
ATSn=x	***Set S register*** Change S register value	n x	• S register number • setting value
ATVn	***Verbose mode*** Defines the form of result codes returned by the TA	0 *1	• Numeric form responses enabled • Verbose responses enabled (English responses)
ATWn	***Connection message format select*** Defines the type of (extended) negotiation result codes to return.	*0 1	• Negotiation codes reported in 1 line format : (CONNECT) • 3 line format (Hayes format) (CONNECT xxx) (PROTOCOL xxx) (CARRIER xxx)
ATXn	***Result code set select*** Description_Select the result code set.	*0 1	• Data result codes 0-4 enabled • All supported data result codes Enabled
ATZn	***Reset/recall user profile*** The user configuration stored in the non-volatile memory is recalled to become the active configuration.	0 1	• Reset the TA and recall user profile • Reset the TA and load default value (except stored dial number, own-address, sub-address and accumulated charge)
AT&Cn	***CD signal control*** Defines what the **TA** outputs as the DCD (CD) signal on the DTE interface	0 *1	• DCD (CD) signal on at all time. (TA‘s DCD signal follow PC’s DTR) • DCD (CD) signal on at only communication time.(DCD signal high during communication time)
AT&Dn	***ER signal control*** Defines how the DTR (ER) signal is interpreted by **TA**.	0 *2	• DTR signal consider on at all time. (TA won‘t detect DTE’s DTR, TA consider DTR is always on) • TA will detect DTE‘s DTR (ER) Signal
AT&F	***Recall factory default setting***		The factory configuration contained in the ROM is loaded to become the **TA**‘s configuration.

AT&Kn	***Flow control***	0 *3 4	• no flow control • hardware flow control (RTS/CTS) • software flow control (Xon/Xoff)
AT&Sn	***DR signal control*** Defines how the DSR (DR) signal is handled by the **TA**	*0 1	• TA's DSR (DR) signal follows DTE's DTR • DSR (DR) signal on at only communication time. (DSR signal high during communication time)
AT&Vn	***Display system configuration*** Cause the **TA** to display its current configuration	0 2	• Displays the current configuration • Display Directory Numbers and all stored phone numbers
AT&Wn	***Write user profile*** The **TA** 's active configuration will be stored into the non-volatile memory as User profile	0 1	• write user profile 0 • write user profile 1
AT&Yn	***Load user configuration when power on***	0 1	• Use user profile 0 as active Profile when power up • Use user profile 1 as active Profile when power up
AT&Zn=x	***Register speed dial number***	n x	• n = 0-19 • x = telephone number
AT%A2=n	***Data port protocol selection*** Select the protocol on BOD channel	1 2 4 *5 6 8 14	• V.110 • V.120 • X.25 on D • PPP • MLPPP • X.75 • Channel Bundling
AT%A5=n	***Enbloc/overlap sending mode*** Select the sending method for telephone number (refer also AY*W0, AT*W1)	*0 1	• Overlap sending The dialing telephone will be sent to network after TA detect the ending digit • Enbloc sending The dialing telephone number will be sent to network immediately whenever the user dialing each digit
AT%D	***Data port setting display***		Display all corresponding setting
AT%DC	***Show disconnect cause, source, charge***		Display the disconnect reason and connection fee
AT%FAPPS	***Re-Flash the new software***		
AT%N=x	***Set data port directory number / sub-address*** (eg. AT%N=12345678 + 12345)	x	• x=telephone number main - address: max 20 digits sub - address: max 5 digits
AT%Sn	***Data port call screen function enable***	0 *1	• accept incoming call if the calling party number is in the call screen table. • accept all incoming call
AT%Z1	***Software reset***		Reset all internal state of TA
AT$AAn	***Set analog port A voice information capability in answer mode***	0 1 *2	• accept speech • accept 3.1kHz audio • accept both
AT$AN=x	***Set analog port A directory number / sub-address(Not used in Finland)*** egAT$AN1234567812345	x	• X = telephone number Main - address: max 20 digits Sub - address: max 5 digits
AT$AOn	***Set analog port A voice information capability in originate mode***	*0 1	• select speech • select 3.1kHz audio
AT$APn	***Dial pause set up for analog port A***	*1 2 3 4	• 5sec • 9sec • 11sec • 13sec

AT$ASn	***Screen incoming call for analog port A***	0 *1	• accept incoming call if the calling party number is in the call screen table. • accept all incoming call
AT$BAn	***Set analog port B voice information capability in answer mode***	0 1 *2	• accept speech • accept 3.1kHz audio • accept both
AT$BN=x	***Set analog port B directory number / sub-address*** (eg. AT$BN=12345678 + 12345)	x	• x = telephone number main - address: max 20 digits sub - address: max 5 digits
AT$BOn	***Set analog port B voice information capability in originate mode***	*0 1	• select speech • select 3.1kHz audio
AT$BPn	***Dial pause set up for analog port B***	*1 2 3 4	• 5sec • 9sec • 11sec • 13sec
AT$BSn	***Screen incoming call for analog port B***	0 *1	• accept incoming call if the calling party number is in the call screen table. • accept all incoming call
AT$CC	***Display advice of accumulate charge***		Display advice of accumulate charge (data port, analog port A, analog port B)
AT$CD	***Display all analog port setting***		Display all of the setting for analog port A and B
AT$CGn	***Global call select setting*** If the incoming call did not contain the called party number then TA had to determine ring mechanism	0 1 *2	• ring TEL-A only • ring TEL-B only • ring both TEL-A and TEL-B
AT$CIn	***Enable inner communication***	0 *1	• disable inner communication • enable
AT$CPn	***Receiver priority setting*** This function only available when set AT$CG2	*1 2 3	• ring TEL-A/B alternatively • ring TEL-A 10 times first • ring TEL-B 10 times first
AT$CSn	***Select supplementary service function***		
AT$CZn	***Initialize charge*** AT$CZn =MM-DD-YY	1 2 3	• initialize TEL-A to zero charge • initialize TEL-B to zero charge • initialize data port to zero charge
AT$CFn	***Call forwarding function select*** Select call forwarding by local or Network.	*1 2 3 4 5	• local call forwarding • network forwarding, ID=32 • network forwarding, ID=33 • network forwarding, ID=34 • network forwarding, ID=35
AT*CFAn	***Enable call forwarding for analog port A***	*0 1	• no forwarding • if the incoming call is for TEL-A,it will forward automatically to the phone number defined by AT*CFA=xxxxxx
AT *CFBn	***Enable call forwarding for analog port B***	*0 1	• no forwarding • if the incoming call is for TEL-B, it will forward automatically to the phone number defined by AT*CFB=xxxxxx
AT*CFGn	***Enable call forwarding under global call***	*0 1	• no forwarding • if the incoming call is a global call it will forward automatically to the phone number defined by AT*CFG=xxxxxx
AT*CFA=x	***Set call forwarding number for analog port A***	x	• x=forward phone number
AT*CFB=x	***Set call forwarding number for analog port B***	x	• x=forward phone number
AT*CFG=x	***Set call forwarding number for global call***	x	• x=forward phone number

AT*Ln Or AT$EU1	***A-law or u-law coding select***	*0 1	• A-law coding For European, China, Australian and etc • U-law coding For American, Japan and etc
AT*W0=n	***Set the dialing interpretation of '#'***	*0 1 2	• '#' is interpreted as a normal digit • '#' is interpreted as a sub-address delimiter • '#' is interpreted as an ending digit. In enbloc sending mode TA will send the dialing number after received the ending digit or after timeout
AT*W1=n	***Set the dialing interpretation of '*'***	*0 1 2	• '*' is interpreted as a normal digit • '*' is interpreted as a sub-address delimiter • '*' is interpreted as an ending digit. In enbloc sending mode TA will send the dialing number after received the ending digit or after timeout A-law coding For European, China, Australian and etc
AT$EDx	***Set DTMF caller id to analog ports***	0 *1	• Fsk caller ID • DTMF caller ID (Finland)
AT$Esx	***Dtmf CALLER ID start code***	D *A B	• A -LETTER START CALLER ID • SEQUENCE IN FINLAND
AT$ER1	***Caller ID between 1st and 2nd ring***	Forced	• Default always
AT$ACx	***Enable to send caller ID for analog port A***	0 *1	• not to send TEL - A telephone number under outgoing call • send TEL - A telephone number
AT$BCx	***Enable to send caller ID for analog port B***	0 *1	• not to send TEL - B telephone number under outgoing call • send TEL - B telephone number
AT*Idn	***Enable to send caller ID for data port***	0 *1	• not to send data port telephone number under outgoing call • send data port telephone number
ATUn	***resource BOD setup*** ***Enable/Disable the resource BOD function***	*0 1	• disable resource BOD function • enable resource BOD function
A/	***Repeat last command*** ***TA will re-execute the most recently received command line***		This command does not use the AT prefix nor does it require a carriage return to enter
+ + +	***Escape sequence from data mode***		Escape from the data mode

6.3 S Register

Number	Meaning	Range	Unit	Description	Default
0	Auto answer	0 1 - 255	Time	• manual answer • Auto answer the incoming data call after defined counting	0
1	RING count	0 - 255	Time	• stored the RING count	0
2	Escape character	0 0 - 127	ASCII	• disabled • use the ASCII value as escape character	43
3	Carriage Return	0 - 127	ASCII	• use the ASCII value as CR	13
4	Line Feed	0 - 127	ASCII	• use the ASCII value as LF	10
5	Back Space	0 - 32	ASCII	• use the ASCII value as BS	8
12	Escape sequence Prompt time	0 1 - 255	20ms	• do not check guard time • check guard time	50
25	DTR detection time	0 - 255	0.01sec	• DTR recognized time	20
26	CS delay time	0 - 255	0.01sec	• Delay between lost carrier and Hang up (RTS to CTS)	1
37	V.110 speed set	5 6 15 17 27 50		• 5 = 1200bps • 6 = 2400bps • 15 = 4800bps • 17 = 9600bps • 27 = 19200bps • 50 = 38400bps	50
107	Throughput BOD criteria (monitor B - ch throughput)	0 - 6	10kbps	• 0 = do not monitor • 1 = 10kpbs • 2 = 20kbps • 3 = 30kbps • 4 = 40kbps • 5 = 50kbps • 6 = 60kbps	0
141	BOD - Add monitor Time	0 - 255	Sec	Average calculation time for adding one B - ch	5
143	BOD - Add last time	0 - 255	Sec	The throughput must greater than S107 and lasted S143 time, after Such criteria, TA will add one B-ch connection	30
144	BOD - Cut monitor Time	0 - 255	Sec	Average calculation time for dropping one B-ch	5
146	BOD - Cut last time	0 - 255	Sec	The throughput must less than S107 and lasted S146 time, after such criteria, TA will drop one B-ch connection	30

6.4 Result Code

Data Result Code	Word Format	Description
0	OK	Normal response
1	CONNECT	Connected
2	RING	Incoming call ringing
3	NO CARRIER	No carrier detected
4	ERROR	Error operation
7	BUSY	Busy state
5	CONNECT 1200	1200bps connection
10	CONNECT 2400	2400bps connection
11	CONNECT 4800	4800bps connection
12	CONNECT 9600	9600bps connection
14	CONNECT 19200	19200bps connection
28	CONNECT 38400	38400bps connection
18	CONNECT 57600	57600bps connection
19	CONNECT 64000	64000bps connection
20	CONNECT 115200	115200bps connection
21	CONNECT 230400	230400bps connection
46	CARRIER 1200	1200bps carrier detected
47	CARRIER 2400	2400bps carrier detected
48	CARRIER 4800	4800bps carrier detected
50	CARRIER 9600	9600bps carrier detected
54	CARRIER 19200	192000bps carrier detected
56	CARRIER 38400	384000bps carrier detected
39	CARRIER 48000	48000bps carrier detected
57	CARRIER 57600	57600bps carrier detected
59	CARRIER 64000	64000bps carrier detected
83	PROTOCOL:V.120	V.120 connection
85	PROTOCOL:V.110	V.110 connection
86	PROTOCOL:PPP	PPP connection
88	PROTOCOL:MLPPP	MLPPP connection

7. Easy Setup From Telephone Keypad

The TA provides a easy configuration way through the analog port. If you use TEL-A port then you can setup the corresponding attributes ***only*** for TEL-A. If you are using TEL-B then you can setup the configuration for TEL-B only.

Easy Setup Operation	Meaning	Value	Description
Press Flash / R first ** 1 2 8	Enter into programming Mode		Instruct TA to enter into programming mode
Flash/ On-hook	Cancel setting		Cancel the current operation
*** ***	Store setting into active profile		Save the current setting into active memory profile
# * #	Store setting into Non-volatile memory		Save the current setting into NV-RAM
0 0 * n	Global Call Select	n=0	Ring TEL-A only
		1	Ring TEL-B only
		2	Ring TEL-A and TEL-B
0 1 * n	Inner Communication	n=0	Disabled inner communication
		1	Enabled
0 2 * n	Receive Priority	n=1	No receive priority
		2	Ring TEL-A first
		3	Ring TEL-B first
0 5 * n	Factory Default		
0 7 * n	Call Forwarding Criteria	n=1	Call is forwarding when received an incoming global call (without called party number)
		2	Call is not forwarding when received an incoming global call
		3	Call is forwarding when received an incoming call for TEL-A
		4	Call is not forwarding when received an incoming call for TEL-A
		5	Call is forwarding when received an incoming call for TEL-B
		6	Call is not forwarding when received an incoming call for TEL-B
0 8 * n	Local/Network Call Forwarding	n=1	Local call forwarding
		2	Network forwarding, ID=32
		3	Network forwarding, ID=33
		4	Network forwarding, ID=34
		5	Network forwarding, ID=35
0 9 * n * x	Forwarding Number	n=1	Global call forwarding no.
		2	TEL-A call forwarding no.
		3	TEL-B call forwarding no.
1 0 * x	Register Telephone Number	x=tel number	Register telephone number for TEL-A/TEL-B
1 1 * n * x	Register Call Screen Number	n=1-5 x=tel number	Register call screen number for TEL-A/TEL-B
1 2 * n	Enable Caller-ID	n=0	Do not send out caller-ID when made an outgoing call
		1	Send out caller-ID when made Outgoing call

7.1 Entering Programming Mode

To enter into the programming mode from telephone sets, please follow the steps below :

A). Use regular telephone set with DTMF -codes and plug into analog port A (TEL-A) or B (TEL-B) Pick up the telephone you and wait for dial-tone.
C) Press flash / **R** -button and then **** 1 2 8** one the telephone keypad then you will hear a confirmation tone which indicate that the TA is now under the programming mode.

7.2 Setup Configuration

To setup the corresponding settings, please check the above **Easy Setup Table** and execute the following steps.

A). Press **0 0 * 0** to set global call select - ring TEL - A only (for example)
B). Press *** *** to store the setting into active profile.
C). Repeat the procedure A) and B) for other settings.
D). When finished with all settings, press *** # *** to store all the updated settings into the non - violate Memory.

7.3 Storing The Setting

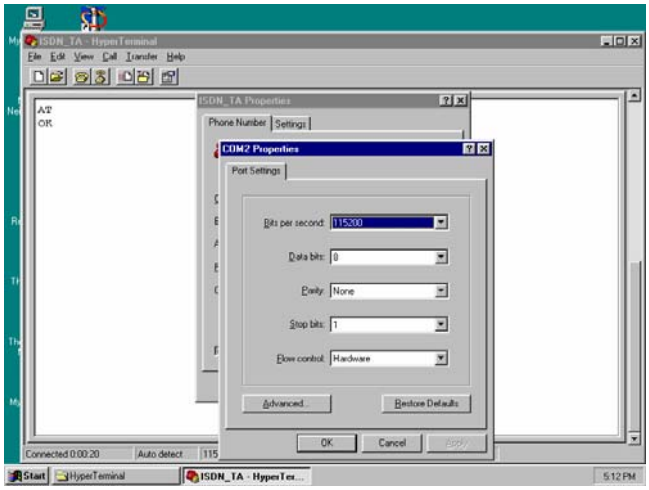
After you performed the *** # *** sequence, even when there is a power outage. the modified settings will still stored in the non-violate memory. After power resumes, you can recall the setting from user profile 0 or 1. If you hang up the phone before you execute the *** # *** sequence, then the TA will abort from the programming mode and return to idle mode.

8. Re-Flash the New Software

8.1 Normal Re-Flash Procedure

To provide the upgraded software function in the future. The TA had been installed with the flash EPROM for re-flash the new software function. Usually you should get the zipped (.ROM) file from your local dear directly or from your local agent's Web Home Page. After you get the .ROM file please follow the following procedure carefully.

(1) use any terminal program that support ASCII file transfer function, like HyperTerminal.
(2) Enter into the terminal mode and make sure that the terminal program had set the following configuration.
. 38400 baud rate
. 8 data bit, no parity, 1 stop bit (8N1)
. CTS/RTS hardware flow control



(3) Type AT and check TA responded with "OK"
(4) Type AT%FAPPS the screen will display the following message.

AT%FAPPS Application Upgrade
FLASH PROGRAM VERSION 1.4
Erase and reprogramming flash eprom contents (y/n)?

(5) If you enter "n" then screen displayed
"Reset modem to continue".
You need to power off and power on AFTER flashing TA to restart.
If you type "y" the screen will display :

*** WARNING ***

Erasing Flash Memory

Flash Eprom Upgrade Procedure

Ready for ASCII download

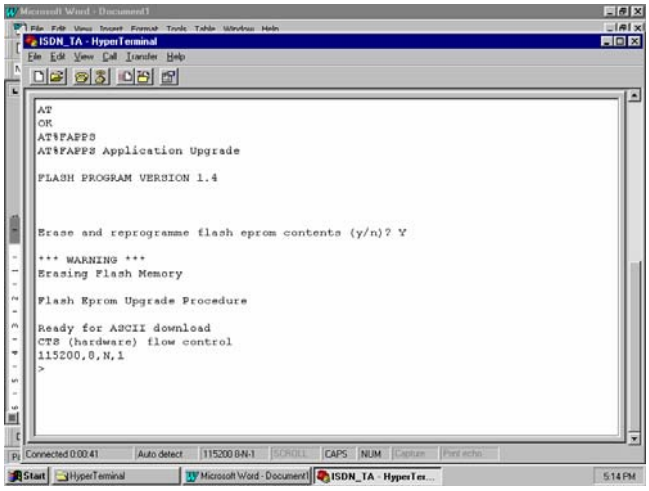
CTS(hardware) flow control

38400,8,N,1

>

(6) After you see the “>” character is appeared, you should select the new upgraded software from correct path. Then click the ASCII file transfer icon to start download. The screen will show the “>>>>>>>>>>” and “<<<<<<<<<<” alternatively to indicate TA is downloading now.

(7) After finished the download new software, screen will display



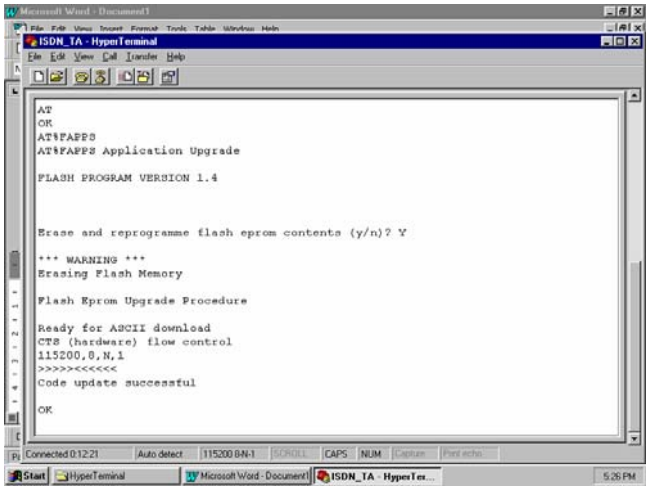
“Code update successful”

“OK”

Normally it takes about 10 minutes to finish re-flash.

(8) After you see the message it means the download is completely already. You need to power off and power on TA again to restart.

(9) Type ATI3 to inspect the new software version.



8.2 Failed Re-Flash Procedure

Sometimes during the re-flash procedure, due to some accidents like : local power is off, PC is downed, RS232 cable is disconnected and etc. To prevent any kind of failed re-flash operation, TA provide a so called ***Minimum Operating Mode.*** When you failed to re-flash the new software, TA will detect the failed re-flash internally.

You must follow the procedures as below step-by-step.

(1) power off TA.

(2) Check the RS232 cable is connected with PC well.

(3) Change the Terminal program to 38400 baud, 8N1, CTS/RTS hardware flow control.

(4) Entering the terminal mode again.

(5) Power on TA again, you will see the screen display:

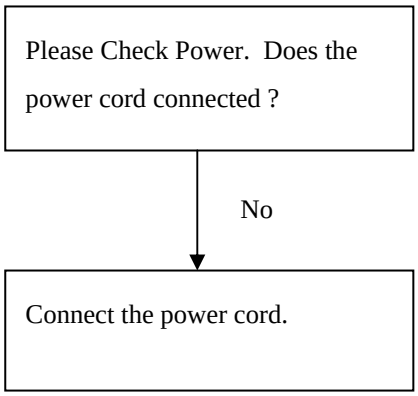
" Erase and reprogramming flash eprom contents (y/n) ?

(6) Enter "y" and follow the steps from 8.1 (6) as stated above. Then you can still finish the re-flash procedure. And you will see "38400, 8, N, 1" instead of "115200, 8, N, 1". Due to the baud rate is slower therefore it takes about 10 minutes to finish re-flash.

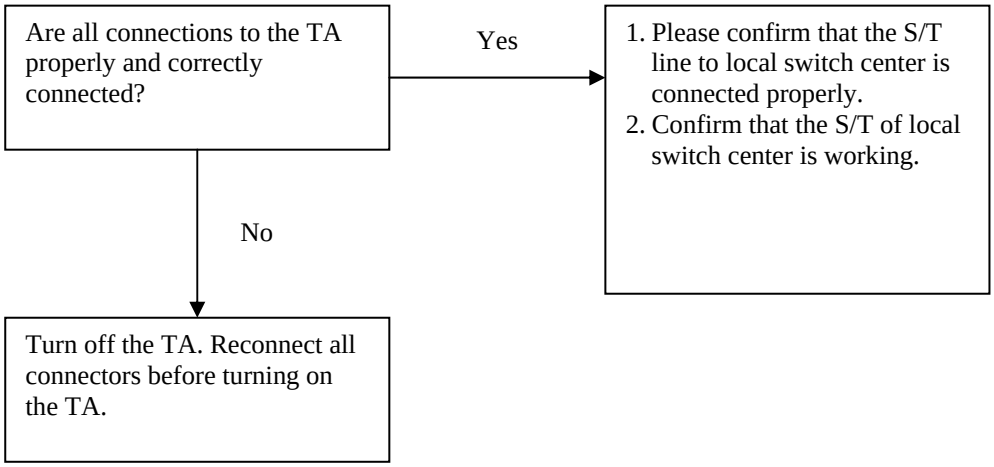
9 Trouble Shooting

Here are some flow chart of trouble shooting, which may help you resolve frequently encountered installation problems.

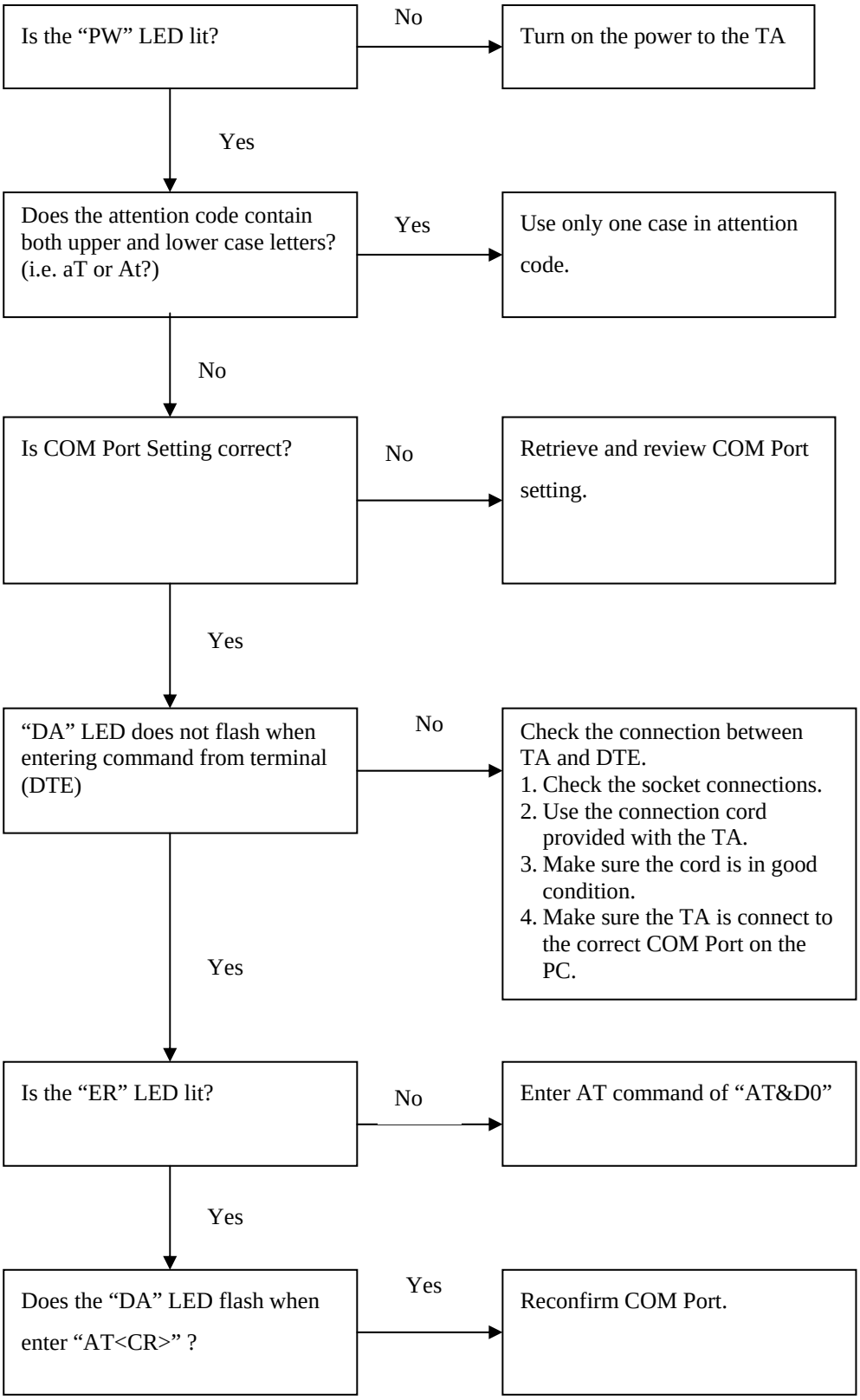
Power Switch On but PW LED is not lit.



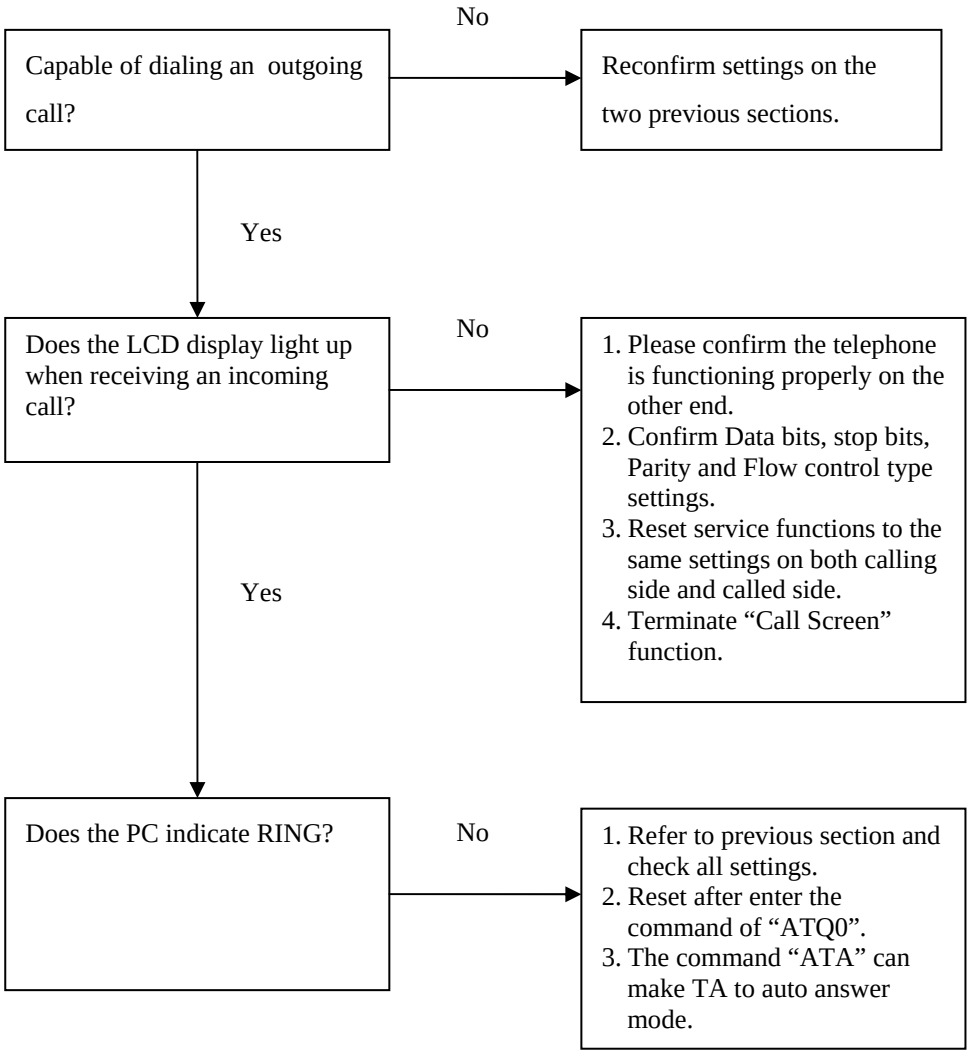
ER LED not lit, and the TA does not connect.



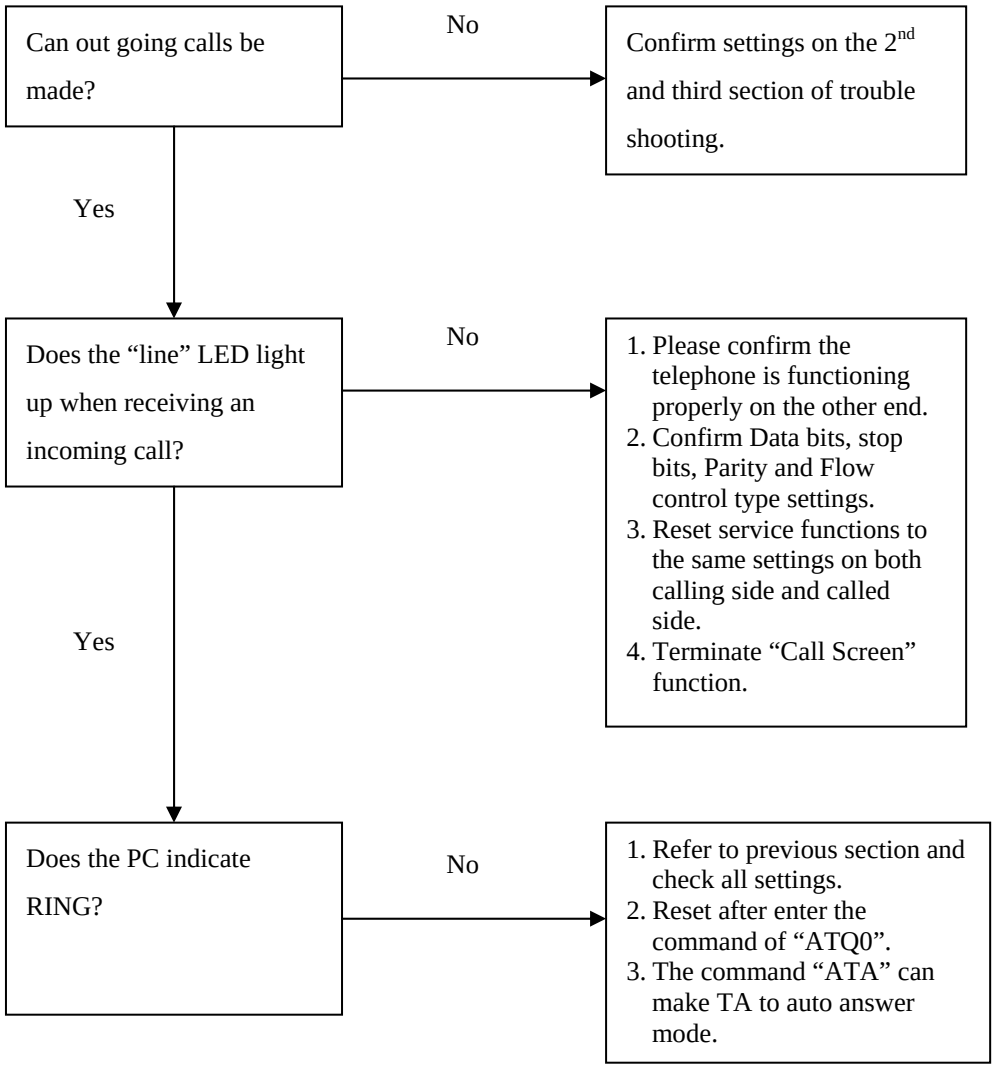
Type "AT', but the TA does not respond with "OK' message



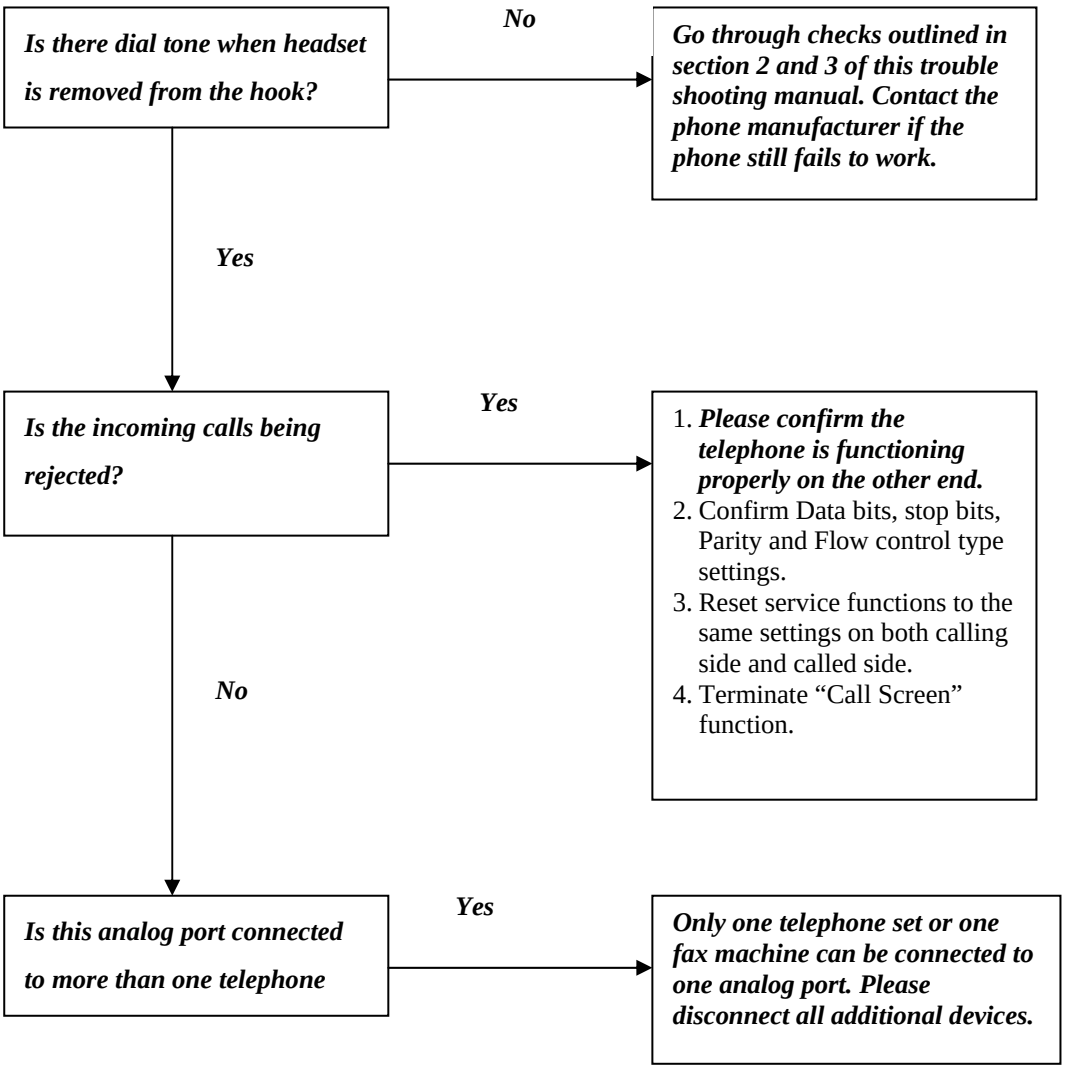
Using ATD to call, but "NO CARRIER" is displayed.



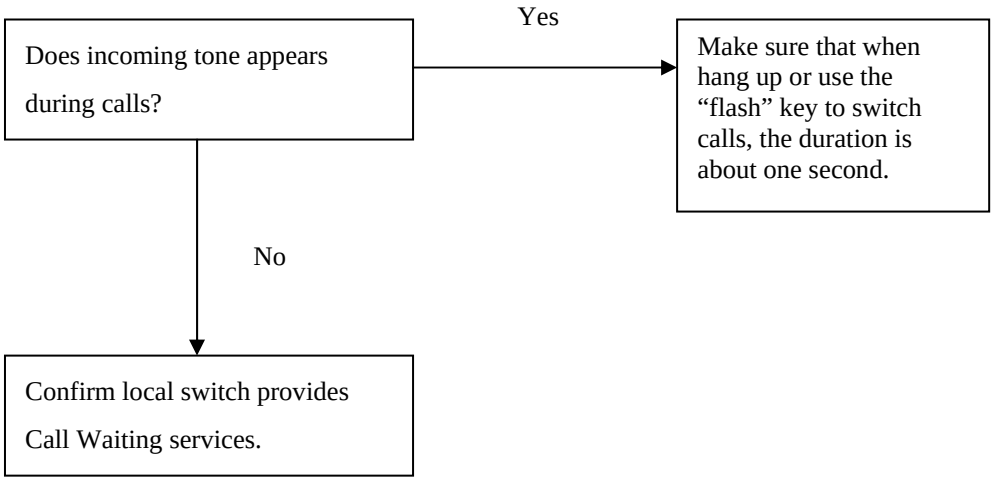
Can not Accept Incoming Data Call



Unable to Accept Incoming Voice Call



Can Not Use Call Waiting



9.1 Self Diagnostics

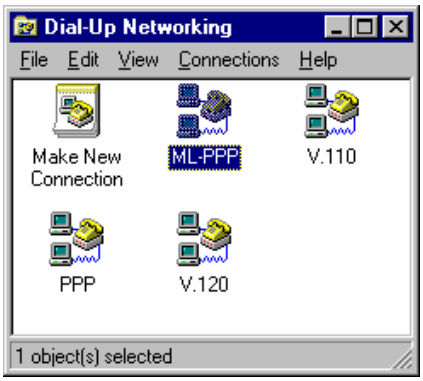
Power On Self Diagnostic

The TA is installed with power-on self-diagnostic functions. After the power is switched on, the TA will perform the following self-test diagnostics.

Item	Description
ROM	inspect ROM‘s to CHECK ROM size
RAM	inspect RAM‘s read/write operations

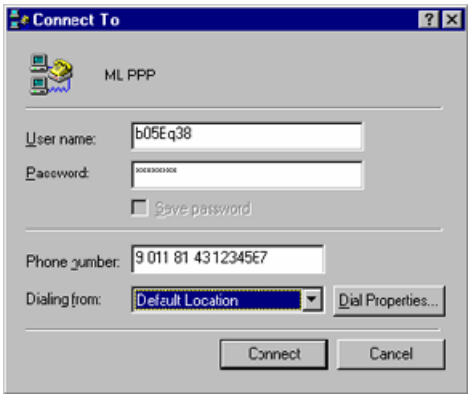
- **Do not turn off power during self-diagnostic.**
- **If a problem occurs during self-diagnostic, the POWER LED will continue flashing after the test.**

Before you test the ISDN TA, there are some things need to be noted as shown below:



1. Select the correct transfer protocol you are going to dial, make sure that these models have been set already.(See Chapter 5.6 for reference)

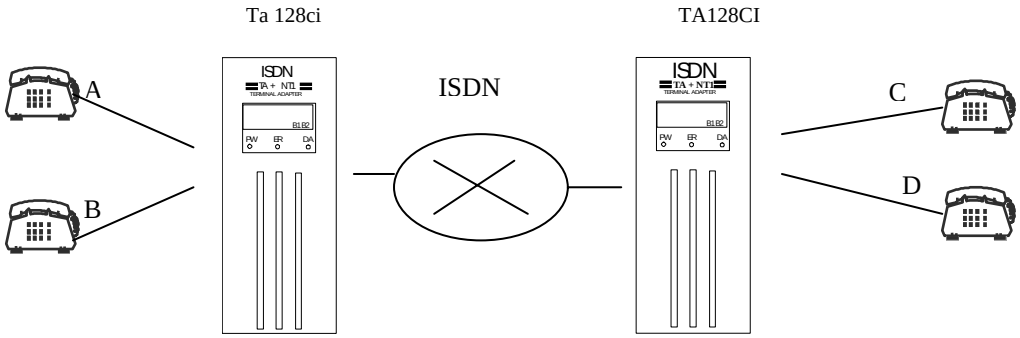
2. Make sure the right User name, Password and Dial-Up number (i.e. Telephone number provided by ISP) are used and click the connect button.





3. The Dialog Box shows dialing the connection.

10. Supplementary Service Function



This picture is from TA 128+NT1 -model but behaviour is the same in TA 128 CI model. TA 128CI has no LCD screen but DTMF CID.

10.1 Definition

AT$CI1	Set inner communication enable
AT$CS1	No Network/Local supplementary service function provided
AT$CS2	Only Network supplementary service function provided
AT$CS3	Only Local supplementary service function provided

LIT	Local incoming tone	♦ 400Hz tone ♦ 0.125sec on, 0.1sec off, 0.125sec on, 0.1sec off, 3.55sec off repeated
BT	Busy tone	♦ 400Hz tone ♦ 0.5sec on, 0.5sec off continually
DT	Dial tone	♦ 400Hz tone ♦ Continual
RBT	Ring-back tone	♦ Receive from Network ISDN switch
IRBT	Inner ring-back tone	♦ 60ms on, 50ms off, 60ms on, 3250ms off, repeated ♦ 400 HZ tone
IR	Inner ring	♦ 25Hz ring signal ♦ When TA detects an inner communication and sends ring signal to TEL-A/B by clicking the ringing relay ♦ Ringing period is same as **IRBT**
ICR	Incoming ring	♦ 25Hz ring signal ♦ When TA accepts an incoming call and sends ring signal to TEL-A/B/C by clicking the ringing relay ♦ Ringing period is 1sec on, 2sec off repeated
HT	Holding tone	♦ Send by Network ISDN switch

Waiting first dial digit time	♦ After TEL-A/B off hook, TA sends DT to TEL-

	A/B ♦ If after 25 seconds TA did not receive any dialing digit, TA send **BT** to POTS-A/B
Flash signal recognition time	♦ TA detects Flash-Hook signal from TEL-A/B ♦ If 0.3sec <= Flash-Hook time <= 1 sec then it is a correct Flash signal
On-Hook signal recognition time	♦ TA detects a Flash-Hook signal from TEL-A/B ♦ If Flash-Hook time >=2.2 sec then it is a correct On-Hook signal

Ideal mode	♦ On-hook, disconnected and no any event occurred to the POTS interface
Talk mode	♦ Off-Hook and talking with only one other party

10.2 Making an Outgoing Call

Case No	Representation
0	When A is in the idle mode 1. A off-hook 2. A hears TA's **DT** 3. A dials the telephone number of C 4. TA2 rings C (if C is in idle mode, TA2 sends **ICR** to C) 5. A hears Network's **RBT** 6. C off-hook (TA2 stops **ICR**) 7. A talks to C (A is in talk mode with C)
1	When A at Case 0, step 3 1. If C is busy 2. A hears TA's **BT** 3. A on hook 4. A returns to idle mode
1.1	When A at Case 1, step 2 1. A flash 2. A go to Case 0, step 2
2	When A at Case 0, step 2/3/4/5/6 1. A on-hook 2. A is disconnected 3. A returns to the idle mode
3	When A at Case 0, step 4 1. A flash 2. TA2 stops to ring C 3. A go to Case 0, step 2
4	When A at Case 0, step 6/7 1. A flash 2. C is disconnect 3. C hears Other TA's **BT** 4. A go to Case 0, step 2
5	When A at Case 0, step 7 (talk mode) 1. A on-hook 2. C hears Other TA's **BT** 3. A is disconnected 4. A returns to idle mode
6	When A at Case 0, step 7 (talk mode) 1. C on-hook 2. C is disconnected 3. A go to Case 1, step 2

10.3 Making an Incoming Call

Case No	Representation
0	When A is in idle mode 1. TA receives an incoming call to A 2. TA rings A (TA sends **ICR** to A) 3. A off-hook 4. A talks to the originated party (talk mode)
1	When A is in (1) **Outgoing call**, Case 0, step 1/2/3 1. TA receives an incoming call to A 2. TA reject the incoming call 3. A still at (1) **Outgoing call**, Case 0, step 1/2/3 (A's state is not changed)

10.4 Making an Inner Communication

. TEL-A calls TEL-B by dialing *0 . TEL-B calls TEL-A by dialing *0

10.5 Making a Local Call Waiting

Case No	Representation
0	When A is in talk mode with C 1. A Talks to C (occupy one B-ch for example B1-ch) 2. D calls A 3. A hears TA's **ICT** 4. A flash 5. C holds (C hears **LHT** from TA) 6. A talks to D (B2-ch, if C use B1-ch then D should use B2-ch) 7. A flash 8. D holds (D hears silent from TA) 9. A go to Case 0, step 1

10.6 Making a Local Call Transfer

Case No	Representation
0	When A is in talk mode with C 1. A talk to C 2. A flash +2 3. C hold (hears silent from TA) 4. A dial *0 5. TA rings B 6. B off-hook 7. B talks to C 8. A hears TA's **BT** 9. A returns to idle mode
1	When A at Case 0, step 5 1. if B is busy (off-hook or talking with somebody) 2. A hears TA's **BT** 3. A flash 4. A talks to C (A is in talk mode with C)
2	When A at Case 1, step 2 1. A on hook 2. TA rings A 3. A off-hook 4. A talks to C (A is in talk mode with C)

10.7 Making a Local 3 Party Conference

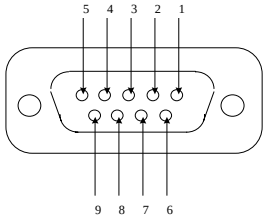
- Same operating sequence with network 3 party conference.

10.8 Making a Local Call Forwarding

Case No	Representation
0	1. Set AT$CF1 for local call forwarding 2. Set AT*CFG1 to enable global call forwarding 1. Set AT*CFA1 to enable call forwarding for A 2. Set AT*CFB1 to enable call forwarding for B 3. Set AT*CFG=xxxxxx for the global call forwarding number (if TA received an incoming call but without called party number then this call is named global call) 4. Set AT*CFA=xxxxxx for A call forwarding number only 5. Set AT*CFB=xxxxxx for B call forwarding number only
1	When TA received an incoming global call 1. TA will inform network to forward this incoming call to the number specified by AT*CFG=xxxxxx (for example, if set AT*CFG= to D then D will be ringed) ***note:*** ***If there is no B-ch available, then TA will reject the local call forwarding. Calling party will hear BT.***
2	When TA received an incoming call directly for A 1. TA will inform network to forward this incoming call to the number specified by AT*CFA=xxxxxx (For example, if set AT*CFA= to D then D will be ringed) ***note:*** ***If there is no B-ch available, then TA will reject the local call forwarding. Calling party will hear BT.***
3	When TA received an incoming call diretly for B 1. TA will inform network to forward this incoming call to the number specified by AT*CFA=xxxxxx (For example, if set AT*CFA= to D then D will be ringed) ***note:*** ***If there is no B-ch available, then TA will reject the local call forwarding. Calling party will hear BT.***

APPENDIX

APPENDIX 1 DCE 9Pin D Type Connector Definition



Pin	Signal Name	Direction	Description
3	SD, Send Data	→	DTE send data to TA
2	RD, Receive Data	←	TA send data to DTE
7	RS, Request to Send	→	DTE request to send data
8	CS, Clear to Send	←	TA inform DTE can to send data
6	DR, Data Set Ready	←	TA is ready receiving command from DTE
5	SG, Signal Ground	←	TA signal ground (GND)
1	CD, Carrier Detect	←	TA inform DTE that has a call incoming already
4	ER, Data Terminal Ready	→	DTE is ready, it can working now
9	CI, Ring Indication	←	incoming ring indication

APPENDIX 2 Disconnect Cause Indication

	Class No.	Description
Normal Event	001	Unassigned (unallocated) number
	002	No route to specified transit network
	003	No route to destination
	006	Channel unacceptable
	007	Call awarded and being delivered in an established channel
	016	Normal call clearing
	017	User busy
	018	No user responding
	019	User alerting no answer
	021	Call rejected
	026	Non-selected user clearing
	027	Destination out of order
	028	incomplete number
	029	Facility rejected
	030	Response to STATUS ENQUIRY
	031	Normal, unspecified
Resource Unavailable	034	No circuit/channel available
	038	Network out of order
	041	Temporary failure
	042	Switching equipment congestion
	043	Access information discarded
	044	Requested circuit/channel not available
	047	Resource unavailable, unspecified
Service or option not available	049	Unable to use QOS
	050	
	057	Bearer capability no authorized
	058	Bearer capability not presently available
	063	Service or option not available
Service or option not implemented	065	Bearer capability not implemented
	066	Channel type not implemented
	069	Requested facility not implemented
	070	Only restricted digital information bearer capability is available
	079	Service or option not implemented, unspecified
Invalid message	081	Invalid call reference value
	082	Identified channel does not exist
	083	A suspended call exists, but this call identity does not Exist
	085	No call suspended
	086	Call having the requested call identity has been cleared
	088	Incompatible destination
	091	Invalid transit network selection
	095	Invalid message, unspecified
Protocol error	096	Mandatory information element is missing
	097	Message type non-existent or not implemented
	098	Message not compatible with call state or message type non-existent or not implemented
	099	Information element non-existent or not implemented
	100	Invalid information element contents
	101	Message not compatible with call state
	102	Recovery on time expiry
	111	Protocol error, unspecified
Inter-working	127	Inter-working, unspecified

APPENDIX 3 Specification

Rate	• 2B +D Basic Rate (BRI)
Type	• External
S/T interface	• ITU-T I.430 S/T-interface • 4-wire • 2 x S/T-interface port • AMI line coding • RJ45 modular jack • Terminating resistance selectable for 100 Ohm or none
Connection	• point-to-multipoint

Analog port	• 2 x analog ports
	• RJ11 modular jack
	• ITU-T G.711 a-law
	• 25Hz, 59Vrms ringing signal : 1-sec on, 2-sec off
	• Tone Generation
	  • Dial tone : 400 +/- 20 Hz
	  • Busy tone
	  • Holding tone
	  • Incoming tone
	• -59VDC
	• DTMF dialing
	• **DTMF Caller ID**

Data port	• 1 x data port
	• DB - 9SUB male connector or USB for Windows 98/2000
	• Auto - baud detection
	• DTE speed
	  • 1200/2400/4800/9600/19200/38400/57600/115200/23400 bps
	• Communication speed
	  • Sync: 64000/128000 bps
	  • Async:1200/2400/4800/9600/19200/38400 bps
	• Hardware RTS/CTS flow control
	• Software Xon/Xoff flow control

Protocol	• V.110 • V.120 • PPP 64K • ML-PPP 128K • X.75 • X.25 on D • Soft-Fax • Channel bundling • BACP/BOD

Switching	• Euro ISDN (EDSS1) •
LED	• Power : power on indication • DTR : DTE ready • TX/RX : Data transmitting/receiving
Power	• 230VAC, 50-60 Hz , o/p: DC 7V 1A + in the center • 6 x AA battery
Maintenance	• Power on self-diagnostic • Flash EPROM for software upgrade • Minimum operation mode • Factory default setting • User profile saving in non-volatile memory •
EMI	• **CE EMI Class-2**
Operation	• 0 to 40 degree C
Humidity	• 10 to 95% RH
Dimension	• 55mm(W)x170mm(D)x130mm(H)
Weight	• 0.8Kg