SECTION E

INSTALLATION INSTRUCTIONS

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1. NAMEN IN OBSEG

Namen teh navodil za montažo je definirati dela v obsegu modifikacije 1053-PC-L, Faza 3 »Nadgradnja komunikacijskih sistemov v NEK«. V obsegu tretje faze izvedbe modifikacije 1053-PC-L so se izvedejo naslednje nadgradnje komunikacijskih sistemov v NEK:

- nadgradnja »sound powered« telefonskega sistema,
- nadgradnja razglasnega (»page«) sistema in podaljšanje časa delovanja bliskavk sistema evakuacijskega alarmiranja
- povečanje števila telefonskih linij v remontnem kontejnerskem kompleksu
- zamenjava elektronske opreme vmesnika med sistemom telefonije in razglasnim sistemom.

2. ODGOVORNOSTI

Odgovornosti za izvajanje del po tem postopku prevzema podjetje oziroma oseba definirana z delovnim nalogom.

Odgovorni inženir (Responsible Engineer) s strani NEK za projekt je g. Josip ČEOVIĆ, ING.MOD.

Projektant je IBE, d.d., Ljubljana.

3. SPLOŠNE ZAHTEVE

Pred začetkom del se mora odgovorna oseba podrobno seznaniti s projektno dokumentacijo, nato pa izvesti obhod vseh lokacij, kjer se bodo izvajala dela ter preveriti usklajenost dokumentacije z dejanskim stanjem. Identificirati mora vse elemente, na katerih se bodo dela izvajala.

Navodila za izvedbo so sestavni del projektne dokumentacije. Izvajalec jih je dolžan v celoti upoštevati.

Izvedba mora biti skladna s projektno dokumentacijo. Spremembe brez soglasja investitorja in projektanta niso dovoljene.

Osebje zaposleno pri gradnji mora poleg posebnih zahtev, ki veljajo za izvajanje del v tehnološkem območju NEK, upoštevati najmanj še zahteve naslednje regulative:

- Zakon o varnosti in zdravju pri delu;
- Pravilnik o zahtevah za zagotavljanje varnosti in zdravja delavcev na delovnih mestih;
- Uredba o zagotavljanju varnosti in zdravja pri delu na začasnih in premičnih gradbiščih.

Izvajalec bo za izvajanje kontrol (neporušne preiskave in vizualni pregledi), s katerimi bo dokazoval izpolnjevanje v projektu predvidenih zahtev zagotovil kvalificirane delavce.

4. PREDPOGOJI

Pred pričetkom del je potrebno:

- izdelati t.i. Inštalacijski paket (IP) po postopku ESP-2.619,
- izdati delovne naloge za vse faze dela,
- pripraviti ustrezna orodja, opremo in ljudi za izvajanje del,
- seznaniti s pričetkom del vodjo izmene, ki mora odobriti delovne naloge,
- zagotoviti izolacijo oziroma izklop komponent na katerih poteka delo, da poteka delo v breznapetostnem stanju,
- opraviti vsa potrebna pripravljalna dela in s temi navodili predpisana preddela.

Pred začetkom del je izvajalec dolžan preveriti, če stanje na objektu ustreza pogojem za gradnjo z ozirom na projekt. Posebno pozornost je potrebno posvetiti zagotavljanju nemotenega pristopa k vsem elementom, za katere je potrebno redno vzdrževanje.

Izvajanje del mora potekati po izdelani projektni dokumentaciji (risbe, preračuni, tehnični opis) in po teh pogojih. Spremembe se lahko izvajajo samo s pisnim soglasjem naročnika in projektanta.

Izvajanje del se lahko odstopi samo podjetjem registriranim za izvajanje del, v katera spadajo dela za ta projekt.

5. OPOZORILA IN OMEJITEV

V primeru, da odgovorna oseba oziroma vodja del v preliminarnem obhodu lokacij ugotovi odstopanja od projekta ali v primeru, da ugotovi nejasnosti glede obsega del, NE SME PRIČETI Z IZVAJANJEM DEL. V tem primeru se mora posvetovati s projektantom in pričeti z deli šele takrat, ko so vse nejasnosti odpravljene.

Pred izvajanjem del je potrebno vse delavce seznaniti s pravili varstva pri delu po postopkih NEK (ADP-1.1.033) in izvesti potrebne ukrepe za njihovo zaščito.

Izvajalec del je dolžan takoj po sklenitvi pogodbe o izvajanju del in po odobritvi projektne dokumentacije, izvršiti naslednje:

- pregledati projektno dokumentacijo,
- skupaj z naročnikom pregledati lokacijo vgradnje nove opreme in ugotoviti dejansko stanje na objektih, kjer se bodo izvajala dela,
- prepričati se ali stanje na objektu dovoljuje izvajanje predvidenih del,
- skupaj z naročnikom in ostalimi izvajalci del določiti, katera dela je potrebno predhodno izvesti, skupno ugotoviti ali se predvidena dela lahko izvedejo glede na odobreno projektno dokumentacijo,

- ugotoviti ali na predvidenih lokacijah izvajanja že obstajajo kakšne instalacije in drugo, kar bi onemogočalo izvajanje del po projektu, pa v okviru projektne dokumentacije niso bile evidentirane.

V kolikor pride med izvajanjem del do odstopanja od projektne dokumentacije, je izvajalec dolžan sam izdelati potrebno dokumentacijo. Le-ta mora predstavljati posebno celoto, na osnovi katere se lahko ugotovi, v čem je prišlo do odstopanja in kako so bila dela izvedena, pri čemer je potrebno upoštevati tudi zahteve postopkov NEK (ESP-2.609).

Izvajalec je dolžan vsa dela izvesti tako, da bodo ustrezala zahtevam za trajnost, kvalitetno in funkcionalnost. Dela se morajo izvesti v skladu z obstoječimi in veljavnimi tehničnimi predpisi, priporočili in standardi.

V kolikor izvajalec ugotovi, da se zaradi napak v projektni dokumentaciji ali zaradi napačnih navodil naročnika oziroma njegovega nadzornega organa, dela izvajajo ali se bodo izvajala v škodo trajnosti, kvalitete ali funkcionalnosti, je dolžan o tem obvestiti naročnika in začeta dela ustaviti. V primeru, da tega ne stori, sam prevzema odgovornost za nastale nepravilnosti in povzročeno škodo.

Izvajalec je dolžan odobreno projektno dokumentacijo, pridobljeno za izvajanje del, kot veljavno vrniti naročniku. V to projektno dokumentacijo izvajalec vnaša vse spremembe in dopolnitve, za katere ima soglasje in dovoljenje naročnika.

Izvajalec del je dolžan zagotoviti zavarovanje in varnost zaposlenih delavcev in obiskovalcev. Poleg tega je izvajalec dolžan vse delavce oskrbeti z zakonom predvidenimi in predpisanimi osebnimi zaščitnimi sredstvi. Na gradbišču mora biti na vidnem mestu postavljen pravilnik in navodila za uporabo zaščitnih sredstev.

6. POSEBNA ORODJA ALI NAPRAVE

Za izvedbo elektro del v sklopu modifikacije je potrebno uporabiti samo standardna orodja oziroma orodja, definirana v postopkih NEK GME-4.042 in NEK GME-4.043.

Za vgradnjo specialne opreme, materialov in proizvodov, ki jih dobavlja naročnik je dovoljeno uporabljati samo naprave in opremo, ki je potrjena s strani proizvajalca. Podrobneje bodo ta orodja in naprave opredeljeni v Inštalacijskem paketu (IP), ki ga bo izbrani izvajalec izdelal pred pričetkom vseh del in ga v odobritev predal naročniku. Inštalacijski paket bo izdelan v skladu s postopkom NEK (ESP-2.619).

Delavci, ki bodo opremo, materiale oz. proizvode vgrajevali, morajo biti ustrezno usposobljeni in morajo imeti tudi ustrezna pisna dokazila o kvalifikacijah (npr. potrdilo o usposobljenosti oz. pooblastilo proizvajalca), če je to za vgradnjo materialov oz. proizvodov zahtevano.

7. POSTOPEK DEL

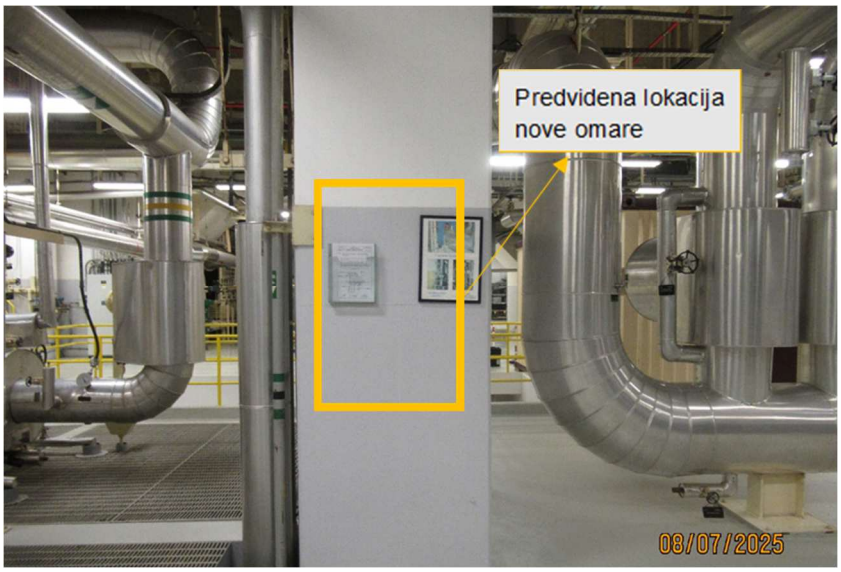
Dela so razdeljena v štiri sklope:

- nadgradnja razglasnega (»page«) sistema in podaljšanje časa delovanja bliskavk sistema evakuacijskega alarmiranja

- nadgradnja »sound powered« telefonskega sistema
- povečanje števila telefonskih linij v remontnem kontejnerskem kompleksu
- zamenjava elektronske opreme vmesnika med sistemom telefonije in razglasnim sistemom.

7.1 POSTAVITEV NOVE RAZVODNE OMARE

Za izvedbo razvoda komunikacijsko-napajalnih kablov razglasnega sistema, ki se bo napajal iz novega izvora napajanja, je potrebno v neposredno bližino obstoječe glavne razvodne omare PC-TB100 (TB, el. 107.62, soba TB019) instalirati novo omaro. Določili smo njeno lokacijo, ki bo na prostem stebru desno od obstoječe omare PC-TB100 (glej referenčni načrt E-218-021).



Nova priključna omara je namenjena priključitvi razglasnega sistema na področju tehnološkega dela NEK. Napaja se iz Power Supply – LS101BRDA03, CBK 4, 400/220V AC EP901UPS DISTR PNL, room P36, OSC. Za priključitev nove priključne omare na napajanje iz EP901UPS je potrebno položiti novi napajalni kabel 1PCK1111X.

Komunikacijska povezava med novo omaro PC-TB600 in obstoječo omaro PC-TB100 je izvedena s kablom oznake 1PCP2693X.

Na stebru pod novo omarico PC-TB600 je podono kot pri PC-TB100 potrebno s kabli 1PCK1112X in 1PCK1113X povezati novi transformator 230/120V PC102XFR003.

Razglasni sistem v zgradbi WMB, ki se sedaj napaja iz izvora EP900UPS001 (TB, el. 100.30, soba TB11A) preko razdelilnikov EP900PNLG001 in EP900PNLU001, se priključi na novo priključno omaro PC-TB600. Priključna omara PC-TB400 v zgradbi WMB se z novim komunikacijsko-napajalnim kablom 1PCP2695X poveže na novo priključno omaro v zgradbi TB. Obstoječe napajanje po kablu 1PCK1073X iz razdelilnika EP900PNLU001 in komunikacijska povezava na handset enoto PC102CMEH140 (RWS, el. 100.15, soba 01) se ukineta.

Razglasni sistem v zgradbah DB, BB1, BB2 in DSB, ki se sedaj napaja iz UPS izvora ESELIV07EC (BB1, el. 100.80, soba 004) preko razdelilnika ES101PNLY701 in transformatorja 230/120V PC102XFR002, se priključi na novo priključno omaro PC-TB600. Priključna omara PC-TB310 v zgradbi DB se z novim komunikacijsko-napajalnim kablom 1PCP2694X poveže na novo priključno omaro PC-TB600 v zgradbi TB. Obstoječe napajanje po kablu 1PCK1083X iz transformatorja PC102XFR002 (na priključno omarico PC-TB443 v BB1) in komunikacijska povezava priključne omare PC-TB310 na handset enoto PC102CMEH047 (CCB, el. 94.21, soba 03) se ukineta. Prav tako se odstrani transformator PC102XFR002.

Glej referenčne načrte:
E-218-000-04-IA
B-218-309-1-F-IA
B-218-309-2-IA
E-218-310-44-C-IA
E-218-310-44-C-IB
S-212-112-1PCK1111X-IA
S S-212-112-1PCP2693X-IA
S-212-112-1PCK1112X-IA
S-12-112-1PCK1113X-IA
S-212-112-1PCP2694X-IA
S-212-112-1PCP2695X-IA

7.2 NADGRADNJA RAZGLASNEGA SISTEMA

Napajanje razglasnega sistema glavnega otoka elektrarne in večjega dela objektov v ne-tehnološkem delu elektrarne je izvedeno iz 1E inverterja 6 (EE100XFRJ006). Ker je inverter 6 že dolgo praktično maksimalno obremenjen, se je napajanje razširjenega razglasnega sistema v novih zgradbah tehnološkega dela elektrarne (DB, BB1, BB2, DSB, WMB) in v nekaterih zgradbah ne-tehnološkega dela elektrarne izvedlo iz lokalnih izvorov napajanja.

Nova oprema, instalirana po fazi 3 izvedbe mod. 1053-PC-L pa se bo delno napajala iz N1E izvora neprekinjenega napajanja EP901UPS (400/230 VAC, 40 kVA) v zgradbi OPC in delno iz 1E inverterja 6 (EE100XFRJ006). Ker je inverter 6 že dolgo praktično maksimalno obremenjen, je potrebno najprej del porabnikov, ki se sedaj napajajo iz inverterja 6 prestaviti na N1E izvora neprekinjenega napajanja EP901UPS (400/230 VAC, 40 kVA) v zgradbi OPC. Na novi izvor napajaja se prestavi razglasni sistem v netehnološkem delu NEK, tj. v Administrativni pomožni zgradbi (APZ), v Administrativni zgradbi 4 (AD4), v Centru usposabljanja vzdrževalcev (CUV), v Prostoru mobilne opreme (PMO) in v stalnem remontnem kompleksu pri PMO. Prestavitev napajanja se izvede s preklopim kabla 1PCP1375X s priključne omare PC-TB100 na priključna omaro PC-TB600. Tako bomo zmanjšali obremenjenost inverterja 6 in zagotovili kapaciteto za priklop nove opreme na ta izvor.

Glej referenčne načrte:
E-218-000-01-9-IA
E-218-000-02-7-IA
E-218-000-03-1-IA
E-218-000-04-IA
S-212-112-1PCP1375X-A-IA
S-212-112-1PCP1375X-A-IB

Razglasni sistem se dogradi oz. nadradi na naslednjih lokacijah:

7.2.1 VKT zgradba

Lokacija novega zunanjega zvočnika PC102CMES674 je desno od izhodnih vrat zgradbe VKT pod nadstreškom. Tako bo delno zavarovan pred vremenskimi vplivi, lokacija pa je primerna tudi zaradi bližine obstoječe handset enote PC102CMEH513 v notranjosti VKT hišice, na katerega se priključimo s kablom 1PCP2691X.

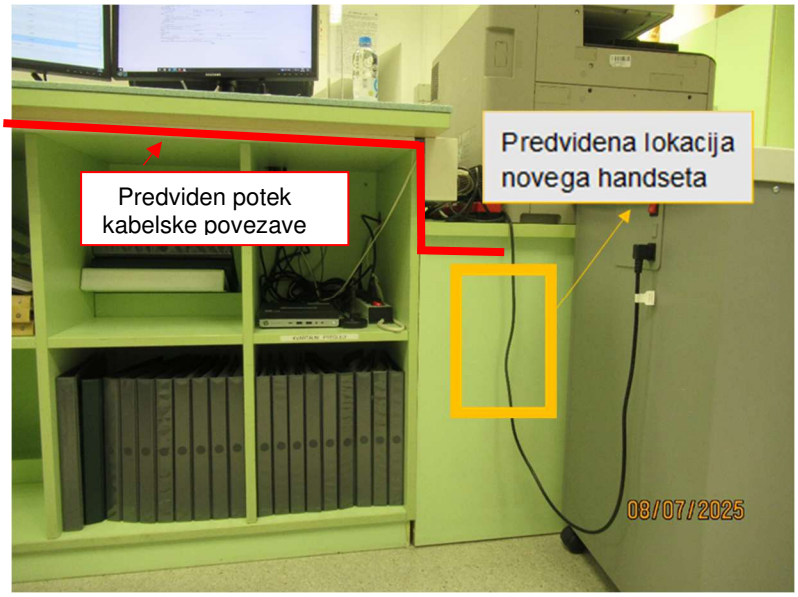
Glej referenčne načrte: S-212-112-1PCP2691X-IA
E-218-000-02-7-IA
SS-211-112-P-92-C-IA
E-218-320-7-IA



7.2.2 TB 115 CNA

Novo handset enoto je potrebno namestiti v CNA pri poziciji VI CNA, na delovno mesto vodje izmene. Ker mora enota biti na dosegu roke, je najbolj primerna lokacija na omarici ob delovnem mestu. Ker sta v prostoru CNA že dve obstoječi handset enoti PC102CMEH143 in PC102CMEH144 se bo nova enota PC102CMEH527 povezala v obstoječo PC102CMEH144 s kablom oznake 1PCP2718X. Predviden potek kabla je pod robom delovnih miz v kanalu do nove handset enote na omarici.

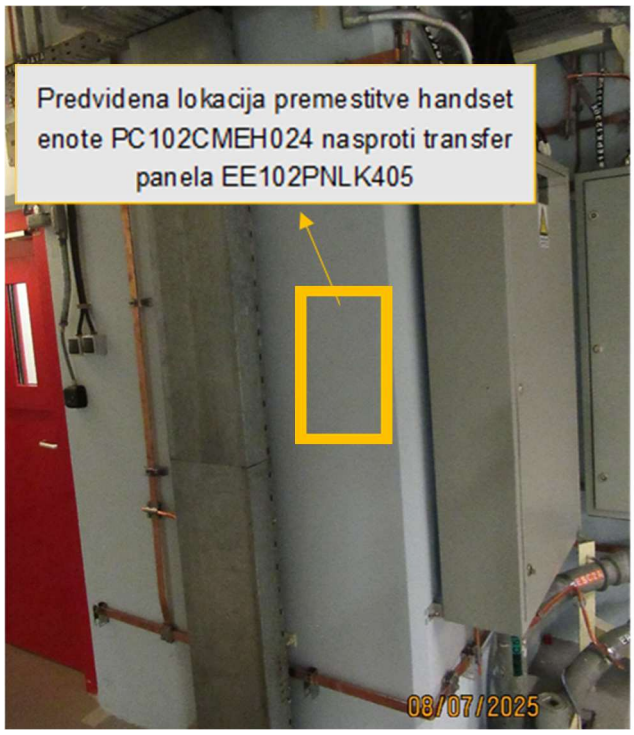
Glej referenčne načrte: S-212-112-1PCP2718X-IA
SS-211-112-P-102-B-IA
C-218-318-1-IA
E-218-000-01-10-IA



7.2.3 CB 107 Switchgear Room

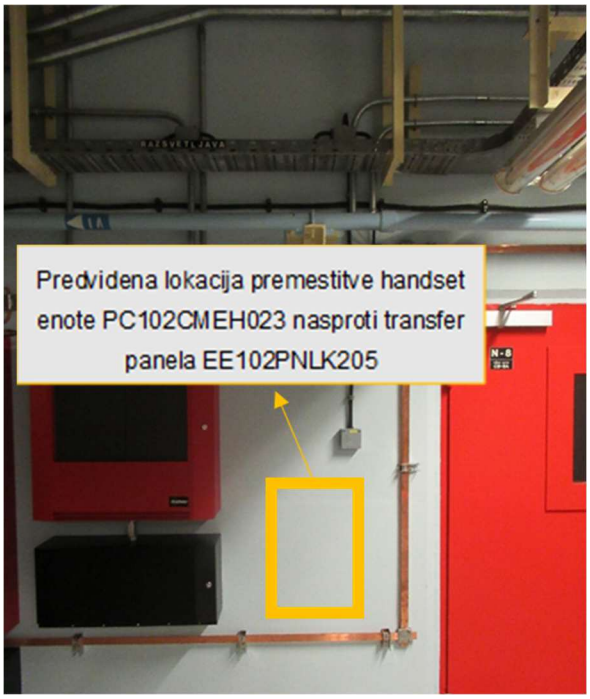
Za potrebe uspešno izvajanih evakuacijskih postopkov se prestavi obstoječi handset enoti PC102CMEH023 in PC102CMEH024 bližje k Transfer panelom EE102PNLK205 in EE102PNLK405 na steno nasproti panela. Handset PC102CMEH024 ostane povezan v obstoječo razdelilno omarico PC-TB100, vendar se povezava izvede na novo s kablom oznake 1PCP2722X, ker bo obstoječi kabel prekratki za novo lokacijo. Handset PC102CMEH023 se s kablom oznake 1PCP2723X poveže v handest PC102CMEH024. V handset enoto PC102CMEH023 se povežejo trije zvočniki in sicer PC102CMES339, PC102CMES340 (ki sta bila že sedaj priključena tu) in PC102CMES023 (prestavljen z ojačevalnika PC102CMEA023). V handset enoto PC102CMEH024 se poveže zvočnik PC102CMES024 (prestavljen z ojačevalnika PC102CMEA024).

CB, el.107.62, soba CB 012:



Glej referenčne načrte:
S-212-112-1PCP2722X-IA
S-212-112-1PCP2727X-IA
SS-211-112-P12-E-IA
SS-211-112-P12-E-IB
SS-211-112-P16-C-IA
E-218-121-5-IA
E-218-000-1-10-IA

CB, el.107.62, soba CB 011:



Glej referenčne načrte:
S-212-112-1PCP2723X-IA
S-212-112-1PCP2724X-IA
S-212-112-1PCP2725X-IA
S-212-112-1PCP2726X-IA
SS-211-112-P111-A-IA
SS-211-112-P111-A-IB
SS-211-112-P12-E-IB
SS-211-112-P16-C-IA
E-218-121-5-IA
E-218-000-1-10-IA

7.2.4 IB 100 Emergency Airlock Area

Nova handset PC102CMEH528 se postavi v bližino emergency air lock vrat in sicer na rob pregradne stene, kjer bo zagotovljena ustrezna dostopnost. Handset enota PC102CMEH528 se poveže v obstoječo omarico TB-107. Na handset enoto PC102CMEH528 se poveže zvočnik PC102CMES679.



Glej referenčne načrte: S-212-112-1PCP2703X-IA
S-212-112-1PCP2704X-IA
E-218-000-1-10-IA
SS-211-112-P242-IA
B-218-310-7-C-IA
E-218-111-10-IA

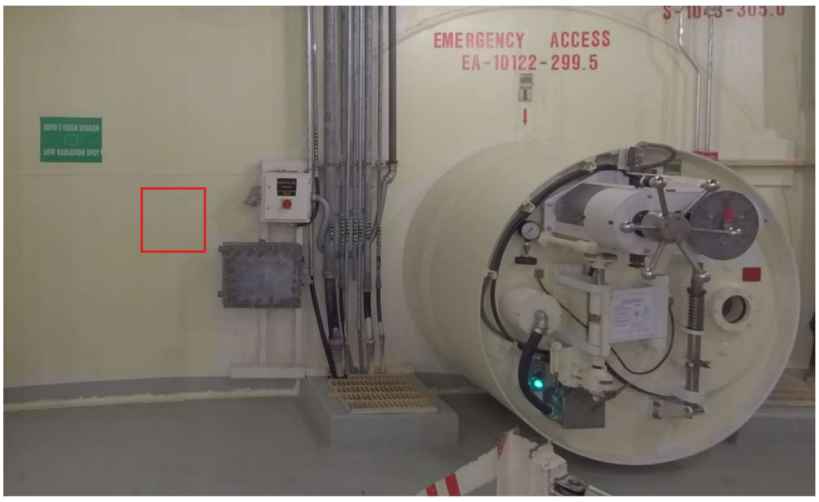
7.2.5 RB 100 zraven Emergency Airlock vrat

Handset PC102CMEH069 se iz obstoječega mesta prestavi v bližino Emergency Air Lock vrat znotraj reaktorske zgradbe, in sicer na steno desno od omenjenih vrat (prostor RB014, el. 100.30, severozahodni kvadrant). Handset enota PC102CMEH069 se s kablom 1PCP2705X poveže v obstoječo omarico TB-115 v reaktorski zgradbi, prostor RB011, el. 100.30, severovzhodni kvadrant. Na handset enoto PC102CMEH532 se s kablom 1PCP2706X poveže obstoječi zvočnik PC102CMES069, ki pa ostane na trenutni lokaciji.
Zaradi specifičnosti mesta montaže, se handset enota ob steno postavi po vzoru že postavljene opreme po RBju in sicer s kovinskim podstavkom, ki je pritrjen na pritrditveno ploščico (glej primer na sliki spodaj).

Glej referenčne načrte: S-212-112-1PCP2705X-IA
S-212-112-1PCP2706X-IA
E-218-000-1-10-IA
SS-211-112-P242-IA
B-218-310-15-B-IA
E-218-211-10-IA



Obstoječa enota PC102CMEH080



Predvidena nova lokacija, desno zraven primer že postavljene opreme na kovinski nosilec

7.2.6 RB 96 zamenjava priključnega mesta s handset enoto

Obstoječe priključno mesto (jack station) razglasnega sistema PC102CMEJ065, prostor RB001, severovzhodni kvadrant, se zamenja s popolno handset enote PC102CMEH512. Nova handset enota se priključi v sistem z obstoječim kablom 1PCP191X, na katerega je priključeno obstoječe priključno mesto PC102CMEJ065.

Glej referenčne načrte:
S-212-112-1PCP191X-B-IA
S-212-112-1PCP191X-B-IB
E-218-000-1-10-IA
SS-211-112-P28-C-IA
B-218-310-15-B-IA
E-218-205-6-IA

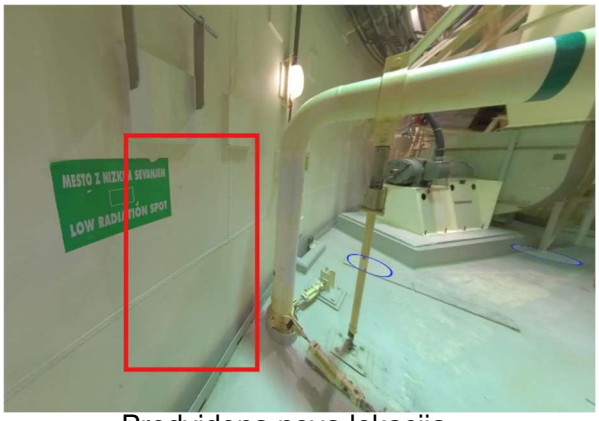
7.2.7 RB 115 prestavitev handset enote PC102CMEH080

Obstoječa handset enot PC102CMEH080 (prostor RB032, el. 155.55, jugozahodni kvadrant) se prestavi na primernejšo lokacijo. Sedanja lokacija opreme pri krožnih stopnicah ni primerna, ker zaradi preglasnosti onemogoča komunikacijo pri delu v cavity-ju; na lokaciji se pojavlja povišana hitrost doze zaradi reaktorske glave na stojalu; na lokaciji je prevelika frekvenca ljudi, ki motijo ostale pri delu.

Handset enota PC102CMEH080 se prestavi na kovinsko steno RB ob ventilator VA121FAN001. Ker v bližini ni primernejše lokacije, zvočnik PC102CMES080 ostane na sedanji lokaciji. Zaradi prestavitve handset enote, se odspojijo in odstranijo s trase obstoječi komunikacijsko-napajalni kabli 1PCP217X (povezav H-80 do H-82), 1PCP218X (povezava H-80 do H-81) in 1PCP220X (povezava H-80 do zvočnika S-80). Obstoječi kabli se na relacijah zamenjajo s kabli 1PCP2719X, 1PCP2720X in 1PCP2721X.



Obstoječa enota PC102CMEH080



Predvidena nova lokacija

Zaradi specifičnosti mesta montaže, se handset enota ob steno postavi po vzoru že postavljene opreme po RBju in sicer s kovinskim podstavkom, ki je pritrjen na pritrditveno ploščico (glej primer na sliki spodaj).



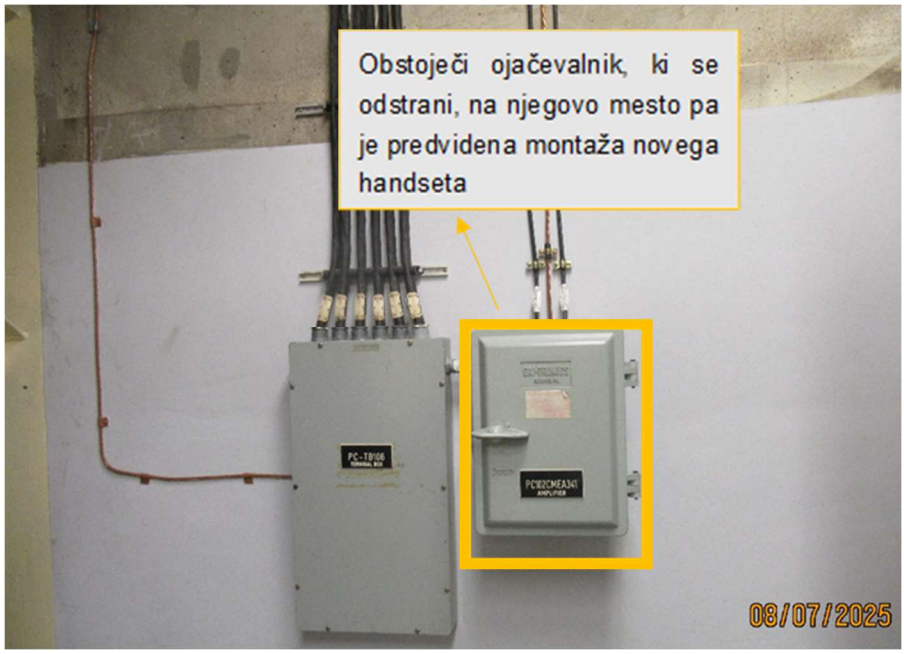
Primer že postavljene opreme v RB s kovinskim nosilcem

Glej referenčne načrte:
S-212-112-1PCP217X-VOID
S-212-112-1PCP218X-VOID
S-212-112-1PCP220X-VOID
S-212-112-1PCP2719X-IA
S-212-112-1PCP2720X-IA
S-212-112-1PCP2721X-IA
E-218-000-1-10-IA
SS-211-112-P31-B-IA
SS-211-112-P31-B-IB
E-218-221-6-IA
E-218-231-6-IA

7.2.8 IB 107 CB Air Handling Unit Train »B«

Na lokaciji IB107 je že montiran ojačevalnik PC102CMEA341, ki se odstrani, na njegovo mesto pa se montira nova handset enota PC102CMEH529. Uporabijo se že obstoječe kabelske povezave 1PCP1642X, 1PCP1643X in 1PCP1644X, nove dodatne povezave niso potrebne.

Glej referenčne načrte:
S-212-112-1PCP1642X-A-IA
S-212-112-1PCP1643X-A-IA
S-212-112-1PCP1644X-A-IA
SS-211-112-P122-A-IA
E-218-121-5-IA
E-218-000-1-10-IA



7.2.9 Zunanje območje okoli hišice SAH v stikališču

Na vzhodni strani zgradbe SAH je že montiran zvočnik. Za boljšo slišnost v bližini pomožne kotlovnice se montira dodatni zvočnik PC102CMES673 tudi na zahodno stran. Zvočnik se priključi na že obstoječo zunanjo handset enoto PC102CMEH091 na vzhodni strani s kablom oznake 1PCP2690X.



Glej referenčne načrte: S212-112-1PCP2690X-IA
SS-211-112-P13-E-IA
E-218-320-7-IA
E-218-000-1-10-IA

7.2.10 Območje pred BB1

Za izboljšanje slišnosti razglasnega sistema pred zgradbo BB1 se postavi dodatni zvočnik PC102CMES675 na zgradbo CCB. Usmeri se proti zgradbi BB1 in tako zagotovil slišnost tudi na tem področju. Priklopi se v obstoječo handset enoto PC102CMEH055 s kablom oznake 1PCP2713X.



Glej referenčne načrte: S-212-112-1PCP2713X-IA
SS-211-112-P25-C-IA
E-218-211-10-IA
E-218-000-1-10-IA

7.2.11 BB1 400V Switchgear Room

V prostoru zbiralke se na prosti steni ob transfer panelih EE102PNLY605 postavi nova handset enota PC102CMEH530, ki bo zagotovila uspešno izvajanje evakuacijskih postopkov. S kablom oznake 1PCP2714X se poveže v obstoječo handset enoto PC102CMEH148.
Obstoječi kabel 1PCP1940X, s katerim je trenutno povezan zvočnik PC102CMEHS375 se odspoji iz omarice TB-392, kamor je priklopljen trenutno in se poveže v novi handset PC102CMEH530. Posledično se sprosti tudi mesto skozi penetracijo med 400V SWG room in battery charger room, skozi katero se položi novi kabel 1PCP2714X za povezavo novega handseta PC102CMEH530. Tako ni potrebe po vrtanju novih penetracij, ampak lahko uporabimo že obstoječo.



Glej referenčne načrte: S-212-112-1PCP2714X-IA
S-212-112-1PCP1940X-B-IA
S-212-112-1PCP1940X-B-IB
SS-211-112-P160-B-IB
B-218-310-101-A-IA
C-218-319-2-IA
E-218-000-04-IA

7.2.12 Območje pred FHB

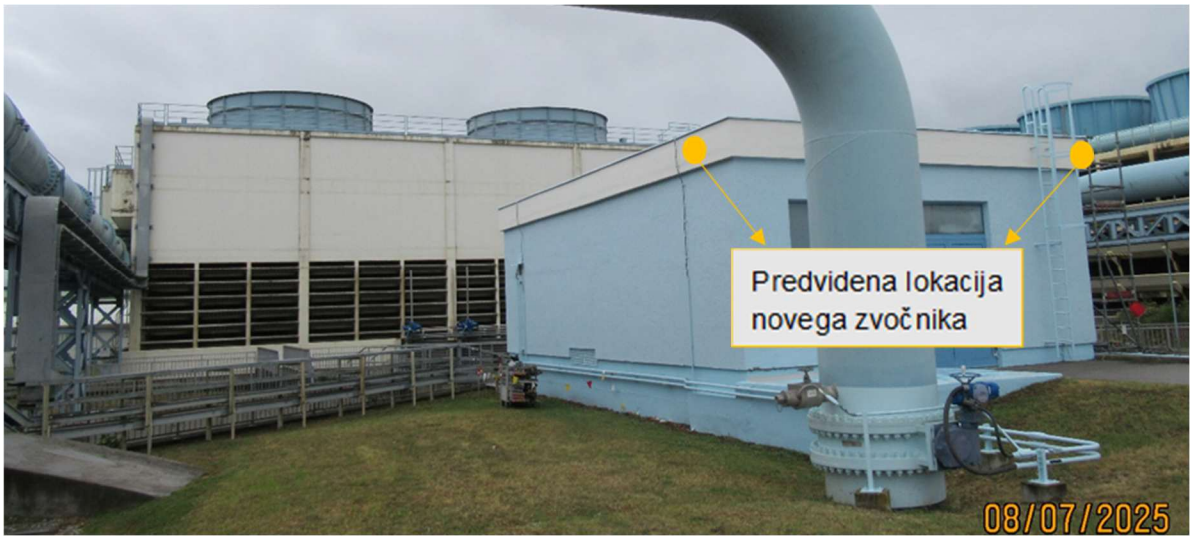
Pred zgradbo FHB zraven rolo vrat F-14 se montira nova handset enota PC102CMEH531, ki se s kablom oznake 1PCP2707X poveže v obstoječo razdelilno omarico TB-110. V handset enoto PC102CMEH531 se s kablom oznake 1PCP2708X poveže zvočnik PC102CMES681.



Glej referenčne načrte:
S-212-112-1PCP2708X-IA
S-212-112-1PCP2707X-IA
SS-211-112-P243-IA
B-218-310-10-B-IA
E-218-211-10-IA
E-218-000-1-10-IA

7.2.13 CT območje in hišica stikališča

Dva nova zvočnika PC102CMES653 in PC102CMES654 bosta nameščena na atiki stikališčne hišice in usmerjena v območje CT stolpov. Povezana bosta v amplifier PC102CMEA603, ki se montira v notranjosti hišice stikališča CT. Povežeta se s kabli oznake 1PCP2112X in 1PCP2113X. Amplifier PC102CMEA603 se vključi v razglasni sistem s priključitvijo na priključno omaro PC-TB119 v hišici stikališča CT.



Glej referenčne načrte: S-212-112-1PCP2111X-IA
S-212-112-1PCP2112X-IA
S-212-112-1PCP2113X-IA
SS-211-112-P242-IA
B-218-310-17-B-IA
E-218-320-7-IA
E-218-000-01-10-IA

7.2.14 Centralno skladišče NEK

Nova handset enota PC102CMEH533 se postavi na prosto steno v centralnem skladišču in se vključi v razglasni sistem v vejo med obstoječo hansdet enoto PC102CMEH132 in amplifierjem PC102CMEA511 z novima kabloma 1PCP2709X in 1PCP2710X.

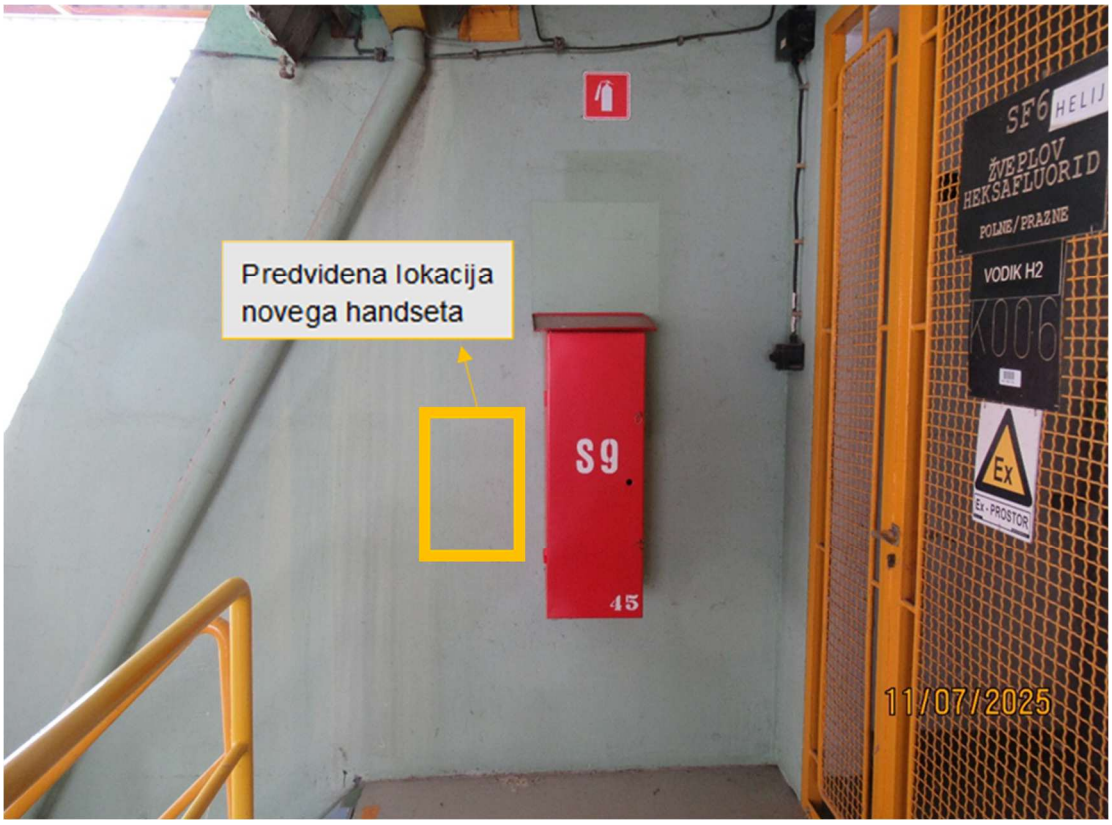


Glej referenčne načrte: S-212-112-1PCP1707X-A-VOID
S-212-112-1PCP2709X-IA

S-212-112-1PCP2710X-IA
SS-211-112-P132-A-IA
SS-211-112-P132-A-IB
SS-211-112-P-92-C-IA
C-218-246-1-IA
E-218-000-2-7-IA

7.2.15 Skladišče tehničnih plinov (H09)

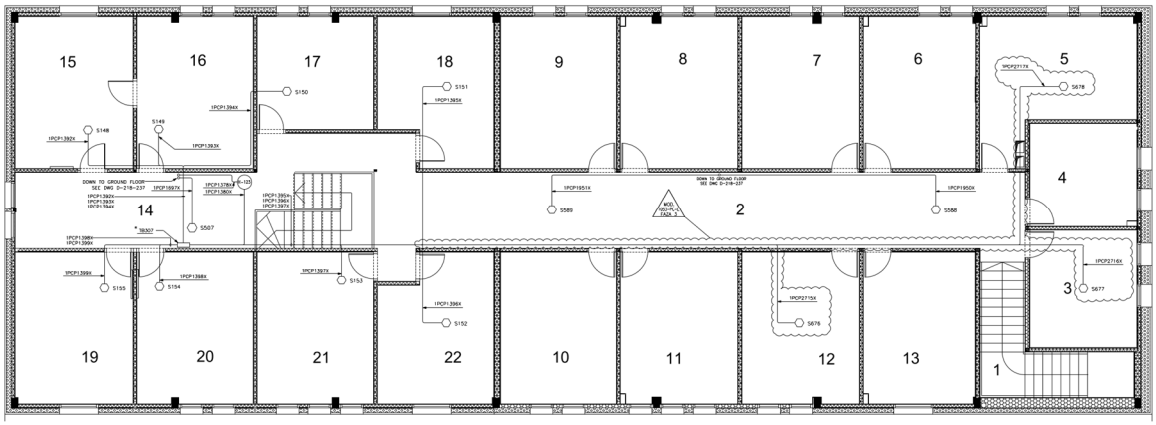
Nova handset enota PC102CMEH536 in zvočnik PC102CMES682 se postavita na prosto steno v skladišču. Zvočnik PC102CMES682 se s kablom oznake 1PCP2712X poveže v handset enoto PC102CMEH536 (CUV), handset enota PC102CMEH536 pa se s kablom oznake 1PCP2711X poveže v obstoječo handset enoto PC102CMEH145.



Glej referenčne načrte:
S-212-112-1PCP2711X-IA
S-212-112-1PCP2712X-IA
SS-211-112-P243-IA
C-218-254-0-IA
E-218-000-4-IA
E-218-320-7-IA

7.2.16 Hodnik prvega nadstropja Hangar 7, AD4

V pisarne 112, 114 in 116 se dodatno montirajo zvočniki PC102CMES676, PC102CMES677 in PC102CMES678, ki se s kabli oznake 1PCP2715X, 1PCP2716X in 1PCP2717X povežejo v obstoječo razdelilno omarico TB-307.



Glej referenčne načrte: S-212-112-1PCP2715X-IA
S-212-112-1PCP2716X-IA
S-212-112-1PCP2717X-IA
SS-211-112-P243-IA
B-218-310-41-A-IA
D-218-238-1-IA
E-218-000-02-7-IA

7.2.17 Pisarniški kontejnerji pri PMO

Za izboljšanje slišnosti in razumljivosti razglasnega sistema se postavi novi zvočnik PC102CMES684, ki je s kablom oznake 1PCP2731X povezan v novo handset enoto PC102CMEH534. postavljeno na steno med pisarni 2 in 4. Handset enota PC102CMEH534 se z novim kablom oznake 1PCP2730X vključi med v obstoječi handset enoti PC102CMEH133 (PMO) in PC102CMEH149 (Stalni remontni kompleks).



Glej referenčne načrte: S-212-112-1PCP2730X-IA
S-212-112-1PCP2731X-IA
S-212-112-1PCP1974X-A-IA
SS-211-112-P86-E-IA
SS-211-112-P86-E-IB
SS-211-112-P245-IA
E-218-000-02-7-IA

7.2.18 RWS 105 (prostor ventilacije – soba RW2)

Nova handset enota PC102CMEH535 v katero je s kablom oznake 1PCP2729X povezan novi zvočnik PC102CMES683 se postavi na prostem zidu sobe RWS. Nova handset enota PC102CMEH535 se s kablom oznake 1PCP2728X poveže v novo razdelilno omarico TB-472. Komunikacijski kabel 1PCP1999X, do sedaj uporabljen za povezavo razglasnega sistema v zgradbi WMB (PC-TB400) z handset enot PC102CMEH140 (RWS), se uporabi za povezavo nove omarice PC-TB472 z omarico PC-TC400 - novovgrajeni komponenti se povežeta z razglasnim sistemom v WMB, napajanim z glavne razdelilne omarice PC-TB600 (napajanje z EP901UPS).



Glej referenčne načrte: S-212-112-1PCP1999X-A-IA
S-212-112-1PCP2728X-IA
S-212-112-1PCP2729X-IA
SS-211-112-P244-IA
B-218-310-126-IA
E-218-310-104-A-IB
D-218-330-0-IA
C-218-263-1-IA
E-218-000-04-IA

7.2.19 Stalni remontni kompleks

Handset enota PC102CMEH149 v RKK, ki se sedaj napaja iz lokalnega električnega razdelilnika (kabel 1PCP1975), se v polnosti priključi (tudi napajanje) na novo handset enoto PC102CMEH534, ki se montira v pisarniške kontejnerje pri PMO.
Opomba: Razglasni sistem v PMO in bližnjih pisarniških kontejnerjih bo napajan iz nove glavne priključne omarice PC-TB600, napajane iz EP901UPS (OPC).

Glej referenčne načrte: S-212-112-1PCP1974X-A-IA
S-212-112-1PCP1975X-A-VOID
E-218-000-04-IA

7.2.20 Operativni podporni center (OPC)

Napajanje razglasnega sistema v zgradbi OPC je izvedeno iz razdelilne omare razsvetljave LS100PNLA03 (230V AC), odcep/odklopnik CBK16, preko kabla 1PCK1075X do centralne priključne omare PC-TB434, kjer je s transformatorjem 230/120V izvedena transformacija na željenih 120V. Napajanje razglasnega sistema se odstrani z omare LS100PNLA03 z odspojitvijo in odstranitvijo kabla 1PCK1075X. Novo napajanje se izvede iz razdelilne omare LS101BRDA03 (230V, napajana iz EP901UPS), odcep/odklopnik CBK7, z novim kablom 1PCK1114X, položenem do centralne priključne omare PC-TB434 oz. transformatorja 230/120V v omari.

Glej referenčne načrte: S-212-112-1PCK1075X-A-VOID
S-212-112-1PCK1114X-IA
SS-211-112-K10-C-IA
SS-211-112-K16-IA
A07-0-IA
B-218-310-115-0-IA
E-218-327-1-IA
E-218-000-03-1-IA

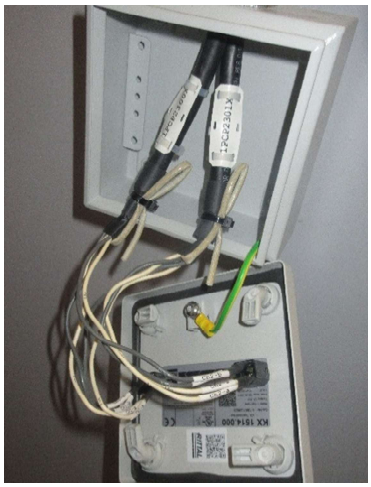
7.3 NADGRADNJA SOUND POWERED SISTEMA

Sound powered sistem je sistem, ki omogoča uporabnikom komunikacijo s pomočjo klasičnih slušalk in mikrofona podobno kot z običajnim telefonom, vendar brez uporabe zunanjega napajanja (pomembnost tega sistema je izjemna v primeru izgube vsega AC napajanja – SBO).

7.3.1 Dodatna priključna mesta

Ker dolgotrajna izguba napajanja predstavlja velik problem za delovanje konvencionalnih komunikacijskih sistemov, se bo obstoječi, zelo zanesljivi in od napajanja neodvisni sistem, razširil na nove objekte (BB1) in dodal dodatna priključna mesta v prostor, kjer bodo nameščena transfer stikala za ECB (CB 107 Swichgear Room proga A in B).
Vsa nova priključna mesta se zagotovijo z vgradnjo Jack plate M5002 ploščice s priključki, ki se po vzoru že izvedenih sound power priključkov v NEK izvede s pomočjo Rittal KX1514.000 plastičnih škatlic.

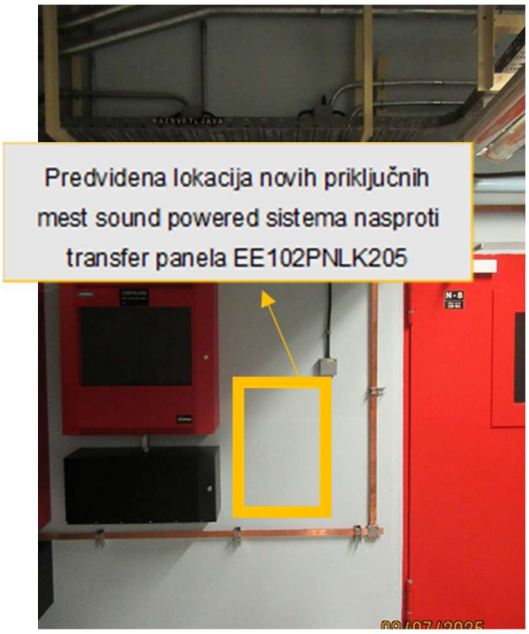




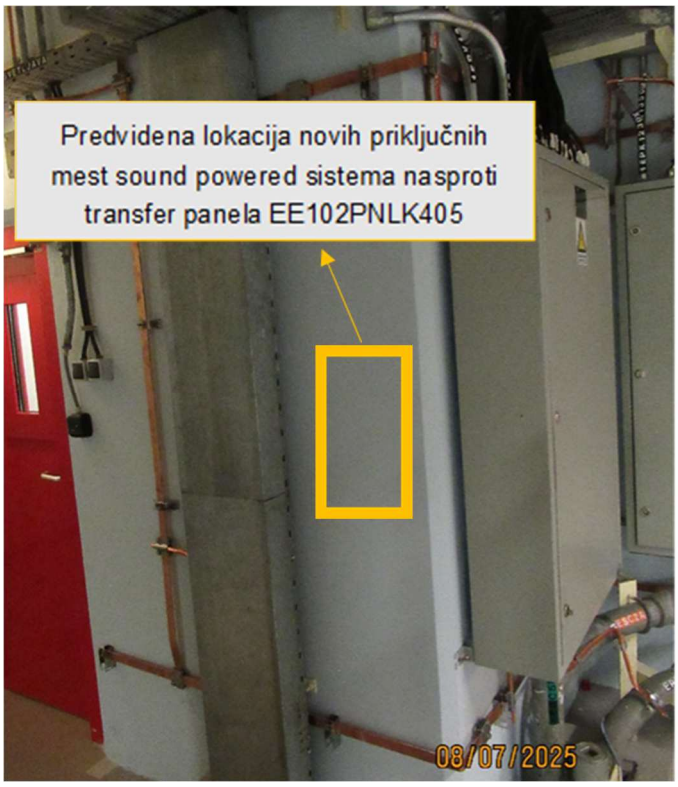
7.3.1.1 CB 107 Switchgear Room

Za nadgradnjo sound powered sistema se zraven obstoječih priključnih mest, ki so že na voljo v Switchgear Room A & B (soba CB011 in CB012) dodajo tudi nova priključna mesta nasproti Transfer panlov EE102PNLK205 & 405. Ta se povežeta v vejo obstoječih priključnih mest z novimi kabli oznake 1PCP2663X, 1PCP2700X in 1PCP27001X.

<u>CB, el.107.62, soba CB 011:</u>



CB, el.107.62, soba CB 012:

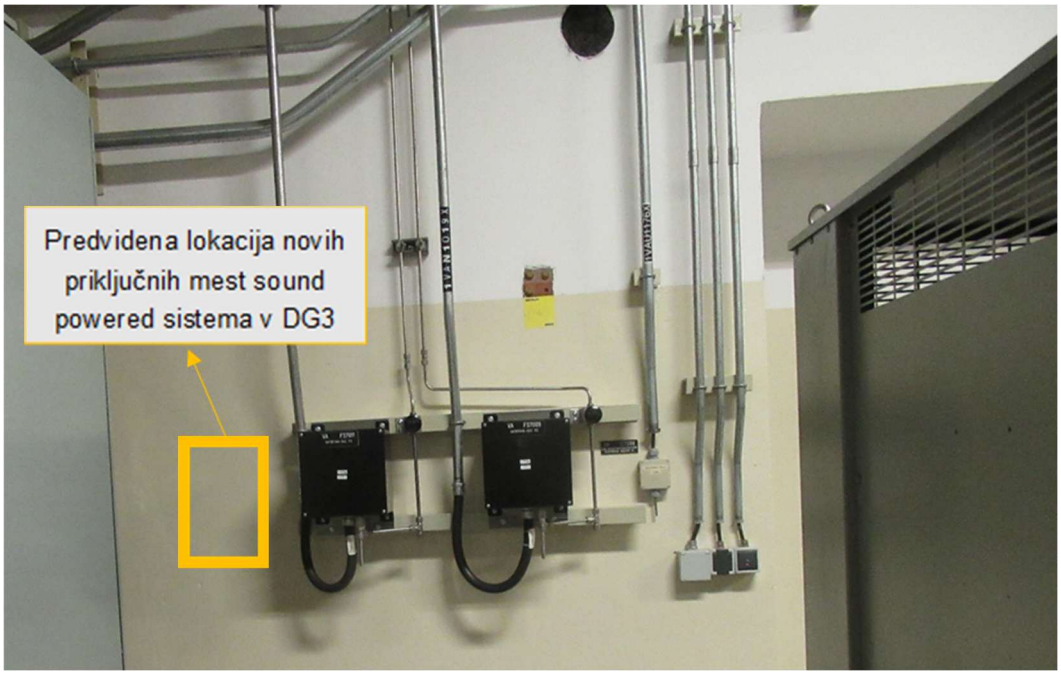


Glej referenčne načrte:
S-212-112-1PCP2663X-IA
S-212-112-1PCP2699X-IA
S-212-112-1PCP2700X-IA
B-218-003-6-IA
E-218-211-5-IA

7.3.1.2 BB1

Za nadgradnjo sound powered sistema v zgradbi BB1 se dodajo nova priključna mesta sound powerd sistema na delovno mesto operaterja za zveze v TPC in v DG3 prostor. Povežejo se z 2-paričnima kabloma oznake 1PCP2701X in 1PCP2702X.





Glej referenčne načrte: S-212-112-1PCP2701X-IA
S-212-112-1PCP2702X-IA
B-218-003-6-IA
B-218-315-16-IC

7.3.2 Zamenjava kablov

V trenutni konfiguraciji sound powered sistema je omogočeno komuniciranje samo po enem kanalu. V okviru nadgradnje sistema se izvede zamenjava obstoječih kablov z eno parico, z novimi kabli z dvema paricama, kar bo omogočalo razširitev števila kanalov komuniciranja na dva neodvisna kanala. Zamenjajo se vsi kabli iz tabele spodaj.

Od	Do	Obstoječi kabel (1-parični)	Nov kabel (2-parični)	Opomba
PC-TB201	PC-TB202	1PCP401X	1PCP2649X	
PC-TB201	JACK STA. BJ-13	1PCP402X	1PCP2650X	
JACK STA. BJ-13	PC-TB203	1PCP403X	1PCP2651X	
PC-TB203	JACK STA. BJ-19	1PCP404X	1PCP2652X	
PC-TB201	PC-TB211	1PCP405X	1PCP2653X	
PC-TB201	PC-TB210	1PCP406X	1PCP2654X	
PC-TB203	JACK STA. BJ-10	1PCP407X	1PCP2655X	
JACK STA. BJ-24	JACK STA. BJ-23	1PCP408X	1PCP2656X	
JACK STA. BJ-23	JACK STA. BJ-22	1PCP409X	1PCP2657X	
PC-TB206	PC-TB208	1PCP411X	1PCP2658X	
JACK STA. BJ-9	PC-TB206	1PCP412X	1PCP2659X	
PC-TB206	JACK STA. BJ-4	1PCP413X	1PCP2660X	
PC-TB208	PEN. CANISTER E-104.3-070.0	1PCP414X	1PCP2661X	
PC-TB208	JACK STA. BJ-21	1PCP415X	1PCP2662X	
JACK STA. BJ-10	JACK STA. BJ-39	1PCP416X	1PCP2663X	Nov kabel preusmerjen na nov JACK STA. BJ-39.
JACK STA. BJ-4	JACK STA. BJ-3	1PCP417X	1PCP2664X	
JACK STA. BJ-16	JACK STA. BJ-15	1PCP418X	1PCP2665X	
PC-TB201	JACK STA. BJ-11	1PCP421X	1PCP2666X	
PC-TB201	JACK STA. BJ-18	1PCP422X	1PCP2667X	
JACK STA. BJ-11	PC-TB204	1PCP423X	1PCP2668X	
PC-TB204	JACK STA. BJ-5	1PCP424X	1PCP2669X	
PC-TB204	JACK STA. BJ-6	1PCP425X	1PCP2670X	
PC-TB201	JACK STA. BJ-20	1PCP431X	1PCP2671X	
PC-TB214	JACK STA. BJ-17	1PCP432X	1PCP2672X	
JACK STA. BJ-20	PC-TB205	1PCP433X	1PCP2673X	
PC-TB205	JACK STA. BJ-12	1PCP434X	1PCP2674X	
PC-TB205	JACK STA. BJ-2	1PCP435X	1PCP2675X	
JACK STA. BJ-2	PC-TB212	1PCP436X	1PCP2676X	
PC-TB212	PC-TB213	1PCP437X	1PCP2677X	
PC-TB207	PC-TB215	1PCP438X	1PCP2678X	
PC-TB207	JACK STA. BJ-7	1PCP439X	1PCP2679X	
PEN. CANISTER E-104.3-070.0	JACK STA. BJ-16	1PCP450X	1PCP2680X	
PC-TB210	JACK STA. BJ-25	1PCP1401X	1PCP2681X	
PC-TB210	JACK STA. BJ-24	1PCP1402X	1PCP2682X	
PC-TB211	JACK STA. BJ-14	1PCP1403X	1PCP2683X	
PC-TB213	JACK STA. BJ-1	1PCP1404X	1PCP2684X	
PC-TB213	PC-TB214	1PCP1405X	1PCP2685X	
PC-TB207	PC-TB214	1PCP1406X	1PCP2686X	
PC-TB211	JACK STA. BJ-8	1PCP1407X	1PCP2687X	
JACK STA. BJ-26	JACK STA. BJ-27	1PCP2073X	1PCP2688X	

Glej referenčne načrte: Term. sheet-i zgoraj navedenih kablovS
B-218-003-6-IA

7.4 NADGRADNJA OSTALIH KOMUNIKACIJSKIH SISTEMOV

7.4.1 Montaža novega telefonskega aparata pri vratih F-14

Pred zgradbo FHB zraven rolo vrat F-14 se montira dodatni telefonski aparat industriskega tipa; aparat se motira poleg nove handset enota PC102CMEH531 (glej točko 7.2.9). Telefonski aparat se s telefonskim kablom 1PCP2732X priključi na bližnjo telefonsko omarico.

Glej referenčne načrte: S-212-112-1PCP2732X-IA
C-218-001-11-IA
C-218-211-10-IA

7.4.2 Položitev novih telefonskih kablov

Zaradi potrebe po povečanju števila telefonskih številk v Remontnem kontejnerskem kompleksu (RKK) / Stalnem remontnem kompleksu, se položi nov 100-parični telefonski kabel 1PCP2697X od telefonske omare PC103CAB005 v OPC do RKK (100 možnih telefonskih številk na lokaciji). Da bo v telefonski omari PC103CAB005 na voljo dovolj priključnih mest za nove linije, se položi nov 150-parični telefonski kabel 1PCP2696X od telefonske centrale v TK prostoru, TB, el. 115.55, do telefonske omare PC103CAB005 (priključna točka tudi za razširitev sistema telefonije v bodočo zgradbo CDU).

Glej referenčne načrte: S-212-112-1PCP2696X-IA
S-212-112-1PCP2697X-IA

7.4.3 Montaža novega vmesnika telefonski sistem – razglasni sistem

Zaradi zastarelosti in nezagotavljanja rezervnih delov se zamenja elektronska oprema vmesnika med sistemom telefonije in razglasnim sistemom v TK prostoru, TB, el. 115.55, soba TB040. Izvede se zamenjava obstoječe opreme vmesnika s sodobno opremo. Dobavitelj opreme razglasnega sistema (Gai-Tronics) ponuja vmesnik v omarici za montažo na zid. Vmesnik se montira na predvideno mesto na prosto steno v TK prostoru, TB, el. 115.55, soba TB040.



Glej referenčne načrte: Priloga 1

7.4.4 Podaljšanje časa delovanja bliskavk

Čas delovanja bliskavk sistema evakuacijskega alarmiranje je potrebno podaljšati na čas poteka evakuacije.

Sedaj je čas delovanja bliskavk omejen na čas delovanja/predvajanja zvočnega poziva razglasnega sistema ob aktivaciji evakuacijskega alarma.

Čas delovanja bliskavk se podaljša z ustrezno nastavitvijo parametrov v evakuacijskem alarmnem sistemu in/ali po potrebi vgraditi dodatni časovni rele v omarico alarmiranja v sili v glavni komandni sobi (PC-TB377) in v pomožni komandni sobi (PC-TB378).

Glej referenčne načrte: E-218-310-100-B-IA

7.5 ZATESNITEV PENETRACIJ V POŽARNIH STENAH

Opozorilo: Pred pričetkom del na požarnih penetracijah je potrebno imeti odobreno požarno dovolilnico po postopku FPP-3.7.006. Dela se morajo izvajati v skladu s požarno dovolilnico. Po končanju del tj. po zatesnitvi požarnih penetracij mora požarna dovolilnica dobiti status zaključene požarne dovolilnice.

Požarne penetracije/barijere (glej tabelo) v stenah med požarnimi sektorji (Fire Area), skozi katere bodo položeni novi kabli ali odstranjeni obstoječi kabli, je potrebno po končanem polaganju zatesniti s silikonsko peno v skladu s postopkom GMC-4.001.

POŽARNI SEKTOR	LOKACIJA	BARIJERA	MEJI NA POŽ. SEKTOR	OPOMBA
CB-3B	KONTROLNA ZGRADBA EL. 107.62	ECB 4001	TB-1A	ZID 1-K-4
CB-3A	KONTROLNA ZGRADBA EL. 107.62	ECB 4021	IB-13B	ZID 10-K-4
CB-3A	KONTROLNA ZGRADBA EL. 107.62	ECB 4022	IB-13A	ZID 10-K-4
CB-3B	KONTROLNA ZGRADBA EL. 107.62	ECB 4024	CB-8B	ZID 3-K-4
CB-3B	KONTROLNA ZGRADBA EL. 107.62	ECB 4163	CB-3A	ZID 8-K-4
ED-2B	BATTERY AND CHARGER ROOM	EEDB 20527	ED-9	ZID 8-Y-3

7.6 FUNKCIONALNO TESTIRANJE

Navodila za izvedbo funkcionalnega testiranja so podana v »Acceptance Test Instructions«, DMP 1053-PC-L, Sect. F.

8. PRILOGE

- PRILOGA 1 Navodila novega vmesnika GAI-Tronics 10959-203

PRILOGA 1

Navodila novega vmesnika GAI-Tronics 10959-203

PRILOGA 1

GAI-TRONICS®
A HUBBELL COMPANY

Wall-Mount Audio Messenger Interface

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GAI-TRONICS®
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Wall-Mount Audio Messenger Interface

Confidentiality Notice

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SmartSeries® Page/Party® ADVANCE SmartVolume™

General Information

GAI-Tronics' Model 10959-201 and Model 10959-203 AMI (Audio Messenger Interface) tone/speech generators broadcast live pages, telephone pages, pre-recorded alarm tones, pre-recorded speech messages, etc., for use in any application.

Features

- recorded alarm tones
- eight inputs and eight outputs upgradeable to 40 inputs and outputs
- 600-ohm, 1 V_{RMS} audio output
- CompactFlash® memory
- ACT (AMI Configuration Tool) PC software
- scheduled events
- day/night modes
- live/recorded speech messages
- integration to Page/Party systems

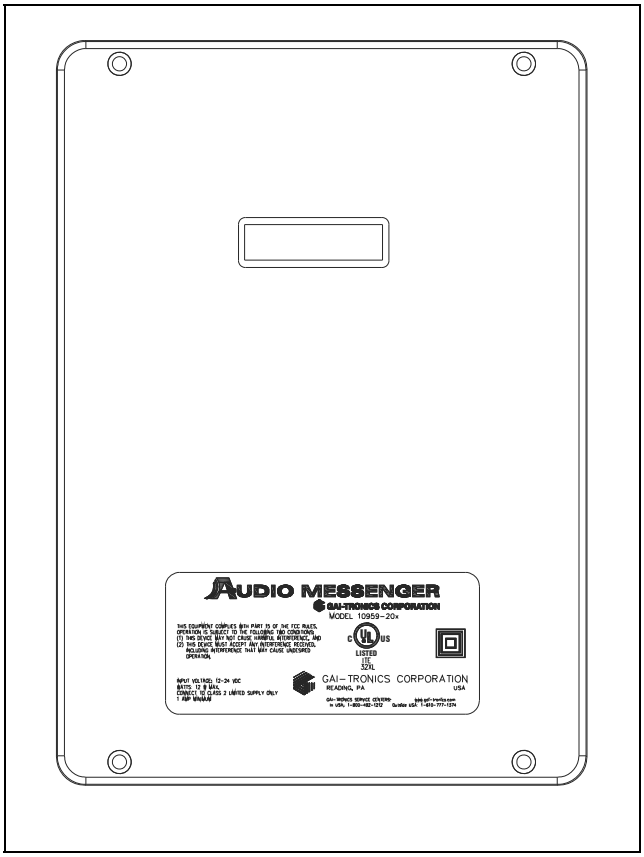


Figure 1. Wall-Mount Audio Messenger Interface

Options

- telephone access (*Model 10959-203 only*)
- desktop paging microphone
- up to 40 inputs and 40 outputs
- audio routing to eight zones
- AMI redundancy for system reliability
- integration to ADVANCE systems

Table 1. Wall-Mount AMI Models and Accessories

Model	Description
10959-201	AMI, wall-mount with Page/Party interface
10959-203	AMI, wall-mount with Page/Party and telephone interfaces
12584-001	I/O control module option
XDM002A	desktop paging microphone
10960-001	zone interface module
10962-00x	AMI redundancy controller

Functions

Use the ACT (AMI Configuration Tool) software, included with the AMI, to define and change the AMI's configuration. The AMI accesses a CompactFlash® memory card, pre-programmed with the Model 10959-201 or 10959-203 product configuration, to retrieve configurations and play audio messages.

Alarms

The ACT software includes pre-recorded tones suitable for most applications. The tones include typical emergency tones (i.e., a siren, slow whoop, etc.) and signaling or process tones (i.e., a gong, steady tone, etc.). The AMI stores all tones and speech messages in MP3 file format.

Use any tone stored in the MP3 file format for applications requiring custom tones. Record custom speech messages using commercially available audio editing software. Create speech-over-tone messages by recording live voice audio on one channel with a tone on the other channel.

Inputs/Outputs

The AMI includes eight configurable inputs and outputs. Use inputs to activate tones and/or speech messages, mute audio playback, or reset alarms. Use outputs to activate external signaling devices, interface to automated control systems, or interface to paging system equipment.

Add the optional I/O control module to the system if the standard eight inputs and outputs are insufficient for an application. The I/O control module provides an additional 32 inputs and 32 digital outputs expanding the total possible inputs and outputs to 40 of each.

Timed Events

The AMI can perform several functions based on the time of day. Schedule events to occur at any interval (hourly, daily, weekly, and monthly, etc.). Configure scheduled events using the ACT software.

Optional Telephone Operation (*Model 10959-203 only*)

The Model 10959-203 AMI provides passcode-protected telephone access to the system that allows access only after entering the correct *remote access security code*. The remote access code prevents unwanted callers from directly accessing the system. Callers must enter the correct security code to gain access to the system when configured to use a security code. Day and night modes can have different security codes.

The telephone interface has multiple operational modes. Configure the appropriate mode using the ACT software. The operational modes are:

- **Page/Party**—Delivers live voice pages (not pre-recorded) to the page line output and holds the party line open following the page.
- **Record Page**—Records each page before delivery to the page line output.
- **Mixed Mode**—Records a page, delivers it to the page line output, and holds the party line open following the page.
- **Live Page Mode**—Delivers a live voice page (not pre-recorded) to the page line output. The party line is not open following the page.
- **Ring Mode**—Plays a preconfigured message on the page line to signal an incoming call.
- **Manual/Disabled**—The telephone interface does not automatically answer a phone call. However, an input configured for *manual access* allows an attendant to manually answer the phone and transfer calls to a party line.

NOTE: The party line for telephone operation is hardwired in the system and cannot be changed by the caller or with the AMI configuration tool.

The AMI supports two temporal modes of operation: *day mode* and *night mode*. Configure the day and night modes independently of each other. As an example of different day and night modes; the day mode may be configured to allow callers to page and wait for a subsequent party line communication, while the night mode is configured to play a tone over the paging system, alerting personnel of an incoming call. Answer the call at any Page/Party station in this mode.

Page/Party Operation

Page/Party operation allows the AMI to:

- play messages/alarms
- connect phone calls (see the Optional Telephone Operation section)
- generate a VLC (volume level control) tone during message/alarm broadcasts—signals VLC-equipped Page/Party stations to change the volume of the message/alarm played.
- party hot dial—allows a Page/Party system user to initiate a call.

  Configure party hot dial with the ACT software. The AMI recognizes when a station goes off-hook on the designated party line. The AMI connects that party line to the telephone interface and automatically dials a preprogrammed telephone number. The call terminates, after a *hang-up delay*, after the station is back on-hook.

Optional ADVANCE Operation

Page/Party operation allows an AMI to play messages/alarms and connect phone calls to an ADVANCE system. The operation of the telephone interface includes all page modes (see the Optional Telephone Operation section) when interfacing a Model 10959-203 AMI to an ADVANCE system.

Schedule events and live pages to play through the ADVANCE system to a specified zone group. Configure zone groups using the ACT software and the ADVANCE system configuration software. Assign configured zone groups to individual events, messages, or the AMI auxiliary microphone jack.

NOTE: ADVANCE systems use party lines one and two. This is not changeable by the caller or in the AMI configuration tool.

Refer to the Jumper Settings section when the AMI is used in an ADVANCE system.

Optional Zone Operation

The optional zone interface module allows the AMI to route audio to eight individually controlled zones. Each zone provides a 0 dBm/600-ohm output. Use the ACT software to assign zones to zone groups. Zone groups consist of any combination of zones. Assign zone groups unique descriptions. Create up to a maximum of 60 zone groups. Use the ACT software to assign various events and messages to each zone group. Telephone callers use DTMF signaling to select the zone group prior to making a page.

Optional AMI Redundancy

The optional ARC (AMI redundant controller) increases system reliability by using two AMI units; one as primary, and one as backup. The ARC module(s) control which AMI is active.

During normal alarm operation, input contacts apply simultaneously to both the active and back-up AMIs. The ARC module(s) allow only the active generator to play the tone/speech message over the system speakers. The module holds the backup AMI in standby mode to prevent audio mixing of the two AMI tone/speech messages.

In the event of a failure of the active AMI, the backup AMI becomes active and plays its tone/speech message over the system speakers.

Installation

⚠—**Power Disconnect**—The power cord is the main power disconnect for all units.

⚠—**Disjontion de l'alimentation**—Le cordon d'alimentation est la disjonction d'alimentation principale tous les appareils.

⚠—**Para Desconectar la Alimentación**—El cable de alimentación es el medio principal de desconexión del equipo.

⚠—**Netzanschluß**—Wenn man das Netzkabel aus der Steckdose zieht, dann ist die Spannungszuführung zum Gerät vollkommen unterbrochen.

⚠ **CAUTION** ⚠—To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

⚠ **ATTENTION** ⚠—Pour réduire le risque d'incendie, utiliser uniquement des conducteurs de télécommunications 26 AWG ou de section supérieure.

⚠ **PRECAUCIÓN** ⚠—Para aminorar la posibilidad de incendios, utilice solamente cable de telecomunicaciones de calibre 26 (sistema AWG americano) o mayor.

⚠ **VORSICHT** ⚠—Um die Brandgefahr zu verringern, verwenden Sie bitte nur Fernmeldekabel der Stärke Nr. 26 AWG oder höher.

Open the AMI

Warning: Observe precautions for handling electrostatic sensitive devices.

1. Loosen the four screws on the front cover.
2. Open the enclosure's hinged front cover and turn it to the left. (see Figure 2).

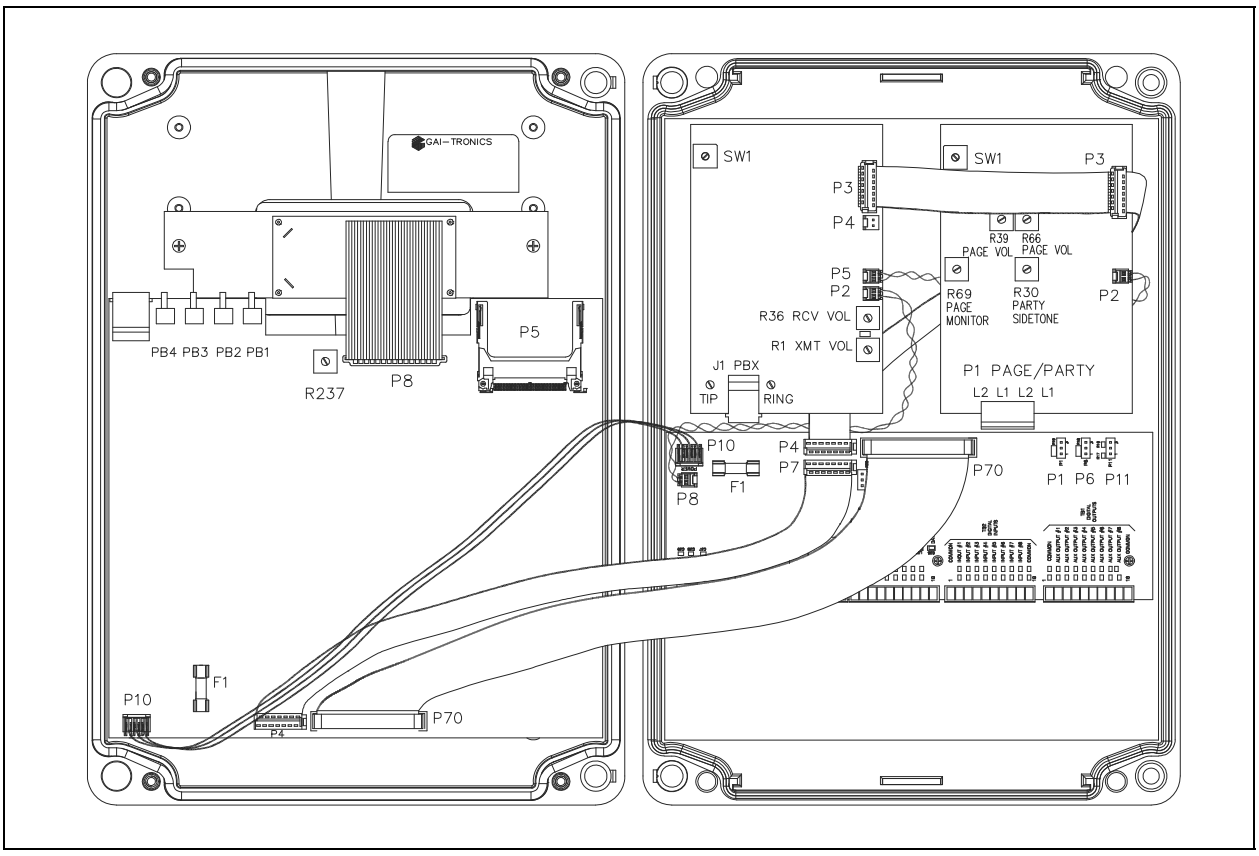


Figure 2. Wiring Connections (Model 10959-203 shown)

Mounting and Cable Entries

1. Remove the cable connections between the front cover and the rear enclosure.
2. Pull the front cover of the enclosure up on the left side of the enclosure until the hinge pins pull loose to separate the front and rear sections. Set the front half of the enclosure aside.
3. Determine the conduit or cable gland location on the rear enclosure.

   The enclosure has drill spots on the top and bottom for use with either a chassis punch or hole saw.
4. Cut or punch the appropriate size hole(s) in the enclosure.
5. Secure the rear enclosure to the wall with screws or appropriate fasteners.

   The enclosure mounting holes are 0.280-inches in diameter.
6. Use Myers™ ST-4 (1.25-inch) Scru-Tite® hubs or equivalent.
   - Use reducers for smaller conduit sizes to ensure proper contact with the supplied grounding plates.
   - Connect hub(s) to the conduit before connecting them to the enclosure.

Field Connections

1. Route all necessary cabling through conduit(s) and into the enclosure.

   Allow adequate cable lengths to reach the terminal blocks.
2. Terminate all field wiring following the instructions in the following subsections.

Digital Inputs

Terminate up to eight digital common ground inputs to terminal block **TB2** (see Table 2), labeled DIGITAL INPUTS, on the termination PCBA (see Figure 3).

- Configure the input contacts for any combination of momentary (pulsed) switches and maintained (latched) switches.
- Use either NO (normally open) or NC (normally closed) dry contacts rated at 5 mA or better.

Tie the ground or dc common terminals of the controlled circuits to the GND terminal on the terminal block.

NOTE: The cable loop resistance connecting the relay/switch contact closures cannot exceed 200 ohms for reliable input operation.

Table 2. Digital Input Termination

Label	Terminal	Function or ACT Description
GND	TB2-1	Ground or dc common
1	TB2-2	Input 1
2	TB2-3	Input 2
3	TB2-4	Input 3
4	TB2-5	Input 4
5	TB2-6	Input 5
6	TB2-7	Input 6
7	TB2-8	Input 7
8	TB2-9	Input 8
GND	TB2-10	Ground or dc common

Digital Outputs

Terminate up to eight digital common ground outputs at terminal block **TB1** (see Table 3), labeled DIGITAL OUTPUTS, on the termination PCBA (see Figure 3).

- The outputs are open collector active low.
- The controlled circuits must use the same voltage that powers the AMI.
- Each output can supply 100 mA maximum current.

Tie the ground or dc common terminals of the controlled circuits to the GND terminal on the terminal block.

Table 3. Digital Output Termination

Label	Terminal	Function or ACT Description
GND	TB1-1	Ground or dc common
1	TB1-2	Output 1
2	TB1-3	Output 2
3	TB1-4	Output 3
4	TB1-5	Output 4
5	TB1-6	Output 5
6	TB1-7	Output 6
7	TB1-8	Output 7
8	TB1-9	Output 8
GND	TB1-10	Ground or dc common

Audio

Connect the audio input, audio output, and local RS-485 data connections to terminal block **TB3**, labeled AUDIO, on the termination PCBA (see Figure 3).

- Audio connections to a public address amplifier require shielded pair conductors.
- Use local data connections with the I/O control module and/or the zone interface module.

Table 4. Audio/RS485 Connections

Label	Terminal	Function or ACT Description
600 OHM L1	TB3-1	page output audio to public address amplifier, ADVANCE system, or zone interface module
600 OHM L2	TB3-2	
AUDBUS2 L1	TB3-3	internal audio bus and ADVANCE, ARC, or party audio from AMI
AUDBUS2 L2	TB3-4	
AUDBUS1 L1	TB3-5	internal audio bus and ADVANCE party audio to AMI
AUDBUS1 L2	TB3-6	
PGND	TB3-7	power supply ground
RS485 INT GND	TB3-8	no connection
RS485 INT −	TB3-9	data/ground connection for I/O control module
RS485 INT +	TB3-10	

System

Terminal block **TB4**, labeled SYSTEM, on the termination PCBA (see Figure 3), provides connections for system applications such as system reboot, fault indicator, and external data communication.

Table 5. System Connections

Label	Terminal	Function or ACT Description
EXT DATA GND	TB4-1	no connection
EXT DATA-	TB4-2	data connection for ADVANCE or external CPU control
EXT DATA+	TB4-3	
FLT	TB4-4	active high signal representing a fault with AMI
REBOOT	TB4-5	momentary active low signal to reboot AMI
GND	TB4-6	ground reference for FLT and REBOOT
AUD ACT 1	TB4-7	isolated SSR—closed during AMI page On resistance = 30 ohms
AUD ACT 2	TB4-8	

Ethernet

The Ethernet connector, jack J1, on the termination PCBA, is reserved for future implementation.

Power

Connect a 12 to 24 V dc power source to terminal block, **TB6**, labeled CLASS 2 12–24 VDC (see Figure 3).

Table 6. Input Power Termination

Label	Terminal	Function or ACT Description
+	TB6-1	positive terminal of external power supply (black wire with white stripe from power supply)
–	TB6-2	negative terminal of external power supply (solid black wire from power supply)
GND	TB6-3	frame ground

Optional PBX Connection (*Model 10959-203 only*)

Terminate the optional PBX connection to the telephone interface PCBA. This jack provides connectivity to a standard PBX analog station port. Connect the telephone cable to the PBX jack with an RJ-11 plug-in connector or screw the wires to the appropriate terminals; tip (green), and ring (red).

Page/Party

Connect a Page/Party system to connector P1, on the PPI (Page/Party interface) PCBA (see Figure 3).

Table 7. Page/Party Termination

Label	Terminal	Function or ACT Description
PARTY L1	P1-1	33-ohm line interface to GAI-TRONICS party line internal 33-ohm termination
PARTY L2	P1-2	
PAGE L1	P1-3	33-ohm line interface to GAI-TRONICS page line external 33-ohm termination required
PAGE L2	P1-4	

NOTE: Pin 1 on this connector is on the right side.

Auxiliary Microphone

Connect an auxiliary microphone to jack J1, on the front panel of the AMI. The pinout for the microphone jack is:

Table 8. Auxiliary Microphone Jack Pinout

Pin	Label	Function
1	HEADSET_RX_AUD	headset receive audio
2	RS232_RXD	RS-232 receive
3	PTT	Push-to-Talk
4	MIC_HI	microphone high
5	MIC_LO	microphone low
6	MONITOR	Monitor
7	RS232_TXD	RS-232 transmit
8	PGND	Ground

Close the AMI

1. Reconnect the front cover to the rear enclosure by pushing the hinge pins on the front cover into the rear enclosure.

   The hinge pins click when fully seated in the front cover.
2. Re-install the cable connections between the front cover and the rear enclosure.
3. Rotate the front cover to close the enclosure.
4. Tighten the four screws on the front cover.

Configuration

Adjustments

Display Brightness

Adjust potentiometer R237, on the main PCBA, to change the brightness of the LCD on the front of the assembly.

Phone Line Levels

Two potentiometers, on the optional telephone interface PCBA (see Figure 3), adjust the telephone audio levels:

- **Volume level from telephone line**—Adjust the receiver volume potentiometer, R36.
- **Volume to telephone line**—Adjust the transmit volume potentiometer, R1.

Party Line Levels

Two potentiometers, on the PPI (Page/Party interface) PCBA (see Figure 3), adjust the party line audio levels:

- **Volume level to party line**—Adjust the party volume potentiometer, R66.
- **Sidetone level from party line**—Adjust the party sidetone potentiometer, R30.

Page Line Levels

Two potentiometers, on the PPI PCBA (see Figure 3), adjust the page line audio levels:

- **Volume level to the page line**—Adjust the page volume potentiometer, R39.
- **Page line audio monitor level**—Adjust the page monitor potentiometer, R69.

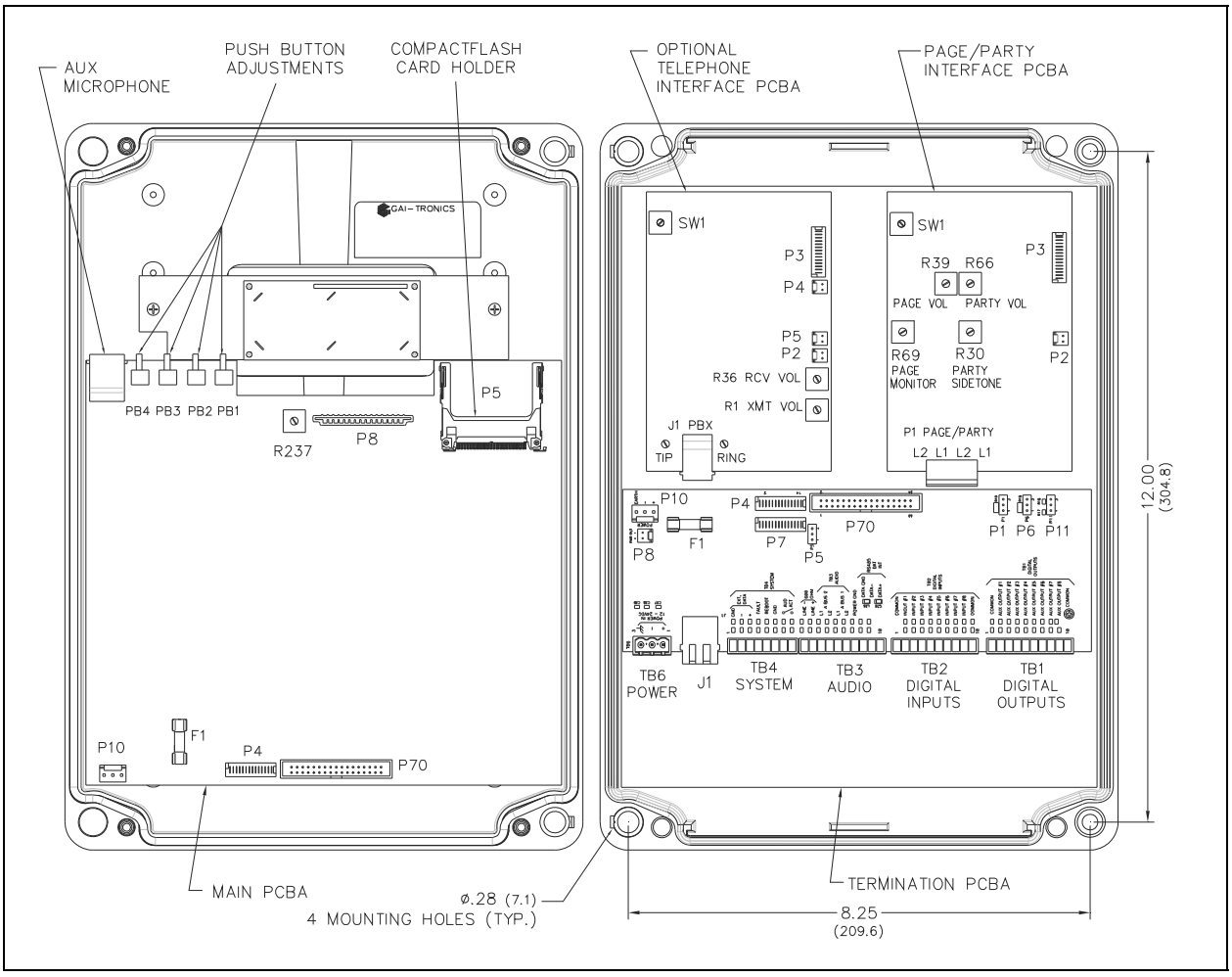


Figure 3. Model 10959-203 AMI (open with connections and adjustments labeled).

Jumper Settings

600-Ohm Line Termination

Terminate the 600-ohm audio lines with 600 ohms for impedance matching. Use jumper P5, located on the termination PCBA (see Figure 4), to enable/disable impedance matching on the 600-ohm audio line connections (see Table 9).

AUDBUS1 Termination

Terminate the AUDBUS1 connection with 600 ohms for impedance matching. Use jumper P1, located on the termination PCBA (see Figure 4), to enable/disable impedance matching on the AUDBUS1 connection (see Table 9).

AUDBUS2 Termination

Terminate the AUDBUS2 connection with 600 ohms for impedance matching. Use jumper P6, located on the termination PCBA (see Figure 4), to enable/disable impedance matching on the AUDBUS2 connection (see Table 9).

Audio Contact Supervision

Configure the audio contact (AUD ACT) as supervised or unsupervised. Use jumper P11, on the termination PCBA (see Figure 4), to configure the audio contact as supervised for use with an ADVANCE cabinet, or as an isolated SSR (solid state relay) contact (see Table 9).

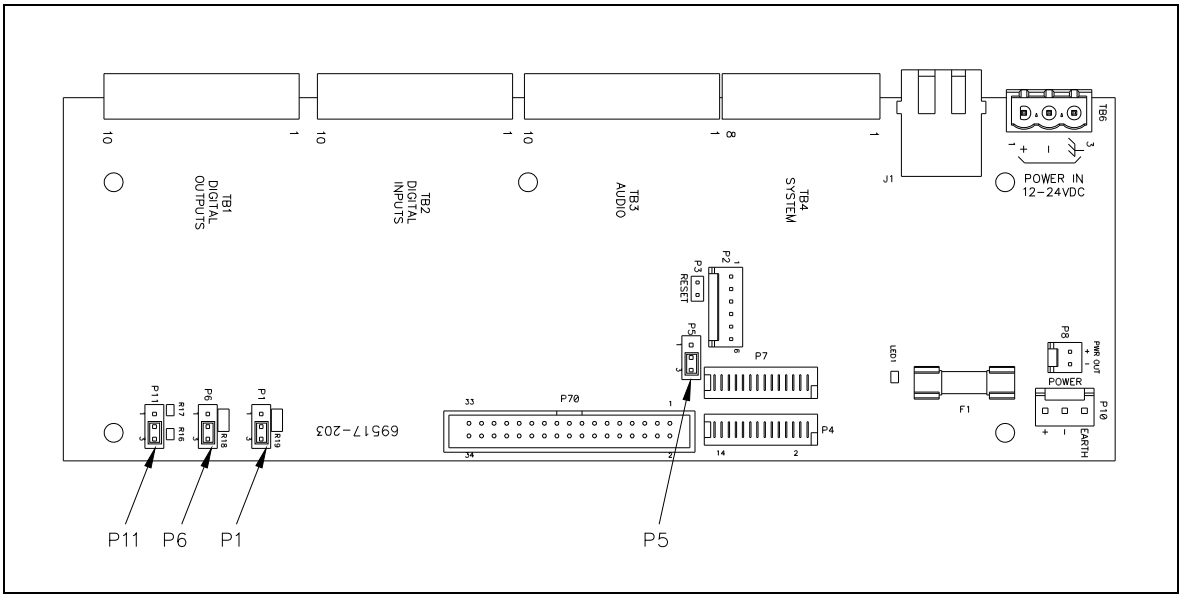


Figure 4. Termination PCBA

Table 9. Termination PCBA Jumper Functions

Jumper	Output	Position	Function
P1	TB3-5, 6 Audio bus 1	1-2	600-ohm resistor connected (ADVANCE position)
		2-3	***default:*** unterminated
P5	TB3-1, 2 600 ohms	1-2	600-ohm resistor connected (ADVANCE position)
		2-3	***default:*** unterminated
P6	TB3-3, 4 Audio bus 2	1-2	600-ohm resistor connected (ADVANCE position)
		2-3	***default:*** unterminated
P11	TB4-7, 8 Audio contact	1-2	Supervision resistor network, 4.7 kilohms in series, 15 kilohms in parallel (ADVANCE position)
		2-3	***default:*** unsupervised

Date and Time Set Up

Date Set Up

Use the push buttons, on the top edge of the main PCBA (see Figure 3), to set the date. Complete the following procedure to set the date:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**SELECT**>, PB3, to scroll to the DATE: display.
3. Press <**ENTER**>, PB4, to enter the DATE set up.
4. Press <**ENTER**>, PB4, to confirm choice.
5. Press <**UP**>, PB1 or <**DOWN**>, PB2 to select the desired day.
6. Press <**SELECT**>, PB3, to scroll to the month.
7. Press <**UP**>, PB1 or <**DOWN**>, PB2 to select the desired month.
8. Press <**SELECT**>, PB3, to scroll to the year.
9. Press <**UP**>, PB1 or <**DOWN**>, PB2 to select the desired year.
10. Press <**ENTER**>, PB4, to accept the DATE setting.

Time Set Up

Use the push buttons, on the top edge of the main PCBA (see Figure 3), to set the time. Complete the following procedure to set the time:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**SELECT**>, PB3, to scroll to the TIME: display.
3. Press <**ENTER**>, PB4, to enter the TIME: set up.
4. Press <**ENTER**>, PB4, to confirm choice.
5. Press <**UP**>, PB1 or <**DOWN**>, PB2 to select the desired hour.
6. Press <**SELECT**>, PB3, to scroll to the minute.
7. Press <**UP**>, PB1 or <**DOWN**>, PB2 to select the desired minute.
8. Press <**ENTER**>, PB4, to accept the TIME: setting.

ACT (AMI Configuration Tool)

Overview

Use the ACT software to define and change configurations for the AMI. All AMI models include the software. The AMI accesses a CompactFlash® card to retrieve configurations and play audio messages. Each AMI ships with a CompactFlash® card pre-programmed with the **AMI Factory Default** configuration.

Please refer to the ACT software online help for specific instructions.

System Requirements

Install the ACT software on a Windows PC (Windows® XP/7/10) equipped with a USB port. Connect a CompactFlash® memory card reader/writer to the USB port. The AMI does not include the CompactFlash® reader/writer.

Configurable Parameters

Fragments

A CompactFlash® card stores all digitally recorded tones and voice messages as audio fragments in MP3 files.

Messages

Each message is a collection of fragments. Define the content of each message by selecting the fragment(s) to incorporate in the message. Other message parameters include:

- message title
- priority
- volume
- play mode and repeat interval

Inputs

Enable or disable input circuits. Program the enabled input circuits with the following parameters:

- title containing a brief text description of the input and its use
- type of switch contact that activates the input (NO, NC)
- action of the switch (maintained, momentary, toggle on/off)
- function of the input (activate a message, reboot, mute, etc.)

Outputs

Enable or disable output circuits. Program the enabled output circuits with the following parameters:

- title containing a brief text description of the output and its use
- mode of operation when active (maintained, flash, momentary, flicker)
- activation assignment from an input or scheduled event

Event Scheduling

Use the event-scheduling feature to set messages to automatically play at certain dates and times. Set the following parameters when scheduling events:

- start and stop times
- start and stop dates
- event duration and intervals

Optional Telephone Interface

Configure the following parameters if using the telephone interface:

- number of rings before answer
- paging mode (live or recorded)
- page delay, if recorded
- maximum page duration
- greeting message played to the caller
- *pre-announcement* tone played to the PA system

Page/Party Interface

Set the following parameters for the Page/Party interface:

- VLC activation
- party hot dial

Optional Zone Groups

Configure zone groups with unique descriptions and assign any combination of the eight available output zones.

CompactFlash®

The CompactFlash® memory card stores the system configuration, speech messages, and alarm tones. Complete the following instructions to install the memory card:

1. Insert the memory card through the rectangular MEMORY CARD slot on the AMI main PCBA with the label on the memory card facing up.
2. Slide the memory card in until it fully seats in the slot.

   When seated properly, the card protrudes approximately ¼-inch from the front of the socket.

   NOTE: The memory card and its socket are keyed for proper insertion—*do not force the card into the socket*.
3. Reboot the system so the AMI unit can read the memory card.

Operation

After programming and installing the CompactFlash® card, the AMI operates from system inputs and outputs or by manual operation.

LCD Power Up Display

The AMI completes a self-diagnostic of its settings during power up. The LCD cycles through the following messages:

- AMI firmware version
- media detected
- DSP firmware version
- configuration version
- configuration file name
- ASM (Zone Interface Module) PCBA firmware version or **ASM not installed**.
- AMI main PCBA firmware version
- telephone interface PCBA firmware version or **Telephone Interface not installed**.
- AMI ready
- boot DSP
- EEPROM firmware version
- progress bar/LOAD CONFIG
- configuration date and time
- HIO (I/O control module) PCBA firmware version or **HIO not installed**.
- Page/Party PCBA firmware version
- telephone interface mode (if telephone interface installed)
- telephone interface greeting file name (if recording a new greeting)
- time, page symbol/date

LCD Operational Display

The LCD displays various symbols to indicate AMI activity:

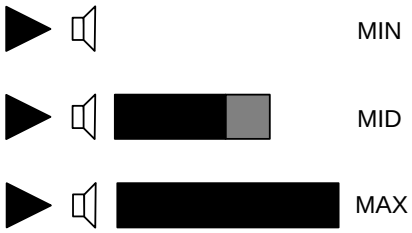
The VU meter indicates the volume of the current page.



Mute indicates muting of the page audio.



A progress bar indicates the time remaining before party line connection timeout.



A telephone handset indicates an active telephone connection to the AMI.



A microphone indicates a page from the auxiliary jack.



Off hook indicates that a digital input designated as party line off hook is active.



Right/left arrows indicate transmit and receive activity on the auxiliary jack or external RS-485.



Text display (scrolling) displays current system status, such as the name of the current message playing, telephone connection status, and party connection status.

Rotating slash, when visible, indicates the AMI has a lower priority message pending, ready to play.



Push-Button Menu Operation

Front panel push buttons provide menu access for various control features including; play a message, stop a message, and firmware update.

Stop Message

Complete this sequence to halt the currently playing message. The button sequence is:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**ENTER**>, PB4, to select the STOP: item.
3. Press <**ENTER**>, PB4, to confirm the selection.

Play Message

Complete this sequence to play a specific message. Messages are in groups by priority (1 through 7). The button sequence allows the user to select a message to play from a specific priority group:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**SELECT**>, PB3, to scroll to the PLAY: item.
3. Press <**ENTER**>, PB4, to enter the PLAY: item.
4. Press <**SELECT**>, PB3, to scroll to the message.
5. Press <**ENTER**>, PB4, to play the selected message.

Update Firmware

Complete this sequence to update the AMI's main PCBA firmware:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**SELECT**>, PB3, to scroll the menu to the FIRMWARE UPDATE: item.
3. Press <**ENTER**>, PB4, to select the FIRMWARE UPDATE: item.
4. Press <**ENTER**>, PB4, to confirm the selection.

Reset AMI

Complete the following menu sequence to restart the AMI:

1. Press <**ENTER**>, PB4, to enter the menu system.
2. Press <**SELECT**>, PB3, to scroll the menu to the SYSTEM REBOOT: item.
3. Press <**ENTER**>, PB4, to select the SYSTEM REboot: item.
4. Press <**ENTER**>, PB4, to confirm the selection.

Return

This sequence returns the system to normal operation mode:

1. Press <**ENTER**>, PB4, to enter the menu system
2. Press <**SELECT**>, PB3, to scroll the menu to the RETURN item
3. Press <**ENTER**>, PB4, to select the RETURN menu item and return to normal operating mode.

Maintenance

Service

Contact a regional service center for assistance if the AMI requires service or spare parts. An RA# (return authorization number) is issued for required service. Ship equipment prepaid to GAI-Tronics with an RA# and a purchase order number. Repairs or a replacement are made in accordance with GAI-Tronics' warranty policy, if the equipment is under warranty. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts. Call 800-492-1212 inside the USA or 610-777-1374 outside the USA for help with identifying nearest regional service center.

Replacement Parts

Table 10. Replacement Parts

Model Number	Description
69517-204	Termination PCBA
69462-001	Telephone Interface PCBA
69463-001	AMI Single-Party Interface
49100-007	CompactFlash® Card (blank)

Specifications

Power Supply

Voltage ..... 12 to 24 V dc (UL listed) Class 2 power source (plug-in 12 V dc power supply included with AMI)
Current ..... 1 A (minimum)
Power consumed ..... 10 W (maximum)

Audio

Speech capacity ..... 500 minutes with 512 MB CompactFlash® card
Scheduled events ..... 29 (maximum)
Frequency response ..... 250–6500 Hz, +0/−3 dB ref. to 1 kHz
Distortion ..... <1% THD @ 1 kHz @ nominal settings

Outputs

600-ohm output ..... 1 V_{RMS} nominal
33-ohm page output ..... 1.5 V_{RMS} nominal
33-ohm party output ..... 1.5 V_{RMS} nominal
Telephone line output ..... −10 dBm nominal

Inputs

Telephone line input ..... −10 dBm nominal
33-ohm party input ..... 1.5 V_{RMS} nominal

Microphone

Type ..... passive input
Input impedance ..... > 2 kΩ
Nominal input level ..... −20 dBm
Input Adjustment Range ..... N/A

Communication

ADVANCE RS-485
Phone line ..... DTMF

I/O Control

Digital outputs ..... open collector
Maximum output sink current ..... 100 mA per output
Maximum output voltage ..... AMI input voltage
Isolated output ..... dry contact or GAI-TRONICS proprietary supervision
Digital inputs ..... open collector or dry contact

Mechanical

Enclosure material ..... high-impact, glass-reinforced polyester, gray
Mounting ..... wall mounting; four 0.28-inch mounting holes
Connections ..... four drill spots for location of conduit
Dimensions ..... 13.00 H × 9.25 W × 4.00 D in; (330 × 235 × 102 mm)
Weight ..... 5 lb (2.27 kg)

Environmental

Temperature range ..... +32 ºF to +122 ºF (0 ºC to +50 ºC)

FCC Information

Complies with CFR47, Part 15 ..... Class A

Approvals

Safety of Information Technology Equipment ..... UL 60950, CAN/CSA-C22.2 No. 60950-00, IEC 60950

Warranty

Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Return Policy

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.